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COLLEGE OF ENGINEERING & TECHNOLOGY
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3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

3.3.3.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years

Findings of DVV:

1) Provide Web-link of research papers by title, author, Department/ School/ Division/ Centre/ Unit/ Cell, name and year of publication.

2) Provide Cover page, content page and first page of the selected publication.

Response of HEI:

1. List of research papers by title, author, Department/ School/ Division/ Centre/ Unit/ Cell, name and year of publication and weblink is provided
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List of research papers by title, author, Department/ School/ Division/ Centre/ Unit/ Cell, name and year of publication and weblink is given table below

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16	Performance Analysis of Hot Water Storage Tank in Solar Water Heating System with Different Insulation Using ANSYS	Dr. Dheeraj. S. Deshmukh , M. V. Kulakarni, Dr. S. P. Shekhawat	Mech	2017	2320-2882
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Chapter 18
Overview of Heat Transfer Augmentation Techniques for Parabolic Solar Concentrator Receiver

Milind S. Patil and Sanjay Pratapsingh Shekhawat

Abstract Solar energy is an alternative to conventional resources of energy. Among the many applications, solar parabolic trough collector is an application that receives heat from the radiation of the sun. Such energy is an alternative way for many rural applications: solar cooker, water pumping, water heating, solar driers, etc. Parabolic trough collector consists of the collector of a paraboloid shape and mounted with the mirrors to reflect and concentrate the solar radiation and focus the same over the receiver/absorber. This heat energy is absorbed by the heat transfer fluid inside the receiver. Such energy also converts water into steam and usually used to drive conventional electrical generators. Receiver heat loss by the mode of convection and radiation is the major cause of lower thermal efficiency. This is why it is essential to study the methods for enhancement of the heat transfer in the parabolic trough receiver. This study focused on the review and feasibility of various heat transfer augmentation techniques for parabolic trough collector receiver/absorber. Study from various publications considers various techniques that are being used by many researchers; this includes use of evacuated receivers, inserts, porous disk, fins, nanofluids, various types of inserts, etc. It is observed that with the use of insert heat transfer augmentation was reported as the highest; however, few of the insert types are yet not used.

Keywords Solar energy · Collector · Receiver · Heat loss

18.1 Introduction

Increase in the continuous demand for energy and depletion of the resources has increased the challenges to explore the more and more new resources. The use of non-conventional energy is an alternative to cater the needs. Presently, there are many

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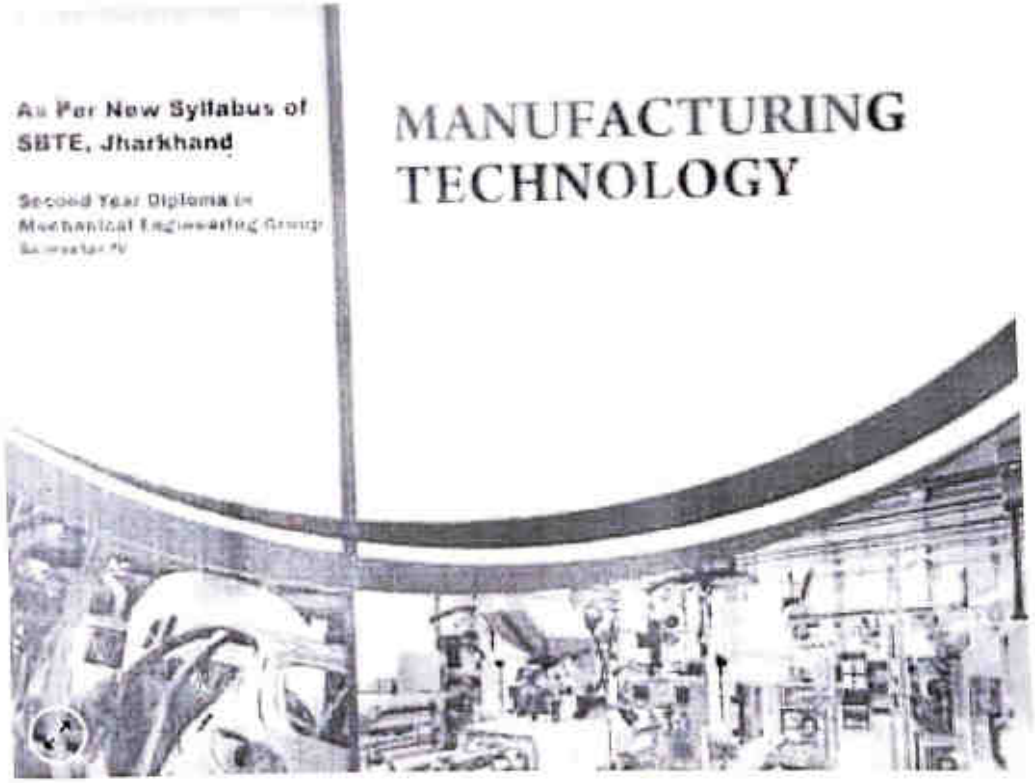

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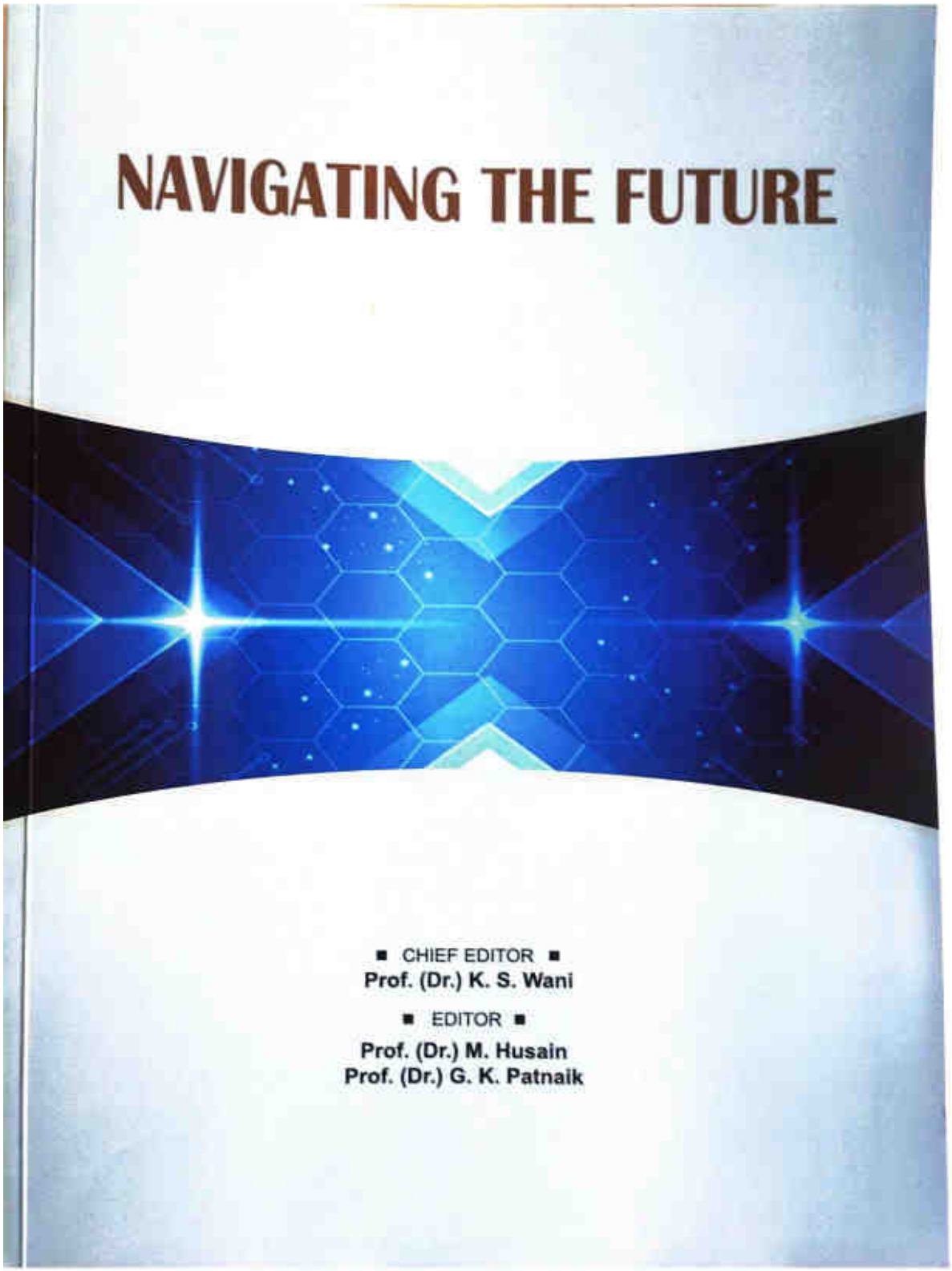
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COMPUTER SCIENCE & ENGINEERING & INFORMATION TECHNOLOGY

ELECTRICAL ENGINEERING

Fermentative Production and Characterization of Actinomycin By *Streptomyces Antibioticus 2123* Using Protein Rich Supplement as A Substrate

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Abstract

*Actinomycin is a clear, yellow liquid administered intravenously and most commonly used in treatment of a variety of cancers. **Actinomycin** is a class of polypeptide antitumor antibiotics isolated from soil bacteria of the genus Streptomyces. It is one of the older anticancer drugs, and has been used for many years. Actinomycin producing strain is Streptomyces antibioticus. Actinomycin is shown to have the ability to inhibit transcription. Actinomycin does this by binding DNA at the transcription initiation complex and preventing elongation of RNA chain by RNA polymerase. Production of actinomycin will be done by submerged fermentation process using protein rich supplement i.e. spent grains and cereals as a substrate, under optimal condition. Fermentation period will be for 5 days at 28°C at pH 6-7 Extraction and purification of actinomycin will be done by solvent process using chloroform, ethyl acetate methanol, etc.*

Keywords: *Actinomycin, antibiotics, Streptomycesantibioticus, anticancer, protein rich supplement.*

Introduction:

Infections are very common and responsible for a large number diseases adversely affecting human health. Most of the infectious diseases are caused by bacteria. Infections caused by bacteria can be prevented, managed and treated through anti-bacterial group of compounds known as antibiotics. Antibiotics can be loosely defined as the variety of substances derived from bacterial sources (microorganisms) that control the growth of or kill other bacteria. However, Synthetic antibiotics, usually chemically related to natural antibiotics, have since been produced that accomplish comparable tasks. In the past 60 years, antibiotics have been critical in the fight against infectious disease caused by bacteria and other microbes. Antimicrobial chemotherapy has been a leading cause for the dramatic rise of average life expectancy in the Twentieth Century. However, disease-causing microbes that have become resistant to antibiotic drug therapy are an increasing public health problem. Wound infections, gonorrhea, tuberculosis, pneumonia, septicemia and childhood ear infections are just a few of the diseases that have become hard to treat with antibiotics. One part of the problem is that bacteria and other microbes that cause infections are remarkably resilient and have developed several ways to resist antibiotics and other antimicrobial drugs. Another part of the problem is due to increasing use, and misuse, of existing antibiotics in human and veterinary medicine and in agriculture. Nowadays, about 70 percent of the bacteria that cause infections in hospitals are resistant to at least one of the drugs most commonly used for treatment. Some organisms are resistant to all approved antibiotics and can only be treated with experimental and potentially toxic drugs. An alarming increase in resistance of bacteria that cause community acquired infections has also been documented, especially in the staphylococci and pneumococci (Streptococcus pneumoniae), which are prevalent causes of disease and mortality. In a recent study, 25% of bacterial pneumonia cases were shown to be resistant to penicillin, and an additional 25% of cases were resistant to more than one antibiotic. Microbial development of resistance, as well as economic incentives, has resulted in research and development in the search for new antibiotics in order to maintain a pool of effective drugs at all times. While the development of resistant strains is inevitable, the slack ways that we administer and use antibiotics has greatly exacerbated the process.Unless antibiotic resistance problems are detected as they emerge, and actions are taken immediately to contain them, society could be faced with previously treatable diseases that have become again untreatable, as in the days before antibiotics were developed.

Actinomycines which are a class of polypeptide antitumor antibiotics isolated from soil bacteria of the genus *Streptomyces*. It is one of the older anticancer drugs, and has been used for many years. Actinomycin is a well-known antibiotic of the actinomycin group that exhibits high antibacterial and antitumor activity. Actinomycin has been widely used in clinical practice since 1954 as an anticancer drug for treating many tumors and it is also a useful tool in biochemistry and molecular biology. There are several mechanisms of its action that are responsible for its cytotoxic and antitumor action, these being associated with DNA functionality, leading to RNA and, consequently, protein synthesis inhibition.

Actinomycin is a chemotherapy drug, which is used to treat certain types of cancer, including:

- Gestational trophoblastic neoplasia

Drug Designing and Molecular Modeling for Alzheimer Disease

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Abstract
Alzheimer's disease is progressive disease disorder that causes brain cells to degenerate and die. This studyhas utilized the computational analysis method to design and model the drugs that are effective against the acetylcholinesterase and amyloid beta peptide. The drugs were designed on the basis of their effectiveness and docking score.
Keywords:*Alzeimer's disease, PDB, ChemSketch, Multiple Sequence Alignment, Docking*

Introduction:

Alzheimer's disease (AD), senile dementia, a primary degenerative dementia, is the most common form of dementia. This incurable, degenerative, and terminal disease was first described by German psychiatrist and neuropathologist Alois Alzheimer in 1906 and was named after him. Alzheimer's disease is a brain disorder that leads to progressive nerve damage. Alzheimer's is characterized by aggregates of toxic proteins called amyloid plaques, and instability of nerve cells leading to structures called neurofibrillary tangles. Alzheimer's disease leads to dementia, an overall decrease in quality of life and eventually leads to death.

Genetics of Alzheimer's disease:

The vast majority of cases of Alzheimer's disease are sporadic, meaning that they are not genetically inherited although some genes may act as risk factors. On the other hand, around 0.1% of the cases are familial forms of autosomal dominant (not sex-linked) inheritance, which usually have an onset before age 65. This form of the disease is known as early onset familial Alzheimer's disease.

Most of autosomal dominant familial AD can be attributed to mutations in one of three genes: amyloid precursor protein (APP) and presenilins 1 and 2. Most mutations in the APP and presenilin genes increase the production of a small protein called Aâ42, which is the main component of senile plaques. Some of the mutations merely alter the ratio between Aâ42 and the other major forms e.g., Aâ40—without increasing Aâ42 levels. This suggests that presenilin mutations can cause disease even if they lower the total amount of Aâ produced and may point to other roles of presenilin or a role for alterations in the function of APP and/or its fragments other than Aâ.

Most cases of Alzheimer's disease do not exhibit autosomal-dominant inheritance and are termed sporadic AD. Nevertheless genetic differences may act as risk factors. The best known genetic risk factor is the inheritance of the â4 allele of the apolipoprotein E (APOE). Between 40 and 80% of people with AD possess at least one apoE4 allele. The APOEâ4 allele increases the risk of the disease by three times in heterozygotes and by 15 times in homozygote. However, it must be noted that this genetic effect is not necessarily purely genetic

Diagnosis of Alzheimer's disease:

PET (positron emission tomography) scan of the brain of a person with AD showing a loss of function in the temporal lobe. Alzheimer's disease is usually diagnosed clinically from the patient history, collateral history from relatives, and clinical observations, based on the presence of characteristic neurological and neuropsychological features and the absence of alternative conditions. Advanced medical imaging with computed tomography (CT) or magnetic resonance imaging (MRI), and with single photon emission computed tomography (SPECT) or positron emission tomography (PET) can be used to help exclude other cerebral pathology or subtypes of dementia Assessment of intellectual functioning including memory testing can further characterize the state of the disease. The diagnosis can be confirmed with very high accuracy post-mortem when brain material is available and can be examined histologically.

Techniques:

Neuropsychological screening tests can help in the diagnosis of AD. In them patients have to copy drawings similar to the one shown in the picture, remember words, read, and subtract serial numbers.Neuropsychological tests such as the mini-mental state examination (MMSE), are widely used to evaluate the cognitive impairments needed for diagnosis. More comprehensive test arrays are necessary for high reliability of results, particularly in the earliest stages of the disease. Neurological examination in early AD will usually provide normal results, except for obvious cognitive impairment, which may not differ from that resulting from other diseases processes, including

Phytochemical Investigation and Antimicrobial Activity of Tridax Procumbence L.

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Abstract

Medicinal herbs have been used comprehensively against various diseases over a long phase of time. Nature has provided abundant plant wealth source which possess various medicinal values. Tridax Procumbens a medicinal herb, commonly known as 'Coat buttons' has been used in medicine since times immemorial. The present study deals with Phytochemical Screening, Mineral, Antioxidant and Antimicrobial activity of leaf extract of Tridax Procumbens. The result of the phytochemical analysis showed the presence of vital secondary metabolites in ethanol extract than aqueous extract which play a role in plant disease resistant mechanism. Herbal plants are the bio-resource of drugs for traditional system of medicine..The phytochemical composition revealed the presence of active ingredients such as steroids, saponins, tannin , flavonoids. Antimicrobial activity of leaf extract was assessed with different solvent used (Chloroform, Ethonol, Ethyl acetate, Methonol). Maximum antimicrobial activity was found in the ethanolic leaf extract of the leaves. The ethanolic extract was compared to some standard antibiotics like. Gentamicin which shows maximum effect on the pathogen than the standard antibiotics. Phytochemical screening and antibacterial activity of acetone and methanol extract of Tridax procumbens L. was studied using agar well diffusion assay on both gram positive and gram negative bacteria, such as a Staphylococcus aureus , E.Coli ,and Pseudomonas, cetrimide, and it was found that its Antimicrobial Activity, blood clot activity is excellent .

Keywords: *Phytochemical activity, Antimicrobial activity, Tridax Procumbence L*

Introduction

Plant are one of five big groups (kingdom) of living things. They are autotropic eukaryotes. The scientific study of plant known as botany has identified about 350,000 extant (living) species of plant medicinal plant have been identified and used throughout human history. Medicinal plant have played a commanding role in them aintance of human health since ancient time. The use of herbal medicine for treatment of bacteria and fungi that cause relateddisease. Medicinal plants are important to the global economy.The pharmacological treatment of disease begain long ago with theuse of herbs. Plants contain active components calledphyto chemical. These are include carotenoids, terpernoids,flavonoid, polyphenols, alkaloids, tannins, enzymes and minerals thathave antimicrobial activity. In vitro analysis of plant extracts antimicrobial drugs discovery. The use of medicinal plants that poses antimicrobial properties can be great significance in therapeutic treatment.And has major role in combating illness presently science hadal ready accepted the several plant derived drugs which arehaving either identified or unidentified chemical structures thatare found to be clinically beneficial various disease. Almost several drugs used today are derived from Natural sources. Many plant extract principally used in traditional.Medicines because they are readily accessible in rural areas andare relatively cheapest than modern medicines.Significantly the therapeutic potential of these plants is studied.They are screened for the presence of antimicrobial activity[1]

Material and Methods:-1. Ethanol 2. Chloroform 3. Ethyl accetat 4. Methanol 5. Reagent for Phyto-chemical test.a) Ninhydrin reagent b) $FeCl_3$ Alkaline reagent d) 10% NaOH Solutione) H_2O_2

Media used for Antimicrobial and antifungal test:-

Nutrient Agar:-

Ingredients	Gram/liter
Peptone	5.000
Sodium	5.00
HM peptone B	1.500
Yeast extract	1.500
Agar	15.000
pH	7.4+_0.2 at 25°c

Macconkeys Agar:-

Extraction and Isolation of Collagen from waste Skin of Fish

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Abstract
Bovine and pig are rich available sources of collagen. Hence it is essential to find alternative sources of collagen. Fish is one of the candidates as such alternative source because fish is unlikely to be associated with prion diseases. Fish skin was collected from the fish market, sins were cleaned from non-collagenous tissue and cut into fine pieces. Then, the skin was dissolved acetic acid. The dissolved collagen was precipitated by using NaC treatment. The total amount of collagen which was extracted from 100g of fish skin was 0.8314g which represented 1.66% from the used skin. The Ninhydrine test obtained positive. However, the extraction methods used in this study should have been adjusted in order to produce collagen of such determined characteristics.
Keywords: *Collagen, Precipitation, Ninhydrine test.*

1. Introduction

Collagen is a major structural protein that forms strengthens the tendons and the resilient sheets that provide support to the skin and to the internal organs of the organisms. It is found in abundant quantity and accounts for 30% of the total body protein. It is considered as the major component of connective tissue, muscle, teeth and skin. Collagen molecular structure consists of three polypeptide à chains twinned together to form triple helix. Tropocollagen or "collagen molecule" is a subunit of larger collagen aggregates such as fibril. Collagen showed good tissue tolerance and having many biomedical applications such as in the dialysis membrane of an artificial kidney an artificial corneal membrane as vitreous body in skin and blood vessels and as a surgical homeostatic agent. It is also used in various industries such as leather and film industries as non biomedical material. Bovine and pigs are generally used as source of collagen in industries. But, collagen derived from these land animals lead into various diseases such as bovine spongiform encephalopathy (BSE) and foot-and-mouth disease (FMD) which resulted in anxiety among the users of collagen and collagen derived products. In addition to that, collagen which is extracted from pigs cannot be used by group of people due to religious reasons (Amit Alexander Charan et al). This necessitate the requirement of an alternative source of collagen. Fish can be utilized as an alternative source because it is unlikely to be associated with prion 2 diseases. Fish skin is considered a waste product in India. It would be more beneficial and economical to use fish skin as a source of collagen **(Ravindra Babu Potti et al 2017).**

Methods and Materials

All the preparative procedures were performed at very cold temperature of about 2 to 4 degree centigrade.. The methods for extraction of collagen from fish skin consisted of the following steps:

Fish skin preparation:

Fish skin was obtained from Jalgaon Fish Market. Mainly the Catla catla fish was preferred for extraction as it is rich in the same. Fish skin is washed with balanced salt solution to remove the stuffs which are not required.Then it is placed at about 0°C.Initially 100 gm. of skin was taken for the extraction. After this it is chopped strictly maintaining the temperature at 0°C.

To remove the non collagenous material and to concentrate collagen, the previously chopped skin is treated with 30% potassium hydroxide followed by hanging it in 70% ethyl alcohol for 3 days. P^{H} must be checked after each step which should be 12.After 3 days the fats totally removed now it is placed in 1ltre of propyl alcohol for about 12 hours. After 12 hours of incubation period the mixture is placed in citric acid solution for 24 hours with stirring it occasionally at 4°c-8°c which converts fibril collagen into collagen and then it is centrifuged at 1000 rpm which precipitates collagen.

Concentration of collagen:

The concentration of extracted collagen was calculated by taking a glass Petri dish and measuring its weight (it was 4.65g). Then, a small amount of extracted collagen was placed on the dish (0.30 ml) and was placed in 30 degree oven till the solution evaporated. After evaporating the solution, the dish was measured again. The difference between the two measurements was the weight of the collagen in that sample which was 0.013g. Finally, the concentration of collagen was measured by dividing the weight of collagen on the volume of the solution.

A Review on: Disinfection of Water using Antimicrobial Performance of Cow Urine and Natural Herbs

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Abstract
Providing safe and pure drinking water to the large section of underprivileged people especially in rural areas in our developing country is a big challenge. There are certain constraints of using advanced water purification technologies in all areas and all sections of society. The more economic and viable solution for the problem can be supplied by using cow urine distillate and natural herb extracts. These materials can serve as water purifying agents due to their remarkable antibacterial characteristics. By taking the advantage of these characteristics, problem of providing safe and pure drinking water to everywhere and everyone can be satisfactorily handled.
Keywords: *Cow urine, natural herbs, antibacterial characteristics, water purification*

Introduction

Drinking water is water intended for human consumption for drinking and cooking purposes, which is available from any source. It includes water (treated or untreated) supplied by any means for human consumption. Clean drinking water free from pathogens is absolutely essential for healthy living of human beings. Fresh and clean drinking water in adequate quantity is the basic need and fundamental right of everyone, who lives on this earth. But still it is not observed in many parts of our country, especially in rural areas. Every year numerous numbers of people lose their valuable life due to various diseases caused by consumption of unhealthy impure water, which contributes in significant loss to the society and economy of our developing country. Apart from specialised and advanced techniques for purification of water which are costly and having limitations regarding adaptability at every place, efficient and cheap newer water treatment and purification methods are being utilized and tried to provide solution for this problem of enormous concerned. Amongst these, use of cow urine and natural herbs including tulsi (*Ocimum sanctum)*, neem (*Azadirachta indica*) etc.is the key to provide solution for preparing safe drinking water and for fighting against impure water born diseases. As lot of literature is available on the subject it is necessary to summarize the efforts taken by the authors to investigate the adaptability of various natural herbs and cow urine in controlling microbial growth of pathogens in water.

Antimicrobial activity of natural herbs and cow urine:

In India it is a old practice to consume cow's urine due to its remarkable antibacterial characteristics and medicinal properties and it improves health of a human being for fighting against the diseases[6] Also cow urine has been used from ancient times to improve the general health of humans due to its outstanding properties apart from the ease of availability and that to almost free of cost. Cow urine is a type of medicine which is used for treatment of various diseases and disorder problems observed in humans[1]

The remarkable antibacterial characteristics of cow urine lie in the chemical constituents of healthy cow urine.

Chemical Constituents of Healthy Cow Urine[2]

Ammonia nitrogen	1-1.7ml/kg/day
Allantoin	20-60ml/kg/day
Calcium	0.1-1.4ml/kg/day
Chloride	0.1-1.1mmol/kg/day
Creatinine	15-20mg/kg/day
Magnesium	3.7mg/kg/day
Potassium	0.08-0.15mmol/kg/day
Sodium	0.2-1.1mmol/kg/day
Sulphate	3-5mg/kg/day
Uric acid	1-4mg/kg/day
Leucocyte	<15micro lt

Not only to human beings, cow urine can be also be useful in controlling diseases amongst the aqua life. R etl. tested cow urine as an antimicrobial agents against selected fish pathogens[3] and found that fresh cow

Extraction of Ginger Oil

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Abstract

In ginger family Ginger (Zingiber officinalis Roscoe) is one of the used very much. Different foods and beverages use ginger. In old days ginger was used for pharmaceutical preparations. Fresh ginger is used due to its aroma and pungency. Ginger essential oil has its applications in pharmaceutical, food processing industries etc.

Ginger essential oil can be extracted using both the ways i.e natural as well as chemical. In natural process, water was used as a solvent for extraction. So it gives high purity product but needs much time for extraction and also has much expense. These disadvantages of natural process are neglected in chemical ways i.e soxhlet extraction, ultrasonic assisted extraction, autoclave agitator etc.

Ginger oil can be extracted by different solvents such as dichloromethane, benzene, methanol, acetone, ethanol etc. Optimal extraction conditions: at temp 90°c, at a 60 min extraction time. This study applied that acetone is better solvent and soxhlet extraction is better method to determine optimum extraction conditions for fresh ginger to produce a high yield of ginger oil. This study also indicates that acetone is the best solvent to produce the higher quality ginger oil. The ginger oil was analysed by HPLC unit to know its quality. Reaction time, extraction temperature, and effect of solvents were studied in extraction process. As per experimental work Soxhlet extraction appears to be better method for extraction than other methods. High efficiency, simple process, thermal stability and less energy requirement makes the Soxhlet extraction popular process

Keywords: *Ginger, extraction, essential oil*

Introduction

Ginger root is the root of Ginger. This is widely used as a spice or a medicine. The height of the ginger plant is one meter tall .Ginger comes from tropical rainforest from Southern Asia. Indian ginger plants have the highest genetic difference. in the first century AD as a Due to profitable spice trade ginger was exported to Europe through India.

Due to the presence of volatile oils ginger has peculiar fragrance and flavor. The constituents of raw ginger are water, carbohydrates, protein, and fat (table). Raw ginger provides energy and vitamin B6,magnesium and manganese. Jamaica and India produce the best quality ginger. Majority of total ginger production is by Kerala state, followed by Assam, Andhra Pradesh, Himachal Pradesh, West Bengal and Sikkim. Ginger, being a major spice, has many uses in food, flavouring and medicinal products.

Various products best varieties are as shown below in the table 1

Varieties	
High dry ginger	Nadia
High oleoresin	, China
High volatile oil	Himachal
Green ginger	Wynad Local

Table1: Classification of varieties of ginger

There are two types of ginger exported by India first is whole ginger and second is dry ginger. Dry ginger is very good market in the world. India has tough competition from countries like China, Nigeria.

Table 2 depicts the information about the production of ginger according to different states and their respective cities.

States	Districts
Kerala	Wayand, Palakkadu, Idukki, Alappuzha
Arunachal Pradesh	Upper Siang,East Siang,Tirap,Lohit
Assam	Berpeta,Kamrup,Darrang,Sonitpur,N.C. Hills,Karbi Anglong
Meghalaya	West Garo Hills, East Garo Hills
Orissa	Koraput, Kondhamal
Sikkim	East district and South district

Table 2:Production of ginger according to different states

Caffeine Extraction from Coffee Husk

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Abstract

Coffee husk is the major source for extraction of caffeine. The purpose of this study was to investigate Extraction of caffeine from coffee husk using Dichloromethane as extraction solvent. Experimental studies were performed with coffee husk. The raw materials were procured from coffee suppliers. It was grinded, sieved and dried at 100°C temperature using oven. Studies were carried out using Dichloromethane and sodium carbonate. HPLC was used as qualitative test for extracted caffeine.

Keywords: *caffeine, coffee husk, extraction*

Introducation

Coffee beans and tea leaves contain Caffeine. When ingested, caffeine is toxic to humans, animals and insects. Various side effects are observed by human beings[2-3]. Hence it is necessary to remove caffeine from coffee.[1]

Figure1: Caffeine

Caffeine is a powerful natural stimulator which is used for increase of endurance and physical force during training; It belongs to the class of no tropic substance as it increases sensitivity of neurons and stimulates mental facilities. From numerous bioactive complex and separate substance of plants, causing different pharmacology action, important are alkaloids, and from them- Purina connections the main representative of which is caffeine (1, 3, 7-triethyxanthenes). At systematic use of caffeine the risk of development of cirrhosis and cancer of a liver decrease[3-4].

World consumption of caffeine is estimated at 120000 tons per year that makes it the most popular psychoactive agent in the world.

Caffeine production is done from coffee by extraction process. [5]The process of extraction includes three consecutive stages i.e mixture of initial mix of substance with an extraction, method division (stratifying) of two formed phases, removal of then extracting from both phases and its regeneration for the purpose of repeated use. After mechanical division is obtained solution of the extracted substance in the extracting and the rest of initial solution (caffeinate) or strong substance. Allocation of the extracted substance from the extract and at same time regeneration of the extractant is made by distillation, evaporation, and by other methods.

Different Methods for Extraction of Caffeine

Because caffeine is polar and water-soluble removal of caffeine is easy from coffee husk. The most admired methods for extraction of caffeine coffee today are, Swiss Water Processing, Ethyl Acetate Processing, Methylene Chloride Processing and Supercritical Carbon Dioxide Processing.

Swiss Water Processing: In this method caffeine is extracted with the help of simple diffusion.

Ethyl Acetate Processing: Ethyl Acetate is used in this method to extract caffeine.This method decaffeinates the coffee beans by approximately 97%.

Methylene Chloride Processing: Methylene chloride is used for extraction of caffeine. In this method from the processed coffee beans 97% caffeine is removed.

Supercritical Carbon Dioxide Processing: Carbon dioxide supercritical fluid (temperature above 31.1 (and pressure above 73 atm) is used for extraction of caffeine [19-20]

A Study on Adsorption and Nanofiltration Membrane Technology for Treatment of Pharmaceutical Wastewater

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Abstract:
The study of adsorption, nanofiltration membrane has been investigated in this paper. For this purpose, pharmaceutical wastewater was collected from Chintamani Industries, Akola where Isometamidium chloride is a main product which is used as veterinary medicine for treatment of Trypanosomes congolense infection. Adsorption is carried out with Granular Activated Carbon as adsorbent for color removal and NF membrane system including a polyamide spiral wound membrane was evaluated for the treatment of pharmaceutical wastewater. The effect of dosage of adsorbent and the effect of time exposure on the color removal is studied in case of adsorption technology. The effects of operating condition such as, flow rate, pressure and COD in feed, on the efficiency of membrane were evaluated.

Keywords: *Adsorption, Nanofiltration, Rejection, Isometamidium Chloride*

Introduction:

The international pharmaceutical market is huge and India is currently the third largest pharmaceutical market in the world, in terms of production volume. Pharmaceutical products typically produced in batch process leading to the large extent of wastewater, containing variety of compounds in it and pharmaceutical wastewater is characterized by high COD concentration and some pharmaceutical wastewaters can have COD as high as 80,000mg/L. These compounds have been detected in sewage, surface water, groundwater and potable water, will have adverse effect on the environment. Due to the continuous exposure and potential accumulation along the food chain, effects on aquatic life and humans. In consideration with the scarcity of water it is necessary to understand and develop methodologies for treatment of pharmaceutical wastewater. The purpose of the current work is to reuse the water after the treatment of pharmaceutical wastewater. [1]

The characterization of the raw wastewater is essential in the planning for effective and economical methods of water pollution control. Due to the varying nature of the industrial wastes, many of the recent installations have designed their treatment units with due consideration to the raw wastewater characteristics, and the effluent characteristics, as established by the Indian Standards Institution (ISI), Central Pollution Control Boards (CPCB), or by the local administrative authorities.[2-8]

Physical and chemical treatment methods are not suitable for the removal of large quantities of pharmaceutically active compounds (PhACs) from wastewater. Efficient removal of the polar PhACs can only be ensured using more advanced methods such as ozonation, advanced oxidation processes (AOP), activated carbon, or membrane filtration. However, high cost of equipment and maintenance, as well as energy supply is of disadvantages of the ozonation technique. Capital intensive required to quenching of excess peroxide for some applications rejects the use of AOP. [9-14]

A lot of economic benefit can be realized by using adsorption, reverse osmosis, nanofiltration, and ultrafiltration. A membrane technology such as nanofiltration is the most recent developed pressure driven membrane separation process, and its applications have been increasing rapidly in the past decade. NF seems to be an efficient technique for removal of antibiotics from pharmaceutical wastewater. This research was conducted to remove color of wastewater due to the presence of Isometamidium chloride in the pharmaceutical wastewater collected from Isometamidium chloride manufacturing industries. [15-17]

Environmental hazard by pharmaceutical industries

- Pharmaceutical waste is toxic in nature -damage is caused to the environment.
- It is carcinogenic- contribute to the cause of cancer.
- It is persistent- remain dangerous for a long time.
- It is Bio-accumulative- accumulates as it makes its way up the food chain.
- Disastrous due to a catastrophe, mishap, calamity or grave occurrence in any area. [2-3]

Production of Biodiesel from Waste Cooking Oil

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Abstract
Biodiesel has potential to reduce our dependence on petroleum, but is not widely used due to its high cost. Used cooking oil is harmful to health, and is not environmental friendly to dispose. The best solution is to use it for industrial purposesand for producing biodiesel. Waste cooking soyabeanoil was collected from college mess and used to produce biodiesel through processes such as esterification andtransesterificationprocess. The biodiesel produced was tested for parameters such as physical appearance, flash point, cloud point, ignition point and various characteristics which were found in accordance with the characteristics of commercial diesel.Apart from the production of biodiesel from waste cooking oil ,the other advantage is that it has significantly helped to preserve environment and decreases the dependence on natural sources.

Keywords: *Waste cooking oil biodiesel, esterification, transesterification*

Introduction:

Majority of worlds energy needs are supplied through fossil sources such as petroleum, coal and natural gas. However, the limited reserve of fossil fuel has drawn the attention for alternative fuel [1]. The energy demand is continuously increasing, so there is an urgent need to find alternative solution to meet this growing demand and is used as an alternative fuel. An alternative fuel for diesel engines has drawn significant attention increasing attributable to environmental concerns. The diesel fuel can be termed as biodiesel. Biodiesel is the monoalkyl esters of vegetable oils or animal fats. Biodiesel is the best alternative for diesel fuels in diesel engines. It burns as petroleum diesel as it also involves regulated pollutants [2].

Biodiesel represents a strategic source of energy. If the cost of biodiesel is greater than petroleum diesel, many governments sustain biodiesel production [3]. Biodiesel or Methyl ester is renewable, biodegradable, non-toxic and significantly free of aromatics and the sulfur content in biodiesel is negligible, so the environmental damage caused by sulphuric acid is reduced. It is environmentally safe, biodegradable and is increasingly important to control air pollution. Biodiesel has low emission profiles as compared to petroleum diesel. Biodiesel is a diesel engine fuel comprised of monoalkyl esters of long-chain fatty acids derived from biological sources such as vegetable oils (edible and non edible oil) or animal fats [4]. The main feedstock of biodiesel production can be any vegetable oil, non-edible oil (Jatropha oil etc.), waste cooking oil, waste frying oil, beef tallow etc [5]. The feedstock contains less amount of free fatty acid (<5%), do not require pretreatment. Alkali catalystwas used for preparation of biodiesel. If high content free fatty acid of feedstock (>5%), then oil catalyzed by alkaline catalyst and that makes soap formation. The separation of the two phases such as methyl ester and glycerol will be more difficult. Hence, esterification process carried out to reduce free fatty acid (FFA) level in oil [6]. The most commonly used method for biodiesel production is via transesterification of vegetable oil using basecatalysts [7].

Biodiesel [8] can be used as an alternative fuel to petroleum diesel and it has following reasons as follows:

1. It increases the country's independence on petroleum.
2. Owing to closed carbon cycle, biodiesel is renewable and does not contribute to global warming.
3. The exhaust emissions of carbon monoxide, unburned hydrocarbon and particulate emissions from regular diesel fuel are higher than with biodiesel.
4. Regular diesel fuel can convert fuel with poor lubricating properties, such as low sulfur diesel fuel, into an acceptable fuel.

Waste Cooking Oil (WCO)

Biodiesel obtained from wastecooking oils is best alternative for diesel engines because of the depleting oil reserves and the environmental pollution caused by them. Use of waste cooking oil helps improve the biodiesel economics [9].Replacement of vegetable oil, waste cooking oil can be used as a feedstock for methyl ester preparation. In food industries and most of restaurantswastecooking oils is discharged into the river or dumped into the land. The preparation of biodiesel from waste cooking oil is one of the best option by protecting the environment[10]. Waste Cooking Oil (WCO)is easily available from market that affects on biodiesel cost. Using esterification, biodiesel was prepared with the help of acid catalyst, its completely depends on FFA level in oil.Methanol is the most preferable

Treatment of Industrial Wastewater by Combination of Fenton Processand Biological Treatment

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Abstract

In the present study, the treatment of wastewater by combined primary chemical treatment and biological treatment was investigated. The wastewater was considered non-biodegradable as it contained significant amount of organic components whose degradation was not possible by conventional biological treatment system. The characteristics of the wastewater have shown to contain high COD (22080 mg/L) and BOD (4200 mg/L) and the biodegradability of wastewater measured, as BOD/COD ratio was 0.19. In order to enhance the biodegradability of the wastewater, primary chemical treatment (coagulation & flocculation and Fenton process) applied to the wastewater as a pretreatment step to biological degradation. The influence of the reaction parameters such as different dosage of coagulant (10% alum, 10 % $FeCl_3$ and 10 % of $FeSO_4$)for coagulation & flocculation treatment for 60 minute treatment time, also different dosage of H_2O_2 (50 mg/L to 3000 mg/L) and $FeSO_4$ (20 mg/L to 1800 mg/L) for Fenton treatment for 2 hours treatment time. The % of COD reduction and % of BOD reduction of 49.14 % and 38.21 % was observed in 30 minute primary chemical treatment (coagulation & flocculation) time at 200 mg/L of 10 % alum + 2 mg/L of 0.1 poly electrolyte after 2 hours settling. The biodegradability of wastewater has enhanced from 0.19 to 0.23 (measured as BOD/ COD ratio) after 30 minute coagulation & flocculation treatment time + 2 hours settling time. The combined primary chemical treatment (coagulation & flocculation) and biological treatment of wastewater has resulted88.15 % of COD reduction and 91.34 % of BOD reduction.The % of COD reduction and % of BOD reduction of 89.99 % and 66.19 % was observed in 2 hours primary chemical treatment (Fenton process) time at 2000 mg/L of H_2O_2 + 1800 mg/L of $FeSO_4$ + 2 mg/L of 0.1 poly electrolyte after 2 hours settling. The biodegradability of wastewater has enhanced from 0.19 to 0.64 (measured as BOD/ COD ratio) after 2 hours Fenton treatment time + 2 hours settling time. The combined primary chemical treatment (Fenton process) and biological treatment of wastewater has resulted98.89 % of COD reduction and 98.64 % of BOD reduction. The combination of primary chemical treatment (Fenton process) and biological treatment matched quality of treated wastewater parameter as per guidelines of Central Pollution Control Board i.e. COD = <250 mg/L and BOD = <100 Mg/L.

Keywords:- *Coagulation, Flocculation,Fenton Process, Biological Treatment,Biodegradability, Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD), Total suspended solids (TSS).*

1. Introduction

Due to increasing awareness about the environment and more stringent environmental rule and regulations, treatment of industrial wastewater has always been a key aspect of research. Much work has been done in developing and testing newer techniques and their combinations for wastewater treatment either individually or as a supplementary role to the conventional methods.

Contamination of soil, ground water, surface water and air with hazardous and toxic chemicals is one of the major difficulties faced by the industrialized world today. The need to remediate contaminated areas has led to the development of new technologies that emphasizes the destruction of pollutants rather than the conventional approach to disposal. Biological processes do not always give satisfactory results especially when applied to the treatment of industrial wastewater because many organic substances produced by the chemical and other related industries are inhibitory, toxic or resistant to biological treatment. Therefore, integration of chemical and biological processes can provide best alternative wastewater treatment options in purifying wastewaters that are not readily biodegradable. An efficient integrated chemical/biological process should consist of a brief chemical pretreatment step to convert initially bio resistant compounds to more readily biodegradable compounds followed by a subsequent biological process.

Advanced oxidation processes increasingly gain importance in wastewater reclamation. They offer a useful alternative for the treatment of effluents with a high organic matter. The system Fenton treatment has attracted much attention due to its high efficiency in the oxidation of a variety of organic compounds *(Carneiro, E., et al., 2006)*. Fenton oxidation is a process, which is based on the generation of hydroxyl radicals, which are highly reactive oxidants*(Xiang-Juan Ma, et al., 2009)*. The hydroxyl radicals have been extremely effective in the destruction of organic chemicals and they are non-selective *(Canizares, P., et al., 2007)*.

Sustainability of Highway Project during Construction and Operation for Protection Environment - NH-6 in Khandesh Region

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ABSTRACT

Environmental pollution is currently the biggest challenge facing the world today. Over the years, environmental issues have gained a lot of public attention. People have become more aware that the consumption of products & the services rendered have an impact at each stage to the natural resources. Due to the increasing awareness, public and private sectors have started taking a keen interest in reducing the adverse effects, and in evolving methods for prevention of these impacts. In particular, sustainable development is becoming the goal for all countries. There are many sources of pollution and each one has its own effect on the environment and living organisms. The study of sustainability of project is must to have the knowledge about short-term, medium and long term effects of roads/highways on the environment must be enhanced. Environment and social issues need to be addressed as integral parts of project planning and implementation rather than an isolated studies and future studies should focus on achieving long-term environmental, social & economic sustainability. This article will discuss the environmental impact of the different kinds of pollution with special reference to NH-6 in Khandesh Region.

Keywords: Environmental Impact, Sustainability Pollution, Awareness.

1. Introduction

Development of adequate and efficient infrastructure has been recognized as a key to economic development the country. The national highway is the main component of infrastructure. The developments of national highways are likely to have adverse impacts on environment if these are not planned properly and the required safeguard measures are not built during their construction phase. The development process of highways will be sustainable only able to deliver its benefits to the public if environment considerations and rational utilization of resources are integrated into projects right from the initial stage of planning to construction, operation & maintenance. The infrastructure developments such as roads and highways play a synergistic role in the socio-economic development of a country. Inadequacy of road infrastructure is realized to be the inhibiting factor for faster development of our economy.

Environmental impact assessment (EIA) can be defined as the systematic identification and evaluation of the potential impacts (effects) of proposed projects, plans, programs, or legislative actions, relative to the physical-chemical, biological, cultural, and socioeconomic components of the environment. The following should be considered in evaluating the severity of the impact. a. Impacts that may be both beneficial and adverse (A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial) b. The degree to which the proposed action affects public health or safety c. Unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas d. The degree to which the effects on the quality of the human environment are likely to be controversial.

Environmental impact assessment (EIA) is a complex issue as it seeks to determine the basic components responsible for the overall environmental burden of the project/activity so as to plan suitable measures to mitigate these impacts. The evaluation of impact significance is considered as one of the most difficult, critical and vital element of the process. There are many tools and techniques that have facilitated the impact assessment process such as scoping, checklists, matrices, qualitative and quantitative models, literature reviews and decision support systems [3,4]. There is also a vast multicriteria decision-making literature, which deals with EIA problems and the application of multicriteria assessment (MCA) methods to support complex environmen-tal decision making has gained great interest in the last decades [5-7].

Therefore, in the coming ten years the road development programs in India is likely to proceed at a fast pace. Road development can have wide ranging environmental impacts compared to many other development projects. This is because roads extend over long distance and by promoting rapid communication they can cause dramatic changes in land use patterns. Direct impacts of road projects can often be significantly reduced through the application of environmentally sound construction and operation management practices. In order to achieve the basic conditions to be fulfilled are firstly, a knowledgeable construction and operation management team which is sensitive to environmental issues and secondly, an enabling environmental where government agencies, planners and regulatory authorities encourage sound resource use. Sustainability is defined by the United States Environmental Protection Agency (USEPA) as "the ability to continue achieving economic prosperity while protecting the natural

Coconut Husk - As an Adsorbent For Removal of Non Soluble Component From Wastewater

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Abstract

The research work has been undertaken to find out the effect of various parameters on adsorption of organic and inorganic waste component from waste water stream by utilizing coconut husk as an adsorbent, to remove the suspended solid from sullage water. The amount of adsorption of susupended solids (organic and inorganic) from aqueous medium by coconut husk at different parameter with different level was studied. The retention time of effluent, pH and the concentration of adsorbent on adsorption was investigated. This method showed that the total amount of SS (susupended solid) reduction is about 45% with the help of coconut husk. The adsorption capacity of coconut husk were dependent on the contact time of waste water with coconut husk and the pH of the solution was 2 hours of contact time and pH of 3 it is maximum respectively. It is also proved that the adsorption of waste component is directly proportional to the dosage of adsorbent. Hence it is proved that the adsorption with the help of coconut husk will improve with different parameters.

Keywords *– Coconut husk, Adsorption, suspended soils, effluent.*

Introducation

In 21 century's India, there are around 50,000 and more electroplating plants mostly scattered in metropolitan cities [1] and about 79 electroplating industries located in Karnataka state only, out of which 71 industries are covered around Bangalore territory only [2]. These plants discharges toxic, poisonous waste containing heavy metals around 78,000kg/annum which adversely affect environment, especially humans, animals, plants, and aquatic life [2]. When waste water containing hazardous material flowing over the surface of the fertile land, it reduces the fertility of soil. Many researchers have identified the low cost adsorbent like saw dust [3], rice husk [4], coir pith, coconut shell, waste tea powder, coconut husk [6], sugar cane bagasse [7] and others, to treat the waste water (residential, industrial etc.)

Therefore, it is important to identify an adsorbent material like coconut husk for removal of heavy metals, non soluble oraganic in inorganic component from waste water stream, which is having advantages of removing pollutants from effluents effectively and do not have much adverse impact on environment when disposed after treatment. The main objective of the experiment is to find out the most suitable condition to improve the efficiency of the of coconut husk and To remove the impurities from waste water using low cost and locally available adsorbent material and alternative treatment method.

Most of the researchers have been working on the production of most suitable adsorbent from agricultural waste materials for removal of various impurities from the waste water. A number of research papers have been reported in the literature the different methods to construct the most efficient adsorbent. A few related to the present theme include e, sugarcane buggasse modified chemically as an efficient low-cost biosorbent for dye removal [8], removal of colour of molasses waste water with the help of carbon prepared from cane bagasse (9), preparing or devolping the activated carbons from coconut shell with phosphoric acid (10), removal of dye colour from textile waste water using sawdust prepared from hardwood as an adsorbent (11), adsorption of methylene blue on bamboo-based activated carbon: Kinetics and equilibrium studies (12)

EXPERIMENTAL SECTION

2.1. Preparation of coconut husk

Coconut husk was prepared by treating coconut husk with distilled water to remove dust particle then left it in an open atmosphere to dry. The carbonized material was washed with distilled water to remove free acid and dried it [13, 14].

2.2. Source of waste water

SSBT's, COET, Bambhori, Jalgaon, college hostel, professor quarter, and administrative building sullage water

2.3. Preparation of adsorbate medium

Primarily all coconut husk arrange in layer wise manage to prepare the adsorbent medium, allow the waste water to flow through the medium under the gravitational force. While preparing the coconut husk layer some coarse aggregate is also added in to the mixture to attain the stability of medium.

Utilization of plastic waste for theconstruction flexible pavement

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Abstract
Plastics are not biodegradable materials and so a means to degrade our environment. Plastic waste is a big nuisance in today's world. So, this plastic waste should be reused to eliminate the threat to the surroundings. The plastic waste can be used in road construction and the field tests withstood the stress and proved processing and additives would enhance the lifespan of the roads and also solve environmental problems.Plastic waste which is cleaned is cut into a size such that it can pass through 2-3mm sieve using shredding machine. This plastic waste is mixed with aggregate and the result mix is used for construction. The durability of roads laid out with shredded plastic waste is much more compared with ordinary roads. Plastic roads have proved to offer better resistance to abrasion and wear and tear. More over the bond between plastic mix with aggregate. Plastic road would be a boon for India's hot and extremely humid climate, where temperatures frequently cross 50 degree Celsius and torrential rains create havoc, leaving most of the roads with big potholes. In our research work we have done a thorough study on a methodology of using plastic waste in bituminous mixes and presented the various tests performed on aggregate.
Keywords *–Waste plastic, bitumen, plastic road, strength.*

Introduction:

Plastic is most widely used material in the present times. It is light in weight, moisture resistant flexible and very inexpensive. [3] With the increase in road traffic more demands are placed on pavements, and thus the structural and functional performance of road pavements needs to be improved. One method that can greatly improve the quality of the flexible pavements is the addition of Plastic .[6] Today, every vital sector of the economy starting from agriculture to packaging, automobile, electronics, electrical, building construction, communication sectors has been virtually revolutionized by the applications of plastics.[2] The waste plastic can be used for diesel production. Plastic waste is major problem faced by developing countries because of chemical nature of plastic and amount of plastic which is used and then dumped. This plastic can be used with road construction material to strengthen the road. This can solve the problem of the plastic disposal and road development. [4] The use of waste plastic for coating the aggregates of the bituminous mix found to improve its performance characteristics. The use of plastic waste helps in substantially improving the abrasion and slip resistance of flexible pavement. [5]

On the other hand, the volume of road traffic is increasing and demands a corresponding increment in the load bearing capacities of the road and its service life span. It has been proven possible to improve the performance of bituminous mixes used in the surfacing course of road pavements, with the help of various types of additives or modifiers to bitumen such as polymers, rubber latex, crumb rubber, etc.[6]

According to recent studies, plastics can stay unchanged for as long as 4500 years on earth with increase in the global population and the rising demand for food and other essentials, there has been a rise in the amount of waste being generated daily by each household. Plastic in different forms is found to be almost 5% in municipal solid waste, Use of plastic along with the bitumen in construction of roads not only increases its life and smoothness but also makes.[10] It economically sound and environment friendly. Plastic waste is used as modifier of bitumen to improve some of bitumen properties Roads that are constructed using plastic waste are known as Plastic Roads and are found to perform better compared to those constructed with conventional bitumen. [7]Use of plastic along with the bitumen in construction of roads not only increases its life and smoothness but also makes it economically sound and environment friendly.[11] Plastic waste is used as modifier of bitumen to improve some of bitumen properties Roads that are constructed using plastic waste are known as Plastic Roads and are found to perform better compared to those constructed with conventional bitumen.[9] If a ban is put on the use of plastics on emotional grounds, the real cost would be much higher, the in convenience much more, the chances of damage or contamination much greate. Hence the question is not" plastic and no plastic" but it is more concerned with the judicious use and re-use of plastic-waste. Both the issues when taken together lead to a single solution that we can use this waste plastic in Flexible Pavements in such a manner that it gets coated over the surface of aggregate by heating (140ÛC - 160ÛC) because plastics like PE, PP used in PET Bottles, disposal glasses, handbags, covers of various appliances etc. soften up to 160ÛC. The experiments conducted in the laboratory depict fruitful results can substantially increase the

Waste Water Treatment

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Abstract

This paper presents a domestic waste water treatment process by using water hyacinth plant. There are various absorption by the roots of water hyacinth plant from 0th day to 20th day of the sample .Day by day we observed the purifying the level is increases by water hyacinth plant. plant provide positive impact on that sample these result concluded by the test taken on that sample such as DO, BOD, COD, pH. Waste water sample can be used again by this process.

Keywords- *COD, BOD, Sullage waste water, Dissolve oxygen.*

Introducation

Domestic waste water treatment is now an extremely mature technology from the pointof view of human health and environmental impact. At present there are growing issue of water environment including water shortage water pollution and degradation of water resources worldwide [1]. This situation is becoming more series due to the combined effect of worsening environmentally unfriendly activity and large population especially in developing countries[2].Waste water treatment plants are considered important sources of gaseous emissions including green house gases have been accumulated in the field of domestic sewage treatment[3].In recent development of economy , the increasing deterioration of water environments have already impaired people s health's and economies sustainable development[3].

The pollutants can be further transformed into by products according to their reactivity with the chemical liated[4]. The process of waste water treatment are influenced by directly and indirectly temperature different loading rates and operations strategies[5]. The waste water is firstly used for crop irrigation and finally discharged by the buried pipes after land treatments[6].The removal of waste water constituents is achieved by different mechanism.

The roots of water hyacinth plant naturally absorb pollutants including lead, mercury and strontium 90, as well as some organic compound which are some organic compound which are carcinogenic and have concentration of approximately 10,000 times that is present as in generically for water WH can be cultivated for waste water purification either for waste water treatment[7].The root structure of water hyacinth provide a suitable environment aerobic bacteria to remove various impurities present in water. This study attempt to evaluate the effect of WH in two different types of sewer or drainage line one from water closet & another from bath or shower room further the reading for various parameters like potential of hydrogen[8].Turbidity chemical oxygen demand (COD) Chloride.

The colour has been periodically taken every 24hrs for day to 5thto 20th day effect of WH has resulted is significant decreases in turbidity & due to which removal of flocks & reduction in organic matter in water has been observe the primary purpose of the study is to make use of water hyacinth plant for purification of the industrial waste water & it's treatment .Sedimentation ,filtration ,chemical precipitation adsorption ,microbial interactions & up take of vegetation[9].The waste water can be mixed thoroughly by a continuous stirring device. Besides the 0_2& Co_2 concentration in the pond can be adjusted while the water temperature and quality be balanced, contributing to the removal of organic matters nitrogen & phosphorus[10].waste water is water whose physical chemical or biological properties have been changed as a result of the introduction of certain substance which render it unsafe for some purpose such as drinking[11].

Biological treatments exhibited the best environmental performance malodorous air impact where BF showed the highest impact as a result of the contribution of compost production and disposal[12]. Nonetheless, BF achieved a reduction in the malodour air impact of98% compared to the NTscenario, whichwas slightly lower than the reduction achieved by the other technologies (99%)[13]. Even when the use of a technology implied more significant impacts than the NT scenario, BF and BTF showed an improved environmental performance compared to physical/ chemical technologies. In this context, treatments, but slightly worse than biotechnologies. In other words, based on the fact that odour treatment is either compulsory.This study aimed at enriching the guidelines for the selection of the best technological alternative for the treatment of malodorous emissions under an environmental perspective[14]. In this context, a comprehensive LCAwas performed in order to determine the overall environmental impacts of five

Investigation on Microbial Fuel Cell ForTreating Dairy Wastewater

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Abstract

The increasing risk of global warming by greenhouse gasses requires further development of renewable energy sources. Sharp escalation in prices and fast depletion of conventional energy sources leads to search for an alternative energy. Microbial fuel cell technology is a new type of renewable and sustainable technology for electricity generation. It recovers energy from materials that are difficult to dispose of such as sugar waste water, municipal waste water, dairy waste water and paper industry waste water. Biological hydrogen production processes are found to be more environment friendly and less energy intensive. Microbial fuel cells are electrochemical device used for converting chemical energy contained in organic matter into electricity by means of catalytic (metabolic) activity of living microorganisms. It is an alternative method to reduce cost of treatment and generate electricity. Microbial source uses dairy waste water as a substrate for the production of electricity. Microbial fuel cells have an advantage over other electricity production methods because of their high efficiency.

The present work gives an emphasis on treating the dairy wastewater (secured from Jalgaon Milk Corporation) by using Microbial Fuel Cell (MFC) that consisted of two Chambers with cathode as distilled water and anode as Dairy wastewater which resulted a gradual increase in the Electric Potential value with augmentation of Potassium Dichromate(K_2Cr_2O) as an oxidizing agent placed in Distilled Water and the Bacteria present in the dairy wastewater also gets degraded.

Keywords: *Microbial Fuel Cell, Dairy Wastewater, Potassium Dichromate, Distilled water, cathode, anode, electric potential.*

Introduction:

It is evident that humankind is increasingly dependent on energy with the advancement of science and technology. Increased economic growth and social development are leading to a large gap between energy demands and the availability of fossil fuels. The present day energy scenario in India and around the globe is precarious, thus driving to the search of the alternative to the fossil fuels. Current methods to produce energy are not sustainable, and concerns about the climate change and global warming require developing new methods of energy production using renewable and carbon neutral sources.

In our energy based society, the value of any energy rich matter is increasing. Thus, the high organic load in waste waters is no longer seen as waste, but instead as a valuable energy resource. Finding a way to exploit this biological substrates degradation for the generation of the electricity of the driving force for the development of the microbial fuel cells(MFCs) although the concept of the electricity production from bacteria was conceived nearly a century ago by potter(Potter 1911), only recently the technology has been sufficiently improved to make it useful as a method for energy production and its capability becomes more than laboratory novelty. The reason for this recent interest in using the bacteria to generate electricity are a combination of the need for new resources of energy , discoveries about microbial physiology related to electron transport and advancement of the fuel cell technologies.

Microbial fuel cell is a bioreactor that converts chemical energy present in the organic matter into electrical energy by using microorganisms as a catalyst [3]. This catalytic reaction takes place under anaerobic condition and the microorganisms used are termed as electricigens [4]. The advantages of using microbial fuel cell is that they can be used at room temperature itself, easy to handle, not toxic, it can extract 90% of electrons from organic compound, self-sustaining, renewing [5]. The disadvantage is that they cannot produce much current and scale up process is the major problem [6]. Applications are they can be used to produce hydrogen, used in wastewater treatment, used as biosensors, desalination process can be done using microbial fuel cells [7].

Materials and Methods:

Continuous flow type two chambered microbial fuel cell is fabricated from the locally available materials. Materials for fabrication are collected from the nearby shops. After material collection, fabrication is done and all the fabricated units are assembled in the laboratory.

1. Collection of Wastewater and its Analysis:

Dairy wastewater is used as substrate in MFC and it is collected from Jalgaon Milk Corporation. Wastewater is

Utilization of Waste Plastic for The Fabrication of Fibre Sheet

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Abstract
This present work focuses and compares the analytical behavior of recycled waste plastic tiles and a ordinary tiles. The waste plastic tiles shows melting point at 60° C in comparisons with ordinary tiles by controlled cooling temperature method. Universal testing machine is utilized to calculate the compression and flexural strength of the plastic tiles, then these experimental results were investigated to compare the ordinary tiles with the recycled plastic tiles. A recycled waste plastic tiles of size 300 x 300 x 10mm was experimentally investigated with a central load for all recycled waste plastic types of tiles and then they were compared with those of ordinary tile. The compressional, tensile, all force reaction and deformational reactions were investigated for all waste plastic types of tiles and the ordinary tiles. The output so obtained from the experimental investigation reported that tiles specimen constructed with the help of different waste plastic material shows maximum deformations of 1.7499, 1.7499, 1.7445, 1.556 , and 1.7242mm for water sachets, polythene bags, water, bags, ordinary and water bottles tile respectively and other parameters were also investigated. Also, the maximum temperature bearing capacity of different waste plastic tiles also investigated.

Keywords *- Fiber sheet, waste plastic, compression strength, polyethylene bags*

1) Introducation

The different parameter like generation, collection, storage, displacement, treatment and disposal are comes under the head of Solid waste management (SWM) system [1]. The melting of plastic waste was carried out to prepare the varying proportion of waste plastic tiles. The proportion which consist the sawdust upto 40% shows efficient performance than micro-concrete tiles [2]. To enhance the slip tensile strength the waste plastic bags are utilised at appropriate proportion [3]. Plastic is versatile material and at the same time utilised to enhance the aggregate properties also The experimental investigation reflects that the coated aggregate shows the low crushing value, low density value and low specific gravity values compare to non-coated aggregate, also plastic improve the bonding capacity of admixture if it is added around 0.4% by weight into cement [4]. The excess utilisation of waste plastic further create the problem after some time, if proportion is more the extra waste plastic separate out from the admixture and wastes that comes out from the bonding find their ways into canal, trenches and drains, which is thereby responsible for the clogging of drainage system and create the problem to the free flow of water and which further leads to the flooding at time of rainy season [6]. To achieve the cleaner environment the waste plastic recycling system will enhance quality of degraded form of environment. To convert the waste plastic into useful plastic, consist of converting the scrap Plastic into the virgin one to reinter into manufacturing chains. This process of converting the waste plastic into useful one creates the new job opportunities and also generates the revenue [5]. Highly hydroxylated Kraft fibres used for papermaking and have been used in this study. These pulp fibres, often loosely categorised as medium density fibres, are unbonded fibres that have hydrophobic surfaces rather than the hydrophilic surfaces as are present in Kraft fibres. They, therefore, possess a greater potential for bonding with the hydrophobic thermoplastic polyolefin. They are slightly weaker than kraft fibres, cheaper to produce and more amenable to surface modification [7, 8]

2) Materials

Waste plastics like polythene, wrappers and bottles.

3) Methodology

To examine the properties waste plastic tiles especially the tensile strength, compressional strength also at the same time the modulus of rupture and the modulus of elasticity we were casted the various proportion waste plastic. To measure the compressive and splitting tensile strengths, we cast specimens of tiles. Tiles of 11 cm in length and 20 cm in width and thickness of 4 cm are molded with the help of different waste plastic proportions. To measure the modulus of elasticity, specimens of waste plastic tiles with 15 cm in length and 30 cm in width are tested at the age of 28 days. Both the specimens are cast to investigate their modulus of rupture.

To manufacture the waste plastic tiles the waste plastic is processed in 5 different methods : (i) Plastic collection: the plastics are collected from by various places like Polyethylene, waste bottles, wrappers, HDPE, LDPE

Experimental study on comparison between ordinary concrete and ferrocement

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Abstract:
Ferrocement is a system of reinforced mortar or plaster applied over layers of metals. It consists of closely spaced, multiple layers of mesh or fine rods completely embedded in cement mortar. It has a wide range of uses including sculpture and prefabricated building components. Depending on quality of construction and the climate of its location, houses may paythemselves with zero maintenance and lower insurance requirement.The review from the past experience presents the results of experimental and analytical studies on ferrocement members and brings out the salient features of construction, material properties and the special techniques of applying cement mortar on the reinforcing mesh. Adding meshes in ferrocement reduces the micro cracks and prevent the propagation of crack development.

Keywords *– Ferrocement, steel mesh, compressive strength, deformation*

Introduction:

Ordinary concrete: It is mainly a mixture of cement, sand,coarse aggregate, water

Fine aggregate range: 0.075 to 4.75 mm.

Coarse aggregate range: 4.75 to 40 mm.

Ferrocement: Ferrocement is nothing but synchronous combination of mortar with different kinds of meshes. Ferrocement was invented by Frenchman Joseph Louis in 1884 [6] and introduce by P.L.Nervian Italian architect and engineer in 1940 [9]. The positive characteristics of Ferro-cement upon impact and its resistance against disintegration, damage occurs in localize fashion and damage is easy to repair [7].The combination of mortar and steel mesh results in the composite ferrocement element [7].The reinforcing mechanism in ferrocement not only improves many of the engineering properties of the brittle mortar such as fracture ,tensile, flexural strength ,durability and impact resistance, but also provides advantages in terms of fabrication of products and components [8].

Ferrocement is characterized by its enhanced resistance to cracking in comparison to reinforced concrete. Cracks in ferrocement are narrower and larger in numbers. The types of wire meshes generally used in ferrocement construction are welded steel with mesh, X8 expanded steel wire mesh and chicken mesh [9]. All the studies on ferrocement reported that it has performed well under almost all the loading conditions whether it is tension , compression, flexure shear ,torsion ,fatigue , impact or dynamic loading [10].The major limitation in ferrocement is the percentage of reinforcement. The reinforcement cannot be increased beyond certain limit. These limitations affect the strength of ferrocement and cannot be employed where high impact or high loads are expected [9].

Ferrocement can be cast in various forms and shapes even without the use of form work. The thickness of ferrocement generally varies from 10 to 25 mm [9].It has good ability to resist impacts and damage occur in localized region, where it could be easily replaced hence maximize obvious economic advantages of ferrocement [7]. Ferrocement is unique within its own properties. It is versatile form of element in the construction field. Even though was invented long ago, it was not accepted for use on large scale or wide manner. Since the production of wire mesh at that time was a difficult task, therefore the concept of ferrocement was forgotten years ago. Italian architect and engineer Louise Nervi in 1940 introduce the same concept of ferrocement in new manner by showcasing some efficient properties. The major use of Ferrocement has been in the developing countries where excellent properties of the materials and successful field application with relatively little theoretical basis were observed.

The objective of this research is to study the difference between OPC and Ferrocement with respect to their properties especially strength and economy.

Materials:

1) For ordinary concrete cube of grade M_{20}

Ordinary Portland cement (OPC) was taken of grade 53 according to IS-12269-1987 along with sieved sand up-to 2.36mm fine aggregate size.The dimension of mould casted was150x150x150mm [2].The coarse aggregate of size 20mm were also used in casting of ordinary concrete cubes.The ratio of cement: sand: Aggregate was maintained according to IS and was kept 1: 1.5: 3 respectively.

2) For ordinary concrete cube of grade M_{25}:

A Review on Solar Disinfection of Water

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Abstract

Solar disinfection process has been very popular from the far time ago. In this process drinking water from the lakes, river,and tube well, etc. are exposed to the sunrays by filling water in bottles for a requisite time period called as Exposure Time. It is mainly influenced by the type of micro-organisms present in water and Solar Irradiance (W/m²) of the UV rays emanating from the surface of massive huge mass i.e. the Sun. This Sterilizing effect is a conglomeration of 2 factors viz. thermal heating of sunlight and UV radiations. Since, by process of solar water disinfection it has been seen that diarrhoeapathogens and chlorella pathogen are killed by this processsolar water disinfection process is the low cost process and very beneficial for the slums areas and globally adopted. Laboratory studies suggest that SODIS is highly efficacious in inactivating waterborne pathogens. Previous field studies provided limited evidence for its effectiveness in reducing diarrhoea. Unaffordable and uneconomical construction of water treatment plant and water distribution system cannot be implementing in the slums, so there are alternatives for this system is solar disinfection. Solar disinfection is one alternative among point of use treatments. In this process, aqua lens, photovoltaic box, plastic bottles and glass bottle were used subsequent to plant coagulants to evaluate microbial reduction potentials.

Keyword *- solar disinfection pathogens disinfection photovoltaic box*

Introducation:

Despite progress towards the Millennium Development Goals, in June 2012 the United Nations reported that, 11% of the global population (approx. 783 million people) are devoid of a viable source of drinking water and, looking at the present consensus, 605 million people still suffer the same hurdle[1].There are ample of methods available for the disinfection of water. Amongst them disinfection by chlorine (in urban localities) and use $KMNO_4$ in wells (Rural areas) are prevalently adopted. Chlorination is the process that is used to kill the germs and bacteria from the water. The permissible levels of dosage of chlorine are generally maintained for a pertinent contact period that effectively destroys the DNA mutagenicity of the microorganisms by incorporating numerous processes [2]. When chlorine is added to the water it disinfects the bacteria but when amount of chlorine exceeds, then the chemicals of group of four elements results in the formationTrihalomethanes (THM) that is potent carcinogen and $KMNO_4$ treatment might be not affordable for some rural localities. In addition to the process of boiling,chlorination, etc. other process has gained popularity over the past 10 years Hence the method which is commonly adopted and not to expensive but beneficial is used which is known as solar water disinfection.

Solar disinfection is not a recent technology in the Indian sub-continent which was incepted 2000 years ago, when some fraction of dwelling units in rural areas used to place the drinking water in open trays in the verandah so as to be get blessed by Sun god [5]. Although the microbial effect of sunlight was rigorously delved by Downes and Blunt in 1877 [6], but the fruitful contributions of AftimAcra and his colleagues from University of Beirut [7,8] in their seminal work justified that sun's UV rays can effectively disinfect contaminated water used in oral rehydration solutions. Since then the efficacy of SODIS process to slack down a prevalent domain of waterborne microorganisms has been studied by several groups[3,4,9–12].Solar disinfection is the process in which the water is treated by means of using solar radiations by exposing the water in plane plastic or glass bottles to the sun. Solar water disinfection, which is abbreviated as SODIS, is a process that utilizes solar energy to nullify the activity of biological contaminants(e.g. bacteria, viruses, protozoa and worms) and make the water safe for drinking. But sometimes, some toxic chemicals may augment the microbial activity in water which culminates additional process to treat water.

Solar water disinfection is a process that employsthe use of electricity generated from Solar Panels by a photovoltaic process, heat and Solar UV rays congregatively.Solar disinfection using the effects of electricity generated by photovoltaic typically utilizes UV rays and transfer this UV rays to water that generates oxygenized free radical that has a potency to destroy pathogens.Solar thermal water disinfection involves the utilization of Sun's heat that heats water up to 80-100°C for a requisite period by keeping it in front of Solar Heat Collectors having lenses or Reflectors having different glazing intensities which may either be a batch process or a continuous process.

Elastic Properties of Steel Scraps used Reinforced Concrete

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Abstract

India has done a major leap on developing the infrastructures such as express highways, power projects and industrial structures, dams etc. to meet the requirements of globalization. For the construction of civil engineering works, concrete play main role and a large quantum of concrete is being utilized. Both coarse aggregate and fine aggregate is a major constituent used for making conventional concrete, has become highly expensive and also scarce. Huge amount of steel scraps is generating day by day from every from every sector of industries where steel is used.In present study the Fine aggregates in less stress concrete zone below the neutral axis are replaced by the scrap material like steel scrap (SS). Replacement is done with varying proportion from 0% to 60% with increment of 20 %. Method of initial functions is used for finding bending stress of beams. The Method of initial functions (MIF) is an analytical method of elasticity theory.

***Key word**: steel scrap, Method of initial functions, beams.*

1. INTRODUCTION

"Energy cannot be created, it cannot be destroyed", it is the base of all intellectual and spiritual thoughts of human beings. Energy is always subjected to cycles. Thus nothing as such is a waste. The waste generate from one process is in fact a raw material for some other process. Waste is a material that is wrongly placed or laying unutilized. Hence there is a need to decide the suitable place where a particular waste material may be used or recycled. The present work is concerned with the reuse steel scrap waste which is as such a solid waste generated in gigantic proportions.

Method of initial functions is used for two dimensional elasto dynamic problems for plain stress and plain strain conditions [8]. And used for the analysis of thick circular plates. The governing equations are derived from the three dimensional elasticity equatio-ns in cylindrical polar coordinates using Maclaurin's series [9]. A 3d problem of loading a linearly elastic layer using a method of initial functions is solved. MIF has been applied for deriving higher order theories for laminated composite thick rectangular plates [10]. Mathematical founda-tions, the theory and application of the Method of Initial Functions (MIF) to rectangular anisotropic plates subjected to both statical and dynamical loads are discussed [11]. It is used for the analysis of composite laminated beams and the governing equations of two dimensional elasticity are derived [12]. MIF is used for analysis of flexure member for finding stresses and displacement [13].

1.1 Method of initial functions (MIF)

MIF was first proposed by Malieev in 1951 and further developed by Vlasov in 1955. Beams that are built of more than one material are called comp-osite beams. It is difficult to analyze the laminated beams by the bending theory used for ordinary beams. In MIF, equations governing the flexure of composite laminated beams are derived without making any assumption regarding the physical behaviour of beams. The method of initial functions (MIF) has been used for deriving the equations. It is an analytical method of elasticity theory allows us to obtain the exact solutions for certain types of problems without use of hypotheses about the charac-ter of the stress-strain state of the structural element. In recent years the MIF has been used intensively for the analysis of various problems. For example, three-dimensional elasticity equations for circular cylind-rical shells are solved by assuming Taylor series expansions for finding stresses and displacements

2. DETAILS OF EXPERIMENTAL WORK

The rubber aggregates are obtained by shredding the scrap tire rubber in 20mm size. Heavy vehicles tire scraps were used for preparing the rubber aggregates. On the other hand the steel scraps were obtained from the lathe machines, it is the waste produced from milling, polishing etc. The percentage of replacement is done by volume. The properties of material used are discussed below.

Table 1: Physical properties of materials used

Sr no	Material	Specific gravity	Bulk Density (kg/m³)
1	Steel scraps	7.24	1240
2	Fine aggregate	2.6	1750
3	Coarse aggregate	2.6	1710

Up-Skilling implementation process for employees: A discussion

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Introduction:

Technology has changed the way we do business. Things change at such a rapid pace that there is an ongoing need for employees to consistently add new skills and technical awareness to their repertoire. .They are a must to stay competitive. You need to ensure your top talent is up-to-date on trends, new industry developments, and has access to the best technology. Employers can provide training and advance through up-skilling. Here we discuss up-skilling execution process to develop an effective up- skilling strategy.

Up-skilling is the process of teaching employees new skills that will aid them in their work. Technology has sped up need for up-skilling. There is a wisdom of urgency to continually provide training and development to employees. As technology evolves, new skills are required and job requirements change. Up-skilling fills this skill gap through ongoing training. Workforce up-skilling helps employees stay on top of new business best practices and give best performance.

Implementation Phases of Up-skilling:

Following phases are required for effective Up-skilling of Employees –

1. **Begin skill Assessment and Skill Gap Identification**

Skills space analysis is one of the most effective ways to identify the productivity within your teams, know what your employees are currently present, how well they are performing, but most importantly, what they need to help bring your organization to the future. Skills gap analysis is a tool you can use to determine what gaps exist between employees' existing skills and those skills required by your organization to get to its current and future goals. Therefore establishing what training or hiring requirements are needed to fill those areas where skills gaps are noticeable. Every company is different. You have facts strengths and weaknesses. The first step for successful up-skilling is to see your organizational skill shortcomings. Ensure your up-skilling efforts align with your employees needs. Employees will look for opportunities to advance internally based on what they learn.

2. Create the Up-skilling training environment

In order to create healthy up-skilling in your organization, you will need to devise a calculated plan. Having a strategy will help you to get buy-in from leadership within the organization and from the employee's themselves. promote acquaintances to build a Personal Development Plan that includes competencies that they want to improve upon and skills they want to gain. Motivate your employees to come up with their own plan is key to the success of the up-skilling training program. Employees can classify new skills and competencies that boom with them as opposed to being told what they need to learn. Once your employees make their individual growth plan, allow time during the workday for employees to up-skill. Perhaps you have an employee who wants to take a communications course. permit them to depart before time to be present at class or offer time and a quiet space to take the class online. Offer your employees job-specific training to develop their current skills. For example, you may have instructional designers on your team who would benefit by enrolling in an demanding eLearning Certificate program.

3. Identify the Individuals Up-skilling opportunities

Companies are deploying a large number of approaches to deal with the need to up-skill, from in-person training to online Learning Management Systems to train the workforce at range. So be prepared for several way and methodologies. The more ways you can learn, the more opportunities to up-skill. As a worker during the time of a skilled worker loss, you are at an advantage: Employers need you. The return on asset for up-skilling for your employer is clear. The cost of turnover and alternate can exceed 30% of wages, while the cost of training remains less than 10% of wages. That means the ball is in your court. Prioritize up-skilling now, and you will have a enormous benefit going into the future.

4. Re-Skill Planning

The scope of re-skill needs of the organization are to be consist of the following features -

a) Job profiling and judgment to establish the current Essential Skills levels of your employees, and identify further training that is needed to meet your company goals
b) plan and set-up of training centres for workers
c) Mentorship-on-the-job work to look up communication and jobsite training for workers, supervisors and

An Overview of Business Ethics , Corporate Governance & Corporate Social Responsibility

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Abstract
There are numerous examples of companies whose top management are involved in unethical & fraudulent practices . This has led to growing concern amongst various sections of stakeholders , policy makers & academicians . The concept of business ethics , corporate governance & corporate social responsibility has thus grown in importance , with its inclusion as a separate subject in business management curriculum , amendments being made in the Indian Companies Act & guidelines being issued by the government . An overview of these concepts are presented in this paper for the benefit of UG students & interested readers .

Keywords :- *Transparency , Accountability , Fairness , Eco-friendly , community-friendly*

1. Introduction

E-waste from IT sector , effluents from various industries like textiles , emissions from various industries like thermal power plant pose a serious threat to our environment . Consumers need protection from false & misleading ads , deceptive selling practices , exorbitant pricing , poor quality / unsafe products . Employing child labour , discrimination on the basis of sex , sexual harassment , unsafe / unhealthy working conditions , unfair remuneration , incentives & performance appraisal result in distrust amongst employees . Financial frauds related to banking & insurance sectors as well as corporate financial statements pose a serious threat to savings & investment by general public . Following whistle-blowing by a former senior executive of Satyam Computer Services Ltd . , it's chairman Mr. Ramalinga Raju admitted of major financial malpractices including falsification of accounts , inflation of profits & creation of fictitious assets , resulting in more than 95 % fall in share prices . Biocon Ltd. was accused of illegal drug testing without prior approval from DCGI / GEAC . Numerous such examples of corporate entities indulging in fraudulent malpractices , due to lack of ethics , pressure of highly competitive market , selfishness & greed for maximizing profits are coming to light . Thus there is growing need to instill , motivate & impose a sense of business ethics , corporate governance & corporate social responsibilities among the top management of companies , irrespective of sector & size .

2. Business Ethics

The word " ethics " is derived from the Greek word " ethikos " meaning customs or character . As per Chambers dictionary , ethics is a code of behavior considered correct . It is a branch of Philosophy & is a normative science , concerned with the norms of human conduct . The basic principles of personal ethics are – 1) Concern & respect for the autonomy of others , 2) Honesty & willingness to comply with the law , 3) Fairness & the ability not to take undue advantage of others , 4) Benevolence & prevention of harm to any creature . People are motivated to be ethical because – 1) most people want to maintain a clear conscience & like to act ethically under normal conditions , 2) people naturally want to ensure that their actions do not cause physical / mental harm to others , 3) social & material well-being depends on one's ethical behavior in society , 4) people are obliged to obey the laws of the land .

A professional is a person engaged in a specified activity , usually involving a specific branch of advanced learning (eg. doctor , advocate) , who is paid for his specific skills . A professional is expected to follow certain basic principles – objectivity & impartiality , full disclosure & openness , client's confidentiality & trust , diligence , avoiding conflict of interest & fidelity to professional responsibility .

Business ethics is a sum total of principles & code of conduct businessmen are expected to follow in their dealings with fellow businessmen , stockholders , employees , customers , creditors as well as comply with the laws of the land & protect the interest of these stakeholders . It covers diverse areas like labour practices , free & fair trade , health & environmental concerns and various moral issues .

3. Corporate Governance

Participants / players are the shareholders who have invested in the company , board of directors elected by shareholders & accountable to them , executive management that run the business & is responsible to the board of directors . Possible opportunistic behavior of management may lead to exploitation of company resources , which is likely to compromise the interests of stakeholders . Corporate Governance comprises the laws & practices by which

Techniques for tracking the users' interest on Social Media : ASurvey

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Abstract

Using Social media, one can share any data at any time in any part of the world. The data can be in any form - text, image, video or anything else. What we are going to do is, using this data, we will be doing analysis to get the desired output of our interests. This is nothing but "Social Media Analytics". There is tremendous amount of data available on social media websites like Facebook, YouTube, Twitter, Instagram & many other. Clustering of users from different communities is a challenging task to overcome. Tracking the interest of user on social media is the approach of collecting data from social media sites and blogs and evaluating that data to group the users according to their interest. The main objective of this survey is to study evaluation of performance of existing collaborative strategies for clustering in documents.

1. Introduction

Social media plays an increasingly important role in people's life as it fundamentallychanging the way we communicate, collaborate, consume,&create. Social media is a good mediumtounderstandreal-timeusers' choices, intentions & sentiments.Inrecentyears, socialmediasuchasTwitter,Facebook & Instagram[4] are becoming an indispensable part in our daily lives. Users' interests are estimated by calculating the similarity of features of a social media user and features of a news category.

Social Media Analytics mainly tracks the digital discussions among masses & gets common opinion about something which may be a company or a brand or anything like that. It can then use this information to get an edge in the business. Tracking the interest of user on social media is the approach of collecting data from social media sites and blogs and evaluating that data to group the users according to their interest. To process & analyze any unstructured information, most of the social media analysts use Text mining. It is proven to be one of the most efficient way for analysis. We can do any kind of analysis that we desire on the data received through Social Media. For example, we can analyze based on geography, demographics, time & many other factors similar to these.

Therearecertainapproachesintextminingsomeofthosearementioned below:

- Retrievals of valuable information from unstructureddata
- Extracting theParticularsusingthe structureddata
- Making a summary of it without change in meaning
- Defining different categories on the basis of documents
- Doing clustering & then analyzing it.

1.1 Social Media Analytic&Text Mining

Social Networking was a key marking in the last decade. Many popular online social networks such as Twitter, LinkedIn,&Facebook have become increasingly popular. The meaning of Social Media Analytics is to collect the information from different social networking sites & doing the needed analysis on the same. Most of the marketing agencies or marketing department in big companies use it nowadays. It is becoming more & more importantwith time. They track the digital discussion about their brand or company & decide their future strategy accordingly.

To do the analysis of information received from any social media, following 3 steps are followed:

1. Data Identification
2. Data Analysis
3. Information Interpretation.

There is a fine difference between Text mining & Internet Searching. Inweb search,theuseristypicallylooking for something that is already known&has been written by someone else. There is ocean of data available on search. But the main issue is to get only relevant data for us out of it.Intextmining,thegoalistodiscoverunknowninformation, something that no one yet knows&so could not have yet written down. Textminingrefersgenerallytotheprocessof extractinginteresting &non-trivialinformation & knowledgefrom unstructured text.Textminingisayoung interdisciplinary field which draws on information retrieval, data mining, machine learning, statistics&computationallinguistics.

Review of Approaches on cyber security

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Abstract

Cybercrime analysis has a very momentous responsibility of the law enforcement system in any country. Cybercrime involves the breakdown of privacy, or damage to the computer system properties such as files, website pages or software [3]. Developing a high-quality cybercrime tool to recognize crime prototypes rapidly and competently for future cybercrime pattern exposure is essential The banking sector has been the hotspot for cybercrime be it natural or unnatural. Data mining applications are used in many banking sectors for client segmentation and productivity, credit scores and authorization, predicting payment default, advertising, detecting fake transactions. The Data mining prediction techniques can enhance the accuracy, performance, speed of predicting the cybercrime. Data mining techniques like K-Means, Influenced Association Classifiers are used for investigating the cybercrime data sets and sorts out the accessible problems. Artificial intelligence (AI) is also an effective approach to cybersecurity. Machine learning is adopted in cyber detection systems to support or even replace the first level of security analysts. The machine learning techniques applied to the detection of intrusion, malware, and spam.

Introduction:

Developing a high-quality cybercrime tool to recognize crime prototypes rapidly and competently for future cybercrime pattern exposure is essential. The banking sector has been the hotspot for a cybercrime be it natural or unnatural. And also the technology is becoming an indispensable part of banks it has become easy for users so as for attackers as now they have more mode to exploit the vulnerabilities [4]. Banking sectors are prone to many interruptions originated by an assortment of categories of threats; numerous threats are distinct under diverse groups that is cyber fraud, trade permanence development, and information safety measures. Cybercrimes that are committed in banks include hacking, Credit card fraud, money laundering, DoS attacks, phishing, salami attacks, ATM card cloning, etc. Cyber threats such as pharming, phishing, the tempted reveal of private details like identity theft are the security qualms that subsist in the brains of clients in banking and financial sectors. Crime prediction uses past data and after analyzing data, predict the future crime with location and time. Credit card and web-based crimes are increasing as more technologies are rising high. clustering and classification techniques are implemented [6]. Fraud detection is one of the difficult processes not only technically, but also in crime investigations. Cybercrimes can be reduced from the banking transactions by applying the updated technology. Cyber attacks in the banking sectors might be in the type of illegal access, devastation, bribery or amendment of data or any kind of malicious practice to source network malfunction, reboot or sling. Data mining is the computer-assisted process to break through and analyzing a large amount of data and then extracting the meaning of data. It is also the process of analyzing data from different perspectives and summarizing it into useful information [1]. The Data mining prediction techniques are capable to enhance the accuracy, performance, speed of predicting cybercrime. Cybercrime has been increasing in complexity and financial costs since corporations started to utilize computers in the course of doing business. Cybercriminals are becoming more sophisticated and are targeting consumers as well as public and private organizations [2]. Cybercrime analysis has a very momentous responsibility of the law enforcement system in any country. Cybercrime involves the breakdown of privacy, or damage to the computer system properties such as files, website pages or software [3]. Machine learning is adopted in cyber detection systems to support or even replace the first level of security analysts. The machine learning techniques applied to the detection of intrusion, malware, and spam. In some scenarios, machine learning techniques represent the best choice over traditional rule-based algorithms and even human operators [2]. Many Machine learning algorithms are applied to cybersecurity such as Shallow Learning (SL), and Deep Learning (DL).

Literature Survey

Dr. Zakaria Suliman Zubi proposed a model for crime and criminal data that analyzes using a simple K-means algorithm. It also tends to help specialists in discovering patterns and trends, making forecasts, finding relationships and possible explanations, mapping criminal networks and identifying possible suspects. The promising results of the proposed model from the attributes for crime, criminal and the results of the K-means algorithm. [5]

Review of Sentiment Analysis Technique

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Abstract

Wide use of internet and web application created many new challenges and opportunities. Analyze people feelings, opinions and orientation about product,service is recent trend. By using Sentiment Analysis techniques this task is performed. In text minig current field of research is Sentiment Analysis (SA). Goal of sentiment analysis is to classify the polarity of a piece of text according to the opinion of the writer. In this paper we have discussed various sentiment analysis approaches.

Keywords: *ML-Machine learning SA-Sentiment Analysis SVM- Support Vector Machine*

1. Introduction to Sentiment analysis

Wide use of internet and web application created many new challenges and opportunities. Analyze people feelings, opinions and orientation about product,service is recent trend. By using Sentiment Analysis techniques this task is performed. Sentiment Analysis involve natural language processing and information extraction task . Understanding opinion of a speaker or a writer with respect to some topic is aim of sentiment analysis[8].

Sentiment or opinion as represented as a quintuple[8]

< to, fo, so, h, t >

where

to is a target object

fo is a feature of the object to

so is the sentiment value of the opinion of the opinion holder h on feature fo of object to at time t , so is +ve,-ve, or neutral, or a more granular rating

h is an opinion holder

t is the time when the opinion is expressed.

An important part of our information-gathering process is to find out what other people think. It is very common thing people share their experience regarding thing.With the growing availability and popularity of opinion-rich resources such as online review sites and personal blogs, new opportunities and challenges arise.We use information technologies to seek out and understand the opinions of others.[18]

2. Need for Sentiment Analysis

In bussiness intelligence and analytical application, sentiment analysis is very popular.

Now a days almost all organisation collect valuable feedback from customer by using Web application or Mobile application or by using email or by using seprate feedback system.

It is required to identify feedback type(positive, negative) so that they can improve limitation/drawback of product/service

Rapid growth of social media platform(e.g. Facebook ,Twitter ,Google+, sevral blog) continuously produce review, blog,comment,discussion.It is required to understand perspective of user on topic.For finding opinion on topic sentiment analysis is required.

For Information Search and Retrival ,sentiment analysis is required .

3. Different Levels of Analysis

There are 3 levels of sentiment analysis

1) Document Level
2) Sentence Level
3) Entity and Aspect level

1) Document level

Document express a positive sentiment or negative sentiment, is identified at this level. For example, determing positive or negative opinion for product is expressed from the given product review. This is also known as document-level sentiment classification.

This level is applicable to each document that express opinion on a single entity(e.g.,for a single product,for a single service).For document that evaluate or multiple entities,we can not apply this level.

Review : Use of Deep learning for Image processing in Medical Applications

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Abstract

In medical field image processing plays major role for identification of the diseases. Previously the simple image classification techniques were used for limited amount of data. But as the image quality and the size goes on increasing these simple AI and Data Mining techniques are not proven to be effective. As the taken images are to be analyzed and classified are increased, the concept of deep learning are to be applied. The Convolutional Neural Network (CNN) and Recurrent Neural Network (RNN) will be the most promising methods for image classification through which the accuracy can be increased to the acceptable level.

Keywords: *Convolution Neural Network (CNN), Recurrent Neural Network (RNN), Deep learning, image processing, Medical science*

Introduction:

In deep learning, image classification can be done directly from images, text, or sound. Deep learning models can achieve accuracy, sometimes more than human-level performance. These Models are trained by using a large set of labeled data and neural network architectures that contain many layers and learn features directly from the data without the need for manual feature extraction. Deep learning is a part of artificial intelligence and employs many nonlinear processing unit layers for feature extraction, & for transformation . Each successive layer takes the output from the previous layer as input [5]. Algorithms can be supervised (e.g., classification) or unsupervised (e.g., pattern analysis). In deep learning, structure is based on learning multiple levels or representations of data. To form a hierarchical representation, Top-level properties are derived from lower-level properties(Top-level properties are derived from lower-level properties to form a hierarchical representation.) Deep learning is mainly based on learning from the representation of data. a vector of density values per pixel, or features such as edge clusters and custom shapes are considered as representation for an image. Deep learning architectures are used in an image processing, semantic video segmentation, face recognition, object detection, etc. One of the most popular types of deep neural networks is known as Convolution neural networks (CNN or ConvNet).

Convolution Neural Network (CNN)

A CNN convolves learned features with input data, and uses 2D Convolution layers, making this architecture well suited to processing 2D data, such as images. With use of CNNs there is no need of manual feature extraction, because CNN works by extracting features directly from images. The relevant features are not pertained; they are learned while the network trains on a collection of images. Because of this automated feature extraction ,it makes deep learning models highly accurate. In this paper we focused on different ways of using deep learning technique for image classification in medical science.

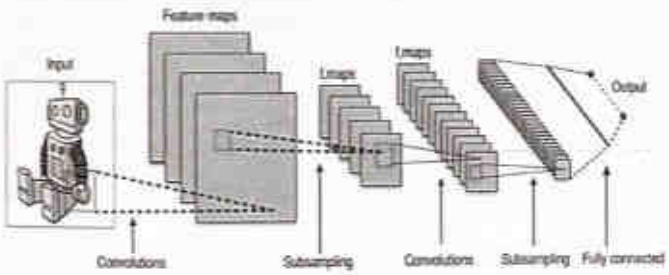

Figure: Architecture of CNN

Review on Identification and Correction of Skew Fingerprint Algorithm

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Abstract

Fingering fingerprints is a major cause of misconduct. Even if this affects all fingerprint markers, it is harmful to negative markers such as viewer and copying. In this program, malicious users may intentionally blink their eyes to avoid identifying them. In this article, we suggest new algorithms to look up and correct the damage to the theme based on the same fingerprints. Detection of distortion, seen as a problem for classification into two classes, function vectors using registering cards of orientation and maturity Ridge, map of the fingerprints and managers are trained SVM to perform the task of this assortment. Correction of distortion (or curved equivalent of field distortion) is considered a regression problem in the input impaired fingerprint distortion and result field distortion. To solve this problem, offline steps create a database (referenced database) of multiple fingerprints and a corresponding field of distortion, then the closest endpoint on the net of the input finger is located in the reference database and the corresponding distortion field is used to change the input footprint to normal. Three successful outcomes in the wrong fingerprint database - FVC2004 DB1, Txinghua's wrong finger database and database with SD27 NIST fingerprints.

Keywords: *Fingerprint, FVC2004 DB1, SVM, Ridges, Nearest Neighbor Regression*

1. Introduction

Although fingerprint authentication technology has evolved rapidly in the last 40 years, there are still some research issues such as lower print quality recognition. Matrix fingerprints are very sensitive to image quality, as seen in FVC2006, where the accuracy of the algorithms changes sharply across different datasets due to image quality changes. The difference between the authenticity of fingerprint, messaging and messaging is even bigger as observed in the NIST technology.

The consequence of low-quality printing depends on the type of fingerprint recognition system. A fingerprint recognition system can be classified as a positive or negative system. In a system of positive recognition such as physical access control systems, users are expected to collaborate and wish to be identified. In the case of a negative recognition system, such as identifying individuals in the watch list and looking for multiple subscriptions under different names, interested users (e.g. criminals) are presumably unwanted or unidentified. With poor quality recognition systems, it is likely to lead to legitimate user refusal and will lead to disruption. However, adverse health consequences for negative recognition systems are even worse when malicious users may reduce fingerprint quality to prevent fingerprinting. In fact, law enforcement officials encountered cases where criminals tried to avoid identifying the damage or changing the implants of their fingerprints.

Therefore, it is of paramount importance for fingerprint recognition systems to detect poor print quality and improve their quality so fingerprint systems are not destroyed by malicious users. Decomposition of fingerprint quality can be formulas or geometries. Image degradation can be due to non-elastic skin condition, contaminated surfaces, and complex background images (especially fingerprints are updated). Decomposition of the geometry is caused by deformity of the skin. Image degradation has been widely investigated, and some algorithms for quality assessment and resolution of algorithms have been proposed. In contrast, decomposition of the geometry due to skin disorders has not received adequate attention, though important. This is a problem the paper is trying to address. Note that in a fingerprint recognition system, its security level is lower than the weakest. So it is urgent to develop an algorithm for browse and repair (DF) to fill the socket. Echo blocking is recommended because of the flexibility of fingerprints to retrieve fingerprints based on relationships and lateral forces or torque. Skin irritation increases the degree of variation (the difference between fingerprints from the same finger) and thus leads to misinterpretation due to the limited capability of the existing fingerprints for recognizing the deformed fingerprints. In Figure 1, two left are normal fingerprints and one part is seriously damaged. According to the Veri-Finger 6.2 SDK, the game between both left is higher than the result of the two right-hand games. The big difference is that the distortion is not by overlap. Although it is possible for matching algorithms to suffer from large format corruption, it will result in more fake matching, and it will slow down the match.

A Survey on Automatic Question Paper Generation System

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Abstract
Education is the biggest weapon in today'sfast-growing world. Examination process is the king way to judge knowledge of any person, since from long time ago we follow manual paper generation system,now it's time to switch on advance automatic paper generation system which is fast and easier. The main and integral part of examination process is the generation of question bank,question types, mark priority for questions and question paper format. In this paper we have studied and reviews various mechanisms can be used for automatic question generation.
Keywords: *automatic question generator, shuffling algorithm*

I. Introduction

In this modern world, there is a change from manual to automated systems for different aspects of education system. At every level of education, test is the fundamental process of education system. However, the main problem is Professors need to invest a lot of time and energy in composing examination papers and also there is chance of paper leaks. So, automation is required in generation of test paper. Automatic Test Paper Generator is special software which is useful to schools, Institutes, publishers and test paper setters who want to have a huge database of questions and generate test papers frequently with ease. This software can be implemented in various medical, engineering and coaching institutes for theory paper. You can enter unlimited questions depending upon the system storage, capacity and as per the requirement.

Producing a quality graduates is one of the main objectives in any educational institution. The higher acceptance of their graduates in work market indicates the quality of the institutions. The quality of graduates produced by any institutions is determined by many factors. One of the factors is the quality of the evaluation system. Evaluation system could exist in many forms. Conventional evaluation system is normally based on the exam system. Before the exam could be given to the student, the instructors or lecturers must prepare the questions according to the topics covered for each of the subject. Preparing exam questions is challenges, tedious and time consuming for the instructors. Usually the instructors keeping their own test bank in some form to help them prepare future exams. Current technologies help the instructors to store the questions in computer databases. The issue arise is how the current technologies would also help the instructors automatically generate the different sets of questions from time to time without concern about repetition and duplication from the pass exam while the exam bank growing.

If we compare both manualpaper system and automated papersystem, then we can say that there is lot of Difference between them.as in manual paper system there is human interaction and it takes time in automated paper system we can save the time without interacting human. Security is the core part of paper formation.In manual system paper may leaked but in automated it can't happen (i.e. encryption). Manual based paper system has repetitions(question may be repeat) but in automated paper system, we can avoid this problem using certaintechniques,algorithm.[10]

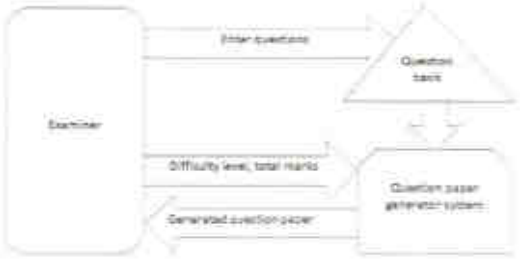

Fig 1: Working of Question Paper Generation System

Performance Improvement of Channel in Wireless Cellular Networks

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Abstract
Generally when the Mobile station(MS) moves from one base station(BS) to another base station, the handoff occurs. Consequently handoff requires a sufficient amount of resources for regulating traffic in the network. Traditional traffic rate regulation schemes are used by the method of call admission control (CAC) scheme and Quality-of-service (QoS) for multimedia services in wireless access networks. The framework aims at providing a differentiated treatment to multimedia traffic ?ows at the link layer. The Paper presents that the CAC mechanism is capable of both satisfying the Quality of Service requirements of multiple traffic classes while optimizing the system utilization.
Keywords: *Wireless Networks, Channel, Call admission control, Performance Improvement, Quality of Service (QoS).*

1. Introduction

In 1921, the United States police department began operating experimental mobile radios just above present AM radio broadcast band. On June 17, 1946, in Saint Louis, AT&T and South-western Bell introduced the first American commercial mobile telephone service (typically in automobiles). Installed high above South-western Bell's headquarters, a centrally located antenna paged mobiles and provided radiotelephone traffic on the downlink. In the mid-1960s, the Bell System introduced the Improved Mobile Telephone Services (IMTS), which markedly improved the mobile telephone systems. As early as 1947, it was realized that small cells with frequency reuse could increase traffic capacity substantially and the basic cellular concept was developed. However, the technology did not exist. In the late 1960s and early 1970s, the cellular concept was introduced and was then used to improve the system capacity and frequency efficiency.

In cellular wireless networks, to integrate multiservice with desired QoS, efficient resource management techniques are needed, while the specified level of QoS is guaranteed to users belonging to each service class. In a wireless network, maximum packet delay for nondelay tolerant services, error-free transmission for delay-tolerant services must be guaranteed and maximum delay response must be provided for a seamless image effect. Mobility, frequent handoffs and limited bandwidth are important constraints for QoS in wireless networks [1]. Effective delivery of multimedia traffic with stringent quality-of-service (QoS) requirements is a significant issue in cellular wireless networks. Providing seamless service to such applications to a large extent depends on how connections are handled when MSs move from one cell to another. This type of movement of MS from one cell to the other cell is called as handoffs. Handoff must be performed successfully, as infrequently as possible, and must be invisible to the users. However, as cell sizes shrink to accommodate the large demand for higher capacity, managing handoffs is becoming more complicated. Also, smaller cell sizes potentially result in more handoffs, making it more difficult to provide the necessary QoS guarantees.

A cellular network provides cell phones or mobile stations (MSs), to use a more general term, with wireless access to the public switched telephone network (PSTN). A mobile switching center (MSC) acts as a gateway from the cellular network to existing wireline networks. The service coverage area of a cellular network is divided into many smaller areas, referred to as cells, each of which is served by a base station (BS). The BS is fixed, and it is connected to the mobile telephone switching office, also known as the mobile switching center (MSC). An MSC is in charge of a cluster of BSs and it is, in turn, connected to the PSTN. With the wireless link between the BS and MS, MSs such as cell phones can communicate with wireline phones in the PSTN. Both BSs and MSs are equipped with a transceiver. Consider a wireless mobile network as a cellular infrastructure. It comprises of a wired backbone and several base stations (BSs). Each BS covers a certain geographical area are called a cell, and it resides at the center of the cell. An active mobile terminal in a cell communicates with the rest of the network through the BS in the same cell. A handoff occurs when the mobile terminal leaves the current cell and moves across into another cell. If there is sufficient bandwidth in this cell, the handoff enables the mobile terminal to maintain connectivity without any perceivable interruption. However, the call may be dropped if there is not enough capacity in the new cell [2].

2. Methodology

The following are the methodologies for a call admission control (CAC) schemes.

System Model for Cloud based Waste-Water Management

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Abstract

Cloud computing is a network of remote servers enabled on the Internet to store, manages, and process data, rather than a local database or a personal computer. This provides support for the higher cloud applications by creating a cloud computing network. In the paper, the work discussed illustrates the design of a cloud based waste water management system. Distributed computing is a system of remote servers empowered on the Internet to store, oversees, and process information, instead of a neighborhood database or a PC. This offers help for the higher cloud applications by making a distributed computing system. In the paper, the work examined delineates the structure of cloud based waste water the board framework. The mix of distributed computing and GIS (geographic data framework) can give new prospects to the creation, stockpiling and utilization of information to the GIS. The examination paper features the formation of cloud-based waste water the board framework. The GIS framework was intended to enable nearby experts in Municipal Corporation to characterize squander water the board arrangements.

Keywords: *Cloud Computing, dynmodb, Pressure, GIS*

1. INTRODUCTION

City authorities have the sewage information from all the different areas of the city in the wastewater management system. They will analyze the data manually to determine the future use of the waste water. This job is time-consuming and boring. The system makes this function autonomous and the results can be accessed on any device connected to network by installing this system on the cloud.

Cloud computing provides the access to remote internet-hosted servers. On a distributed system, we can store, manage and process our data. Cloud computing enables consumers to use non-install applications and access their files on any computer with internet access [1]

GIS is an integrated arrangement of PC equipment, programming, and spatial information (topographic, demographic, plain, realistic, digitally abbreviated) that performs manipulative and scientific operations on this information to deliver reports, illustrations, and measurements, and controls the preparation of work processes geographical information. GIS+ cloud computing provides a very useful GIS spatial decision support tool for MNC authorities to make decisions about the use of waste water.

MNC water works system needs to access data from all computing locations on the waste water source. At this time, people are authenticating the information and the forward flow of water to the water treatment plant manually.

This cloud-based system gives any device that is linked to the network access to shared location data Cloud-based wastewater system obtains information from the analyzed wastewater source and MNC authenticates people for particular analyzed wastewater component by means of a parallel computing model.

2. BACKGROUND

In Iceland, the online Geographical Information System (GIS) spatial choice help instrument (Nadeem Qazi, 2013) is planned to enable neighborhood specialists to choose approaches to treat private waste water in the low permeability subsoil region[2]. Here spatial demonstrating is done through the ArcMap[2] of ESRI and declared on the ArcGIS server 10.1 as a web administration. This uses the model of REST (Representative State Transfer).

Geology, soil and subsoil, lakes, cut off urban and country zones, wastewater treatment plants, septic tanks, and so forth are the significant modelling datasets.

These datasets were first stacked into the ArcGIS server as a document geo database. At that point you have to locate a low-porousness zone. In ArcMap, where stream positions, septic tanks, sewered zones were introduced, a locking permeation layer was appeared. It gives map administration to the server of ArcGIS.

This framework offers two arrangements:

- Forward water stream to a brought together wastewater treatment plant.
- Construction of little bore sewerage through bunches of single house.

These all organizations were displayed and facilitated on ArcGIS Server as geo-handling assignments. Flex gadget innovation has been utilized to empower customer program get to. The gadgets give data through events

A Generalized Bi-orthogonal HalfbandFilterbankDesign for Image Encryption

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Abstract
Preventing the tampering of real-time signals via intrusion or unauthorized access is the necessity of thetime. This paper presents a new technique of image encryption based on parameterized 9/7 wavelet filterbank. Wehave used 2-D Discrete wavelet transform (DWT) to decompose theinput image. The new parameterization approach is proposed to design 9/7 length filterbank. The proposed 9/7 filters are used in waveletdecomposition. Then, filter design parameters, level of decomposition,sequence of code,approximation and detail subbandcoefficients arearrangeduniquelyinbookkeepingvectorS. The above said factors arranged in stack format of S acts as a key feature of proposed image encryption and decryption process. Therefore, image decryption is possible only when the client knows S. The proposed algorithm is difficult to break and has low computational complexity. The proposed filters satisfy the perfect reconstructionproperty.
Keywords - *Image Encryption, Filter banks, Perfect reconstruction, Network security.*

1. Introduction

With the advent of new cryptography techniques a secure multimedia transmission can be established that denies unauthorized access. Applications of images processing are spread acrossdomains such as aerospace, military,andaviation.Thus, establishing a secure and safe gateway of such multimedia signals has become necessary. To this end, Wavelet-based imageencryptioniswidelyacceptedtechnique. The one dimensional (1-D) and two dimensional (2-D) FIR waveletfilterbanksarethemostpromisingmethodsinimageprocessing. The phasecharacteristics of 1-D filterbanks are aspromising as their low coefficient of sensitivity [1]-[4].

The Filterbank relies on segmentation and time-reversaltechniques to split the input signal into multiple components[5]-[7]. Some secured have been proposed in [8]-[11]. In[12] Parameterized 9/7 wavelet filter bank designed on basisof lifting scheme. In [10], Wavelet filter bank 5/3 improvedfrequency response using higher order half band productpolynomial.

The cryptography techniques for RGB images with theuse of random matrix affine ciphers have been proposed in[13]. Fractional order Fourier transforms and Wavelet-baseddecomposition techniques with application to multiple imageencryption have been proposed in [14]. The encryption ofmultiple images is done effectively with the help of fractionalfourier transform and decomposition of wavelet transform.

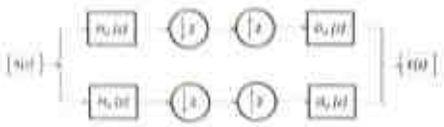

Figure 1.Structure of Two-channel bi-orthogonal filter bank.

A chaotic map-based fractional wavelettransform have been proposed in [15] that delivers higher performance. Spatial and transform domain based techniques with significant remedies to numerical as well as differential attacks. Integer wavelet transforms have been proposed in [16], [17]. Furthermore Chirkov standard maps, integer wavelet transforms have been proposed in [18]-[21] are the interesting developments in the domain of image encryption.

Thispaperpresentsanewmethodologythatencryptsimages based on parameterized 9/7 wavelet filter bank. The discrete wavelet transform is applied to performcryptography related operations.

The input signal, x passes through the low pass filters and then it is convolved with an impulse signal as shown below

$$y[n] = (x * g)[n] = \sum_{k=-\infty}^{+\infty} x[k]g[n-k]$$

Systematic Literature Review of Blockchain Applications in Different Domains,Challenges and Opportunities

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Abstract
The Blockchain is the emerging and complicated technology in modern economy since it provide decentralized approach. This technology is able to solve various kinds of problem such as security, trust, reliability of data processing, and transparency. Blockchain technology may aaply in many Internet companies, banks, car manufacturers, and even governments worldwide to improve the scalability, security and efficiency of their services. This paper discuss the review of blockchain applications in various field. These field include smart land registry, cryptocurrency, healthcare, energy, insurance, copyright protection, and advertising, societal applications. This work provides a timely summary for individuals and organizations interested in blockchains and to motivate the individual to do more research in this ongoing technology. Also discuss the challenges and research opportunities in blockchain.
Keywords: *Blockchains, Cryptocurrency, Healthcare, Advertising, Energy.*

1. Introduction

Blockchain is a type of distributed ledger technology which was first widely introduced almost ten years ago as the underlying technology of Bitcoin[1]. A distributed ledger is a simple database, but with special properties. It is distributed, meaning that the database is scattered around multiple locations in a shared manner. It therefore shares some similarities with a typical cloud system or other shared stores on the internet. But instead of having only one source where the information is stored with multiple accesses, there are multiple stores scattered which are simultaneously being updated. A distributed ledger is also a network in which each participant can interact or transact between one another in a peer-to-peer manner. This direct exchange of information between the interacting parties is enabled by the highly resilient network protocol or consensus mechanism of the DLT without the need of any intermediaries.

As an example, imagine a system where instead of having one central accounting book of all transactions between contracting parties, there is a system maintaining multiple records simultaneously by every party. One single source of information or single source of truth (immutable records of transactions, interactions) on the blockchain maintained by the network and its protocol copied and shared with all parties who interact on the network.

2. Blockchain Applications

Blockchaintechnology immerged as center of trust, transparency,reliability of data processing, security and decentralized control. Applications of blockchain are listed below and explained how it can be used.

2.1 Land Registry

Blockchain stored the land information and manages the property rights. If buyer and sellers are agree on some condition, blockchain technology allows the fast instant transfer of land property with security. Blockchain minimizes the risk involved in intermediate charges, frauds and questionable situations. The possible steps for blockchain based land registry are:

a. Firstly buyer and seller should register to the blockchain network with their identity and for instant updating, it may be connected using mobile.
b. A request generated by the buyer and forwards it to the seller and asks for the details of land.
c. The seller accepts the buyer's request and passes it on the blockchain network.
d. Then the blockchain network gives response to seller, the lands public key, the current owner's public key, other details of land, and the transaction details of the previous ownership.
e. Transaction will be initialised, when the buyer is satisfied, and ownership details will be processed and updated to all users.

2.2 Agriculture and Food Supply Chain

Agriculture's products are used as input in multi-actor distributed supply chain, where the consumer is the final client. In every phase few technologies are involved and some information is recorded to the blockchain, as described below :

1. **Producer:** Farm and the farming practices employed, the crop cultivation process, weather conditions, animals and their welfare related information recorded.

DFA Space Minimization in Regular Expression matching For Network Security

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Abstract

Now a day's use of regular expression for Network intrusion detection and prevention systems is common to represent individual security threats. For representation of one regular expression as DFA is very easy but when entire set of regular expression is represented in DFA format large space is required. To address this issue, XFA and D2FA, alternative automata implementations have been proposed.

Alternate automata approach reduces the space required for Deterministic Finite Automata. Basically two approaches are used for that. First approach is we can make union of regular expressions set and then minimization can be performed. But this approach is having limitations. Second approach is by any mean we can minimize the regular expression set and then DFA is generated for minimum regular expression set.This approach is called as delayed DFA approach. It takes minimum time and space. Along with D2DFA its variations are also discussed in the paper.

Keyword: *DFA, NFA, Regular Expression, Signature*

1. Introduction

In todays world network security is key challenge. Package filtering is the one of the way for it. In some applications packet inspection is common technique for Network Intrusion Detection and preventions system. Signature based packet inspection is very accurate and efficient way. Signature used in packet inspection is simple string in paar days. But if signature is formed as set of regular expressions and it is tried for matching across peer-to-peer traffic, providing advanced QoS mechanisms.

For generation of signatures as security constraints various techniques uses regular expression instead of simple text or string. If the general string signature is used it is very easy to identify or hack. It has some limitation in terms of fix format. But the regular expression is very expressive and very accurate for fix format text. So various deep inspection engines uses regular expression for signature creations.

Most RE parsers utilize some variation of the Deterministic Finite State Automata (DFA) portrayal of REs. A mathematical model of DFA is shown as a 5-tuple {Q, Σ, δ, q0,A}, where Q is a states in automata, Σ is a alphabets to be used in automata order, state function is δ: Q × Σ'! Q, q0 " Q is the set of final state.

In DFA, for every data picture, one can choose the state to which the machine will move. Consequently, it is called Deterministic Automaton. As it has a predetermined number of states, the machine is called Deterministic Finite Machine or Deterministic Finite Automaton.

Any arrangement of REs can be changed over into a comparable DFA with the base number of states.

Main advantage of regular expression based pattern matching is it is more accurate and efficient way. Signature of targeted text is first generated. This signature represent payload of the packet. When any intruder packet enter in the network, its pattern matched with prescribed signature pattern. If pattern is matched the packet will be allowed to enter in the network. Otherwise that packet will be discarded.

The regular expression is well described by NFA and DFA. Regular expression first easily described by Non deterministic finite automata. The NFA is then converted to the DFA. Regular expression to DFA transformation has basic two intermediate stages. Regular expression to epsilon NFA, epsilon NFA to NFA and from NFA to DFA.

Fig1. Conversion of regular Expression to DFA

Another method for DFA conversion is epsilon NFA is obtained from given regular expressionand by direct method equivalent DFA is obtained.

Regular expression for given DFA can be generated by number of means. But this paper is discussing about DFA size and minimizing the DFA size.

But single Regular expression is not sufficient for representation of scenario. So set of regular expressions are

Strategies For Renewable Energy Extraction For Domestic Applications Comparative Study of PI, PR and Hysteresis Controller

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Abstract
This paper consist of the comparative study of the grid connected three phase Voltage Source inverter control schemes. The different control methods used are PI controller, PR (P + Resonant) controller and hysteresis controller. In PI control, the stationary reference frame is used to transfer the feedback quantities, where the decoupling of component requirement increases complications. To avoid these complications, a new Proportional resonant control strategy is employed, in which, a second order very high gain (ideally infinite gain) at fundamental frequency is given. The main advantage with this controller is reduction in steady state DC error. PR controller is adopted in the outer loop á-â co-ordinates to avoid complicated decoupling process. The hysteresis controller is mainly used as current limiting controller. The three phase system is simulated in the Matlab-simulink environment with all the controllers and experimental results are given to prove the correctness and feasibility of the system.
Keywords: *PI, PR and Hysteresis controller, d-q transformation, á-â transformation*

1. Introduction

It is the general trend to increase the electricity production using distributed power systems. An AC Micro-Grid system transfers the DC power from a Distributed Energy Resource (DER) unit, for example, a photovoltaic (PV) solar array, wind-power, or a fuel cell transfers power to the utility grid and has the capacity to operate autonomously. The key functional element of an AC Micro-Grid system is a Voltage Source Inverter (VSI). The different Renewable Energy Sources (RES) within the Micro-Grid system can operate independently or interconnected to a common DC link which supplies the VSI. These systems are to be properly controlled in order to provide the reliable power system to the utility network.

With the above importance in the renewable energy power usage, it is very important to have a very reliable power supply and for that, the system needs, a good controller. The general conclusion is that, many of the controllers for this particular system are either overburdened because of the complex network or they are very difficult to implement. Hence the paper deals with the different types of controller to have their brief comparative study. The controllers studied and simulated are the simple PI (proportional Integral) controller, P− Resonant controller, hysteresis controller.

In the hysteresis, the hysteresis comparators are used to impose hysteresis band around the current waveform, to restrict current within certain limit [1]. The simple PI controller is used for controlling the inverter output. The main advantage of the PI controller is that there will be no remaining control error after a set-point change or a process disturbance. A disadvantage is that there is a tendency for oscillations. PI control is used when no steady-state error is desired. There is a use of synchronous frame in PI control, but to reduce the complications of decoupling in it, the stationary reference fame (á-â transformation) is used in PR(proportional resonant controller) [2].

The main advantage of PR controller is to reduce DC steady state error to zero by forcing the ideally infinite gain at the resonating frequency. Also due to use of á-â transformation, the reference tracking system is improved [2] [3]. Figure 1 shows the power circuit diagram of the system. The three phase inverter used is a half wave full bridge inverter.

From the view point that electronic converter will find increased gird interfaced applications. This paper provides a brief study of the different controllers in comparative form. To begin, the paper gives system model which is to be simulated in matlab and then it is followed by the three control strategies with their certain equations and simulation diagram. As the PR controller is not a well known controller, there is more focus on implementation of the PR controller.

2. SYSTEM DESCRIPTION

System depicted in figure1 is a power circuit but the complete block diagram of the system with control strategy is given in figure 2. The renewable energy source used is photovoltaic system. As the output of PV system is very low as compared to the grid utility voltage, the boost converter is required to boost the PV output. The output of Boost converter is thus fed to the three phase voltage source inverter. As shown in figure 2, output of the inverter is given to the grid utility through the LCL filter [3]. The current control is done with the different controllers. The sinusoidal

Comparative Analysis of SVPWM for Control of Induction Motor

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Abstract
This paper deals with various PWM techniques used for control of IM. The review paper is made in the aspects of PWM techniques, ASD, SVPWM and its literature survey with the usage of SVPWM technique. The THD value will get varied and hence it is noted. This review paper will be more useful for selecting a suitable PWM technique for control of induction motor. Detailed analysis of SVPWM with its function has been made in a comprehensive manner with existing literature available till now. All existing methods in detail considering all parameters for applications of the best methods available.

Keywords: *Pulse width modulation, Space vector PWM, Total Harmonic Distortion*

I.INTRODUCTION

For providing continuous range process speed control, an ASD is used. Adjustment of speed and torque is done with this. There are many names for adjustable speed drives like variable speed drives, adjustable frequency drives or variable frequency inverters. Adjustable frequency drives are used for referred to at certain AC system. Adjustable speed drives are the most efficient (98% at full load) types of drives. They are used to control the speeds of both AC and DC motors.

To regulate the speed and torque for same induction motor, the motor has to run at variable voltage and frequency. ASD obtain the variable voltage and variable frequency.

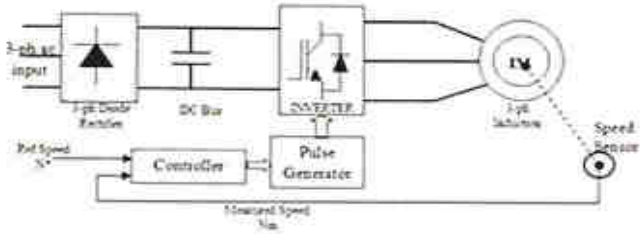

Fig 1: ASD block diagram

The second step is DC to AC by operating in inversion operation mode is called inverter device. The converter in ASD is operated in such a way that too obtained variable voltage and frequency at the output of the ASD by which motor speed, torque can be controlled with high performance [2].

II. OBJECTIVE

Constant speed and torque characteristics are provided by a motor with constant frequency and constant magnitude voltage which is the major objective of this technique. The motor run at variable voltage and frequency for regulating the speed and torque. We get AC voltage with conversion of AC to DC conversion. Inversion operation condition is the second step which is DC to AC [4].

III. LITERATURE SURVEY

In this paper, the presentation of a short survey of existing architectures of power converters which adapted to degraded operating modes.In the normal operatingmode, standard SVPWMcontrol methods are compared with ingenious methods. The ingenious strategies are implemented with making an analysis of their results, all these done in the analytical situation [5].

For variable voltage and recurrence supply, for control of Induction Motor quantities of PWM techniques are utilized. Most regularly utilized systems for three-stage voltage source inverter, SPWM and SVPWM are considered. The most acceleration pattern is in our reality is to utilized space vector PWM (SVPWM). It used to diminish symphonious substance and increment basic yield voltage for glossy control of Induction Motor. MATLAB/Simulink utilized for getting consequences of Total Harmonic Distortion (THD), Fast Fourier change current [1].In the customary voltage-source PWM rectifier, the sinusoidal heartbeat width adjustment strategy is utilized. Between stage, decoupling

Electrospinning: Real Challenges in the production of Nanofibers and Its Application Areas

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Abstract
Electrospinning is one of the simple and inexpensive system for the production of nanofibers. There are many challenges in the production of nanofibers that are necessary to discuss in this paper for the forthcoming researches. This paper focuses on the real challenges, problems and application areas that require attention to shine in the area of nanotechnology.

Keywords:*, nanofiber, electrospinning, filtration, nanoelectronics, solar cell, nanoscale materials,.*

I. Introduction

The standard laboratory electrospinning system generally consists of a syringe pump needle, which is connected to a high voltage power supply and a grounded collector. The power supply is connected to a needle of syringe pump it rises the electrostatic potential of the filled liquid in the syringe pump. As the electrostatic potential increase it raises liquid surface charge. It changes the shape of a liquid at tip of syringe, the liquid jet get exciting and this charge now repel which is similar to Taylor cone[1-3].

The opposite potential difference is present across syringe pump and the collector. It raises electric force concentrate on the surface of a conductor which results a sharp point. Due to the concentrate at this point, the fluid jet gets ejected near the tip. This charged fluid is directed towards in electrostatic field which results a variety of instabilities like Rayleigh and off-axis bending instability. For the production of good quality nanofibers it is necessary to control these instabilities. Various effects of instabilities during nanofibers production are discussed in this section. Various forces are acting on jet as it is present in air. It starts thinning as solvents associated with this fluid results evaporation and finally solid fiber is resulted near jet. The fibers are dependent on the aligned polymer molecules and the degree of draw ratio of the fiber[4-8].

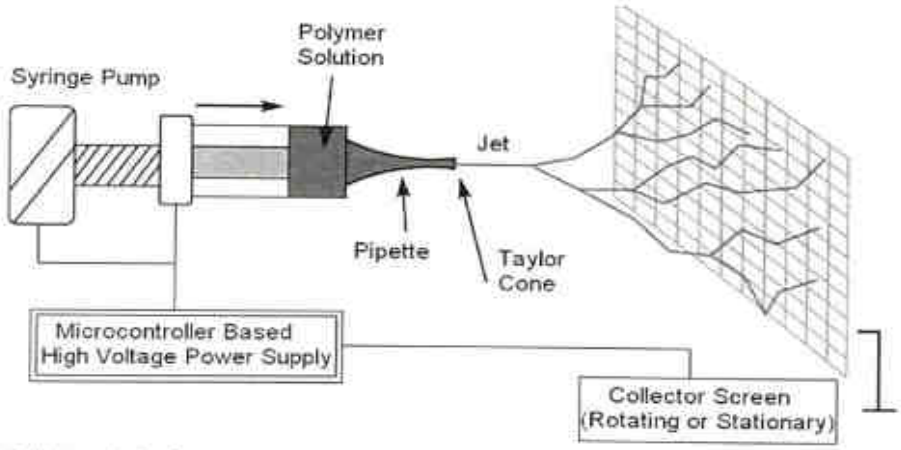

Fig 1 Electrospinning System

II. System Parameter and control requirment

a. Preparing Electrospinnable Solution

The nanofibers are produced by electrospinning a solution containing inorganic precursor and a solvent. The metal alkoxides or metal salts have higher hydrolysis rates and inappropriate rheological property due to which uncontrolled situation occurs in the electrospinning system. To eliminate this situation polymer is added it reduces the rheological property which imbalances and add a catalyst it is an additive to manage quick hydrolysis of inorganic precursors.

A Review on Cryptographic Algorithm for Light Weight Network

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Abstract
Cryptography is that the practice and study of hiding information. It is the science of reworking message to form them secure and resistant to attack. In cryptography, the original message is converted into other message at encryption side and converted into an original message at the receiver side.

For constrained devices, normal cryptography algorithms can be too slow, too big or too energy-consuming. Light-weight cryptography is generally defined as cryptography for resource- constrained devices, for which RFID tags and WSN are typically mentioned as examples.

The light weight ad hoc network is a wireless ad hoc network is a decentralized wireless network. The network is ad hoc because it does not depend on a preexisting infrastructure, such as routers in wired networks or access points in managed wireless networks. Instead, each node participates in routing by forwarding data to other nodes. Now a days this concept of light weight algorithm brought revolution in communication technologies by empowering advanced applications such as smart grid.

Keywords-*Cryptography, Symmetric Key Algorithm, Asymmetric Key Algorithm, Light weight network.*

I. Introduction

Cryptography is that the carry out and study of hiding information. It is the art of reworking message to form them secure and resistant to attack. In cryptography, the original message is converted into other message at encryption end and converted into an original message at the receiver end.

For guarded devices, normal cryptography algorithms can be too slow, too big or too energy-consuming devices. Light-weight cryptography is generally defined as cryptography for resource-guarded devices, for which RFID tags and WSN are typically mentioned as examples.

Secure communication on the internet or web is the foundation of network and web security. Cryptography is the practice and study of how to hide information from enemies, hackers or the public.

II. Review of Related Work

The upcoming era of generic computing will be characterized by many smart devices that because of the tight cost constraints in mass application have very limited resources in terms of memory, computing power, and battery supply. Many applications will process sensitive health-monitoring or biometric data, so the demand for cryptographic components that can be efficiently implemented is strong and increasing. For such implementations, as well as for ciphers that are particularly suited for this purpose, the general term lightweight cryptography is used. [3]

Cryptography is widely used for protecting the confidentiality of data transmission by preventing information disclosure to unauthorized users. Although cryptography improves the reachable communications confidentiality, it requires additional computational power and imposes latency, since a certain amount of time is required for both data encryption and decryption. In order to guarantee the authenticity of a caller or receiver, existing wireless networks typically employ multiple authentication approaches simultaneously at different protocol layers, including MAC-layer authentication network layer authentication and transport-layer authentication. So in summary, author Yulong Zou, *et.al* have presented an in-depth review concerning the integration of physical-layer security with classic wireless security mechanisms, including physical-layer authentication and cryptography. [4]

The drawback of time execution and key size were studied in light weight cryptography implementation in which the concept of Elliptic Curve Cryptographic (ECC) processor is used that reduces the time of execution [3].

Internet of things (IoT) is one of the most discussed topics today in the digital world. Focus area of researchers is to implement lightweight design to avoid high power dissipation and large memory requirement. RFID tag is one of the fastest growing technologies that would be useful in IoT .To provide a security at RFID level, there is need to have a lightweight crypto algorithm whose coverage area would be nearly 2100 Gate Equivalent (EQ). The standard algorithm like AES ,DES have huge memory requirement and would not convenient for implementation of embedded system design. Many lightweight algorithms have been designed in the past and various attacks have been proven on them. Two of algorithms that got adopted as the ISO/IEC (29192-2P-2012) standards for lightweight cryptography are PRESENT and CLEFIA [5].

Spectrum Sensing and Sharing Based on K-tuned Classifier and Fuzzy Logic in Cooperative Cognitive Radio Vehicular Network

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Abstract
This paper aims to efficiently utilize the spectrum based on sensing and sharing with optimal selection of the resources like relay and power on cooperative cognitive radio in vehicular network. Resources are allocated in V2V environment by considering the effect of Doppler shift. Spectrum sensing is carried out using K-tuned Nearest Neighbors (KNN) algorithm, in which the K parameter is tuned to avoid misclassification related problems that enhances the spectrum sensing. After sensing the status of spectrum, a Fuzzy logic based approach share the spectrum with the help of optimized resources. Simulations are carried in different vehicle scenario in terms of bit error rat and throughput
Keywords: *Cognitive, Cooperative Communication, Doppler shift, Fuzzy logic*

1. Introduction

Vehicle to Vehicle (V2V) communication is a part of Intelligent Transport System (ITS) which assist vehicles to communicate with each other by providing information about the status of traffic and road conditions to the vehicle users [1], [2]. Apart from basic communication between vehicles, vehicle manufactures now offers infotainment applications like video streaming, collision avoidance by warning drivers about dangers at intersections where view of drivers are obstructed by buildings, trees etc. [3-5]. With more vehicles and new internet enabled features, there arise a demand for more spectrum in IEEE 802.11p. V2V cannot solely depend on DSRC, therefore V2V makes use of cognitive radio (CR), an emerging technology that makes use of underutilized spectrum by sharing between primary users (PU) and secondary users (SU). CR helps to improve the spectrum sharing between PU and SU without affecting the performance of primary user [6]. Cooperative communication (CC) is a technique which helps the transmitter to sense and share spectrum effectively to receiver with the help of relays through amplify and forward (AF) and decode and forward (DF) methods. Resource allocation in a cooperative network is formulated to achieve an objective like maximize the sum rate etc.by selecting an optimal relay, subcarrier and power selection [7], [8]. Power allocation strategies like Classic water-filling method,suboptimal two-step power allocation algorithm of subcarriers were proposed for optimal power allocation [9], [10]. Spectrum sensing is a technique by which vacant spectrum bands are sensed and allocated to secondary users without affecting the performance of the primary user.

The proposed strategy selects an optimized relay with highest SNR by considering the effect of Doppler shift. Power selection at the source and relays in CR are adjusted such that power won't exceed a certain limit. The proposed strategy tunes the parameter k to avoid misclassification in KNN algorithm. Rule based fuzzy logic approach is carried out during spectrum sharing through optimally selected relay by checking the energy and presence/absence of the subcarrier.

2. Spectrum Sensing through K-tuned Classifier and Resource Allocation in Cognitive Radio Vehicular Network

2.1 System Model

Consider a Cognitive radio network where Primary user coexist with the secondary user. CR network consists of M secondary users which sense and reports the energy level conditions to a fusion center. The fusion center decides the number of free subcarriers based on the energy level report. There are L primary users in the network which is indexed by $L=1,2,...l$, Msecondary users which are indexed by $M=1,2,...m$, N relays and j subcarriers. Let S_i indicates the state of Primary user i. When primary users are in on state $D_m=1$ else0. The Fig 1 shows the architecture of proposed system.

A Review of Solutions for Software Defined Network: An Exclusive Scheduling Issues

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Abstract
Software-Defined Networking (SDN) is an emerging architecture that is dynamic, manageable, cost-effective, and adaptable, making it ideal for the high-bandwidth, dynamic nature of today's applications. This architecture decouples the network control and forwarding functions enabling the network control to become directly programmable and the underlying infrastructure to be abstracted for applications and network services

Consider a software-defined network (SDN) with multiple physically interconnected SDN switches and an SDN controller. The switches may have different processing capacity. The end hosts communicate with each other through the network. The rates of the data traffic generated by the end hosts vary with time. Sometimes, the data rates may be high can cause network congestion.

Through this paper, we presented a review report on various SDN scheduling algorithms. Along with the SDN introduction, we discuss the prior work in the field. The review states how the scheduling changes the network architecture with network flexibility and programmability. Our review work covers major popular scheduling algorithms used in SDN paradigm.

Keywords *SDN, Scheduling*

I. Introduction

Software-defined networking (SDN) technology is an approach to network management that enables dynamic, programmatically efficient network configuration in order to improve network performance and monitoring making it more like cloud computing than traditional network management.[1] SDN is meant to address the fact that the static architecture of traditional networks is decentralized and complex while current networks require more flexibility and easy troubleshooting. SDN attempts to centralize network intelligence in one network component by disassociating the forwarding process of network packets (data plane) from the routing process (control plane). The control plane consists of one or more controllers which are considered as the brain of SDN network where the whole intelligence is incorporated. However, the intelligence centralization has its own drawbacks when it comes to security,[1] scalability and elasticity[1] and this is the main issue of SDN.

SDN was commonly associated with the OpenFlow protocol (for remote communication with network plane elements for the purpose of determining the path of network packets across network switches) since the latter's emergence in 2011. However, since 2012[2][3] OpenFlow for many companies is no longer an exclusive solution, they added proprietary techniques. These include Cisco Systems' Open Network Environment and Nicira's network virtualization platform.SD-WAN applies similar technology to a wide area network (WAN).[4]

SDN architectures decouple network control and forwarding functions, enabling network control to become directly programmable and the underlying infrastructure to be abstracted from applications and network services

The OpenFlow protocol can be used in SDN technologies. The SDN architecture is:

- Directly programmable: Network control is directly programmable because it is decoupled from forwarding functions.
- Agile: Abstracting control from forwarding lets administrators dynamically adjust network-wide traffic flow to meet changing needs.
- Centrally managed: Network intelligence is (logically) centralized in software-based SDN controllers that maintain a global view of the network, which appears to applications and policy engines as a single, logical switch.
- Programmatically configured: SDN lets network managers configure, manage, secure, and optimize network resources very quickly via dynamic, automated SDN programs, which they can write themselves because the programs do not depend on proprietary software.
- Open standards-based and vendor-neutral: When implemented through open standards, SDN simplifies network design and operation because instructions are provided by SDN controllers instead of multiple, vendor-specific devices and protocols.

With the rapid development of network equipment, single-port capacity becomes larger. The traditional Quality

A Study of Operational Parameters of Poultry Houses To Reduce Heat Stress Effect under the Tropical Climate Conditions

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Abstract

Compared to other types of livestock, poultry farming is widely owned by rural families in developing countries. Rural poultry production is not a primary agricultural activity, but rather serves as a complement to other agricultural activities. Poultry contributes significantly as a source of scarce animal protein and income. However, rural poultry faces several challenges, including inherent slow growth rates, high rearing mortality and susceptibility to diseases, poor nutrition and housing, and inadequate health care, which can disrupt production due to heat stress in tropical climate. An additional concern is that unprecedented climate warming may present some of these challenges. This paper reviews the potential impact of such climate warming on rural poultry farming; provide knowledge to help inform intervention strategies to aid sustainable production and remedies to avoid the heat stress effects. Particular attention has been focused on how climate-warming trends have impacted the heat stress experienced by livestock, the importance of rural poultry, and the challenges faced by rural poultry production in tropical countries. There is a clear need for immediate research attention in this domain, so that appropriate management strategies and responses to rising temperatures can be improved.

Keywords: *Heat Stress, mortality, evaporative cooling, ventilation, thermal stress, air velocity, humidity.*

1. Introduction

Poultry is one of the important components of the farmer's economy. It provides additional income and job opportunities to a large number of rural populations in the least amount of time. Poultry farming has gained great importance due to the increasing demand for poultry products, especially in urban areas due to their high food value. It also involves small capital investment and provides useful employment to a large number of people. Currently our poultry industry has contributed more than twenty thousand crores rupees to Gross National Products (GNP) and supports the livelihood of farmer and traders.. Poultry also has the highest growth rate of 8-10% of eggs in the agricultural sector in India and 15–20% in broilers in the last two decades. There are also more than one lakh poultry farms and around 500 hatcheries and Indian birds are particularly suited to the hot climate. Poultry makes a significant contribution to food security and nutrition, with short production cycles, providing humans with energy, protein and essential micronutrients. It has the ability to convert a wide range of food and products and wastes by humans into meat and eggs. Poultry is the fastest growing agricultural sub-region, especially in developing countries. The global poultry sector is expected to grow as demand for meat and eggs are driven by growing population, rising incomes and urbanization. In both rural and urban areas, poultry farming is a major asset and key to poverty alleviation, particularly for small holders and the poor, providing income and market participation. But large-scale operations are essentially benefiting from the growing market and market access is important for small holders. However, poultry is a threat to human health, particularly as a vector of infectious diseases and due to its role in antimicrobial resistance. In addition, poultry has a significant impact on the environment and is a major consumer of natural resources. While the region is generally seen as efficient in converting natural products into food products, it uses large amounts of land, water and nutrients to produce feed materials and contribute to climate change Is, mainly through feed production and air and water pollution

2. Literature Review

Poultry is one of the fastest growing sectors of the agricultural sector in India; with an average growth rate of 8 to 10 percent per year (production of agricultural crops is growing at a rate of 1.5 to 2 percent per year). The production level has reached 45 billion eggs and 1.7 million tonnes of poultry meat per year. India is now the world's third largest egg producer and the nineteenth largest producer. Poultry production contributes about 1 percent to India's Gross Domestic Product (GDP). A notable feature of the Indian poultry sector is that it is sufficiently supported by a broad and strong genetic base, comparable to the productivity level Feed Conversion Ratio (FCR) of broilers / layers obtained in developed countries. India is one of the few countries that possess technology for the production of specific pathogen-free, SPF eggs. The per capita annual availability of poultry products has increased to 44 eggs and 1.76 kg of meat - still below the recommended level of 180 eggs and 11 kg of meat. Reducing this gap through focused research and development efforts is likely to create at least 9 to 10 million jobs, export capacity and

Mechanical properties of Kevlar reinforced Epoxy composite with Copper Nano Powder

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Abstract
In recent years, the need for manufacturing reliable and innovative components has been increased rapidly. Fiber reinforced composite materials have strong candidature for fulfilling these aspects with wide applications in almost all areas of engineering and technology. Glass, Carbon, and aramid fibers are using widely for production of fiber reinforced polymer composites. Kevlar is most popular aramid fiber having a long chain of strong, ring-like aromatic molecules. Superior heat and shock resistant properties make Kevlar the most promising antiballistic material with stability at higher temperatures. It is widely used for body armor panels for lightweight military vehicles, bulletproof jackets, and fireproof body suits and in aerospace industries etc. This paper examines the tensile, flexural and impact strength of Kevlar 29 (K-29) fiber reinforced polymer composite. The composite samples used in this study prepared by hand lay-up technique. All Mechanical characterizations were performed as per required ASTM standards. The acquired results showed that developed Kevlar-29 fiber reinforced polymer composite has good tensile, flexural and impact strength. These higher mechanical properties make this composite suitable for enormous applications in engineering industries. The result shows that with 3% Copper Nano Powder is having very good mechanical properties.

Keywords: *Kevlar-29 Fiber, Copper nano fiber, Glass, Carbon, and aramid fibers*

1. Introduction

Composite can be defined as combinations of two materials one of which is called as the reinforcing phase which can be in the form of fiber sheets or particles and are embedded in the other material called the matrix phase. The objective is to take benefit of the superior properties of both the materials without compromising on the weakness of either. Mechanical properties of composites depend on the size, shape and volume fraction of the reinforcement, reaction at the interface matrix material. The composites are comp0ound materials which differ from alloys by the fact that the individual components retain their characteristics but are so incorporated into the composite as to take advantage only of their attributes and not of their short comings, in order to obtain improved materials. There are two categories of constituent materials of composite materials: matrix and reinforcement. The matrix material supports and surrounds the reinforcement materials and simultaneously maintains there relative position. The reinforcements impart their special mechanical and physical properties to enhance the matrix properties. Kevlar is a para aramid synthetic fiber which has good tensile modulus, high strength to weight ratio, and high energy absorption capacity. It also has good ballistic impact resistance specially designed for defence applications. Kevlar fiber is a kind of aramid fibers, which is famous for its lightweight, lower dielectric constant as well as in-plane coefficient of thermal expansion (CTE) and greater dimensional consistency, so it has great potential in fabricating HPCCLs. In fact, considerable attentions have focused on preparing HPCCLs based on Kevlar fibers. Aramid fibers have higher tensile stiffness and strength than glass fibers and a lower density. Composites reinforced with aramid fibers are tough, with good impact energy absorption properties, and are extensively used in special applications such as armour plates, bullet-proof vests and other applications where crashworthiness is a priority. ARALDITE® AY105, a medium viscosity unmodified epoxy resin based on bisphenol-A, was used in this study. Araldite®, which is a registered trademark of Huntsman LLC (The Woodlands, Texas), is used to bound the layers of the Kevlar fabrics together. The chemical properties of the epoxy resin used in this study are presented in TABLE 2. Epoxy resins are cured with the addition of a curing agent which is commonly called a hardener. Low viscosity cycloaliphatic polyamine - HardenerHY 2962. Aradur 42. From Huntsman LLC (The Woodlands, Texas), was used in this research. Epoxy resins usually require the addition of the curing agent at a much higher ratio of resin to hardener. The ratio of resin to hardener, used in this study, is 5:1. The various physical and chemical properties of araldite. Nano materials are being applied in more and more fields within engineering and technology. One of the key benefits of nonmaterial is that their properties differ from bulk material of the same composition. The properties of nanoparticles, for example, can be easily altered by varying their size, shape, and chemical environment. Copper is a Block D, Period 4 element. It is a ductile metal with very high thermal and electrical conductivity. The morphology of copper nano particles is round, and they appear as a brown to black powder.Copper is found to be too soft for some applications, and hence it is often

Mathematical Model and ANN Validation of Thermoelectric Generator System for its Performance Enhancement

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Abstract:
One of the core issues in investigation is forecast of upcoming results. The experimental data-based modeling attained this through mathematical models for the dependent π terms. In such complex phenomenon connecting nonlinear systems it is also planned to develop models using Artificial Neural Network (ANN). The output of this network can be evaluated by comparing model and experimental data. In the present work identify the independent and dependent variables from Thermoelectric Generator (TEG) system and developed the 3 dimensionless independent Pi terms and four dependent Pi term as voltage, current, power and efficiency of TEG module. This attempts the application of dimensionless analysis to find what parameters are influencing the performance Thermoelectric Generator system (TEG).

Keywords: *Field Data based Mathematical Modeling, Dimensionless analysis, TEG module, ANN.*

I. Introduction to TEG

The basic theory and operation of thermoelectric based systems have been developed for many years. Thermoelectric power generation is based on a phenomenon called Seebeck effect discovered by Thomas Seebeck in 1821 [5]. When a temperature difference is established between the hot and cold junctions of two Dissimilar materials (metals or semiconductors) a voltage is generated, i.e., Seebeck voltage. In fact, this phenomenon is applied to thermocouples that are extensively used for temperature measurement.

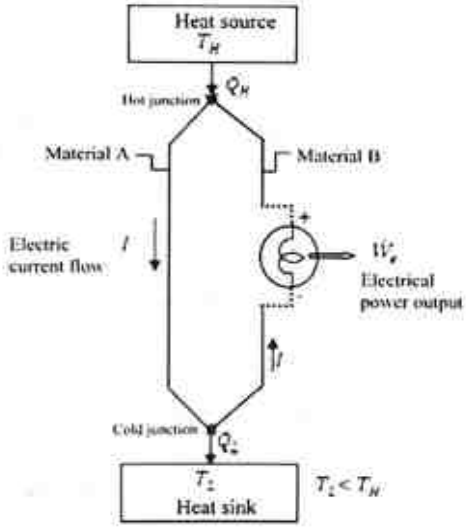

Fig.1. Schematic diagram showing the basic concept of a simple thermoelectric power generator operating based on Seebeck effect. [5]

In above figure heat is transferred at the rate of QH from a high temp. Heat source maintained at TH to the hot junction, and rejected heat rate of QL to low temp. sink maintained at TL. Due to the heat supplied at hot junction, causes the electric current to flow in the circuit to produced electrical voltage [5]

Applications Of Artificial Neural Network In Solar Energy Systems: A Review

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Abstract
Artificial Neural Network (ANN) techniques provide a unique way to solve complex and ill-defined problems to simple techniques. It is based on biologically stimulated computer programs design to suggest in such a way as human brain processes information. They can assemble associate by identifying the patterns and relationships in data and learn through experience and able to handle noisy, incomplete data, non linear problems and prediction of data. ANNs have been the potential of combining and incorporating both literature based and experimental data to solve complicated practical problems. They have been found application in various areas like data analysis, forecasting, drug, model recognition, production, optimization; signal processing and social/psychological sciences are becoming more and more popular nowadays. The current research work give idea on the application of the ANN-techniques in solar energy systems; for modelling and design of firstly solar air heater, solar water heater and solar radiation estimation. This review literature included in this review work provides the potential of ANNs as a design tool for the optimal solar thermal systems.

Keywords: *Artificial Intelligence; Solar Water Heater; Solar Air Heater;*

1. Introduction to Artificial Neural Network

Artificial Neural Network (ANN) has been used nearly last 50 years but from last 20 years the different application software were introduced and are being used to solve practical problems. Artificial Neural Network (ANN) is essentially an information processing concept motivated by the natural nervous systems, like the brain [1]. Artificial Neural Network (ANN) prepared of a large number of highly interconnected processing elements known as neurons. Artificial Neural Network (ANN) are having the capacity to train from examples, like humans. The training algorithm of Artificial Neural Network (ANN) application was explained and presenteded by Hebb in 1949. In this network training stage, processing elements are subjected to a set of finite training sets, and after that neurons adjusted their weights as per the learning method or to obtain a specific target output according to a particular input. Such a situation is shown in Fig 2. Typically many such input/ target pairs are needed to train a network.

Artificial Neural Network (ANN) technique has the capabilities of high speed of calculation; useful in solving the non-linear problems; do not needed any previous knowledge of system model; easy; giving good result and ability of network to learn from examples [2]. Nowadays, Artificial Neural Network (ANN) has been broadly used as an substitute technology to faced highly complex, incomplete data sets, vague or incomplete information and ill-defined problems. Artificial Neural Network (ANN) technique has drawback also, because of its enable to differentiate which parameter may causing a low reading. Artificial Neural Network Artificial Neural Network (ANN) techniques are implemented to problems related to the fields of optimization, pattern recognition, image processing and forecasting etc.

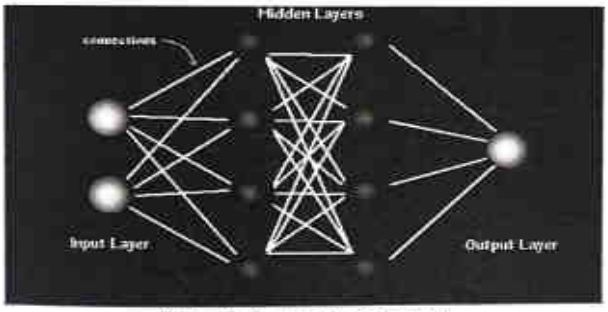

Fig 1 - Basics of Neural Networks

Prediction of Reliability Parameters and Reliability of Electric Discharge Machining by Probability Plotting

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Abstract:
In electric discharge machining (EDM), predicting the reliability of electrode and tool is most important to arrive with the optimum process parameters. In this paper, the material removal rate, tool wear ratio and electrode wear rate of EDM process are plotted with weibull distribution. The shape and scale parameters of these plots are used to forecast the reliability of tool and electrode. The method of probability plotting is used for calculating the parameters of the weibull distribution. With the value of β and η, the reliability of tool and electrode is predicted at different time period. This process requires very less time, easy calculations and minimum data of MRR, TWR & EWR to find the reliability of EDM parameters. Since weibull is generalized form of distributions, it can also be applicable to find the reliability at any other kind of failure rates.

Keywords : *Weibull distribution, MRR, EDM, Reliability, probability plotting*

INTRODUCTION:

With the increasing demand for new, hard, high strength, hardness, toughness, and temperature resistant material in engineering, the development and application of EDM has become increasingly important.[1]EDM has been used effectively in machining hard, high strength, and temperature resistance materials[2]. Material is removed by means of rapid and repetitive spark discharges across the gap between electrode and work piece. Since the EDM process does not involve mechanical energy, the removal rate is not affected by hardness, strength or toughness of the work piece material [3].Therefore, a comprehensive study of the effects of EDM parameters (peak current, machining voltage, pulse duration and interval time) on the machining characteristics such as electrode wear rate, material removal rate, surface roughness and etc., is of great significance and could be of necessity. The weibull distribution method which is a powerful tool for parametric design of performance characteristics is used to determine the optimal machining parameters for minimum electrode wear ratio, maximum material removal rate and minimum surface roughness in the EDM operations. [4]

The weibull distribution is a general purpose reliability distribution used to model material strength, failure data of electronic and mechanical components, equipment or systems. Weibull distribution is a versatile distribution that can take on the characteristics of other types of distributions, based on the value of the shape parameter, β &scale parameter η.[5]

Probability plotting was originally a method of graphically estimating distribution parameter values. With the use of available failure data parametric values are calculated, the probability plot now serves as a graphical method of assessing the goodness of fit of the data to a chosen distribution. Probability plots have nonlinear scales that will essentially linearize the distribution function, and allow for assessment of whether the data set is a good fit for that particular distribution based on how close the data points come to following the straight line. The y-axis usually shows the unreliability or probability of failure, while the x-axis shows the time or ages of the units. Specific characteristics of the probability plot will change based on the type of distribution.

PROBABILITY PARAMETERS:

Distributions can have any number of parameters. The amount of data required for a proper fit increases with the number of parameters. In general, most distributions used for reliability and life data analysis, the lifetime distributions, usually are limited to a maximum of three parameters. These three parameters are usually known as the scale parameter (η), the shape parameter (β) and the location parameter (γ). Here, in this case, two parameters Weibull distribution is used, parameters being the scale & the shape.

1. ***Scale Parameter (η):*** The scale parameter is the most common type of parameter. All distributions in this reference have a scale parameter. In the case of one-parameter distributions, the sole parameter is the scale parameter. The scale parameter defines where the bulk of the distribution lies, or how stretched out the distribution is. In the case of the normal distribution, the scale parameter is the standard deviation.
2. ***Shape Parameter (β):*** The shape parameter, as the name implies, helps define the shape of a distribution. Some distributions, such as the exponential or normal, do not have a shape parameter since they have a predefined shape that does not change. In the case of the normal distribution, the shape is always the

Metal Matrix Composite : A Review

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Abstract

New generation of materials always attract researchers and material engineer for their selection and specification in various industrial applications.Due to the safety requirements and standards of operation there is improvement in property of materialcontinuously and consumer demands a system or machine that have sufficient strength, light weight, energy efficient, economical etc. this result in search of new generation of material. Designing such advanced materialis difficult task but metal matrix composite (MMC's) found to be most suitable for such requirements. These materialconsist of unique mechanical and physical propertiesand replacing conventionalmaterials like cast iron, aluminium etc. Metal Matrix Composite (MMC's) is a combination of two or more materials having properties that can't be achieved by a single material. The machining of these materials is very difficult due to abrasive nature hence tool selection is a major concern. The objective of this paper is to give an overview about Metal Matrix Composites (MMC's).

Keywords: *MMC, Reinforcement, Machining, cutting tool*

Introduction

There is large interest in last two decades regarding Metal Matrix Composites MMC's because these composites have excellent mechanical and physical propertiesand are replacing conventional metals in many industrial applications like automobile, aerospace, defense and sports related industries. Composites based on metals and their alloys refer as Metal Matrix Composite, metal or alloy may be aluminium, magnesium, titanium, copper and nickel reinforced with ceramic particles, whiskers or fibers. Reinforcement may be silicon carbide (SiC) aluminium oxide (Al_2O_3), titanium carbide (TiC), silicon nitride (Si_3N_4)which plays a major role as it decides the mechanical and physical properties, cost and performance of a given composite. In MMC's matrix is continuous phases which binds and keeps the reinforcement in position and transfer the load to and between the reinforcement the volume fraction of reinforcement varies from few percentage to 40%, the interface between the matrix and reinforcements also affect the property of MMC's, the choice of reinforcement always depends on the final property requirement of a product to be fabricated.The objective of machining is to produce a component of required shape, dimensions with specific quality and surface finish and machining of MMC's is not easy as machining conventional materials like aluminium , mild steel etc. because while machining MMC's cutting tool interact matrix and reinforcement separately which results in decrease in surface quality, rapid tool wear and increased machining cost. Selection of a proper cutting tool also plays a major role while machining MMC's. Machiningis very important as eighty percent manufactured parts need machining before they are ready touse.

Literature Survey

Oldest example of the use of Metal Matrix Composites (MMC's) in ancient civilization is the copper awls from Cayonu (Turkey) about 7000 BC and made by repeated lamination and hammering process, resulting in elongated non-metallic inclusions. Among the first composite material to attract researchers as well as practisca attention is the dispersion hardened metal systems [1].Schmidt in 1924 have consolidated mixtures of aluminum - alumina powders to produce the dispersion hardened metal system, which later become an extensive research during the year 1950's and 1960's[2].Metal-matrix composites (MMCs) are tailored with combinations of two or more constituents (one constituent must be metal or alloy) where properties are achieved by selecting combinations of different constituents. Conventional metals have limitations in respect to achievable combinations of strength, hardness, stiffness and density. Metal Matrix Composites (MMC's) which are fabricated consist of continuous or discontinuous fibers, whiskers, or particles to achieve combinations of mechanical and physical properties. Also, proper design and synthesizing permit unique combinations of engineering properties such as high elevated temperature, strength, fatigue strength, damping property, electrical and thermal conductivities, friction coefficient, wear resistance and expansion coefficient. Volume and shape of cast composites which are produced by foundries, are controlled by phase diagram, for example, cast iron and aluminum-silicon alloys. In Metal Matrix Composites (MMC's) by controlling the relative amount and distribution of constituents and processing conditions excellent combination of engineered

Road Traffic accident Scenario in India

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Abstract
In India the exposure to adverse traffic environment is more because of extraordinary growth in density of vehicles and economic growth. Road user inclinations on customized road transport have an important impact on overcrowding and security public road transport. The present study is aimed at studying crash pattern through collision type and road user in India. The different modifiable and non-modifiable human factors of road accident considered for study. Data on number of accidents, people killed and injureddue to failure of the vehicle portion considered to assess its impact. The road related factors considered to study its influence on road accidents. The crash pattern in India studied through collision type androad user category maximum deaths were due to hit and run type of Collison. Road infrastructure that won'tcontain safety features when planning, building and maintenance presents significant risk to road users.The different human factors considered under study found to have different influence on road traffic accidents. Study reveals that there is need of studying the mutualconsequence of human factor, vehicular defect and traffic laws through in-depth investigation of road accidents.

Key word: *Road Traffic Accidents, Human factors, Vehicle defects, Road feature, collision type.*

1. Introduction

In India, road transportation is the chiefmeans of transportation, both in terms of stream of trafficportion and role to the development of nationwidefrugality. India has 5472144 km of road out of which 4.8 percent are highways. Highways are especially considered to facilitate the swift mobility of things and people[1].The total of vehicles and the roadgrid have increased over the years to meet the demand for road transport. A negative outcome of increased road grid, vehicles and city area is that it lead to more number of accidents and consequences. Road traffic accidents are currently aforemostreason of hospitalization, wound and demise.

The word incident applies to an accidental, unspecified event in which no action is taken. The term "crash" has thus replaced the term accidents in recent years as most crashes can be predicted and avoided.

A number of triggers and influences, generally recognizable as human, environmental and vehicular, lead to road accidents. Knowledge of accidents on specific road types is important for preparing security measures throughout the country. The detailed understanding of the situation that resulted in accident is necessary to prevent it.

2. Need:

MoRTH reports nearly 46 lakh accidents were reported in 2017 and these accidents caused to 1.4 lakh mortalities and almost 4.7 lakh people were injured.

The increased road accident severity and total number of accidents in India drives attention to study the past accident data and trend of accidents based on various factors responsible for it.

3. Objectives:

The broader objective of study is to find out the need and scope of research in the field of road accident investigation and simulation. Increased road traffic accidents and the alarming situation of accident severity in India drives this research.

The specific objective of study:

1. To study road related factors in accident.
2. To study influence of vehicle component failure.
3. To study influence of human factors risk factors.
4. To study accident pattern in India.

4. Literature Review

Individual people and communities are vulnerable to road trauma based on the dispersion of risk factors, which typically occur within the continuum of hazard-free to hazardous.

The effect and consequences of the road crashes depend on the four-stages of risk. These rates are defined as aspects related to the influence, crash intensity and consequences of this impelling risk [5]. Such factors may be commonly classified and referred to as route, car, infrastructure and systems risk factors.

Lean in Technical Education Organization

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Abstract

Lean Method is mainly depending on the principles such as transparency, cooperation, speed and co-learning. It will lead to balance teaching program and purifies from wastes. Lean implementation is a set of tools and techniques to find out the effective use of essential educational components and minimizing the unnecessary components in technical education system.Lean education system will give a disciplined and holistic approach in planning, prioritizing, managing and measuring the work.

Lean implementation in technical education system is at initial stage and there is lot of scope for improvements. As number of case studies are less, benefits of lean cultures should be communicated to other organizations.

Keywords:*Lean, continuous improvement, holistic approach*

1. Introduction:

Lean management in technical education system is an improvement approach that encourages all technical colleges and universities to identify and solve problems that prevent students and society from achieving the highest outcomes possible.

The thought process of lean concept was thoroughly explained in the book "The Machine that changed the world" & "Lean Thinking" by James P. Womack and etal. Toyota dominant success in each and every fields stands as the strongest proof of the power of lean organization. This continued success convinced the leaders to adapt the tools and principles beyond manufacturing to services, logistics, construction, health-care and now it will help to increase attainment of program outcomes of technical education system.

Lean education system will give a disciplined and holistic approach in planning, prioritizing, managing and measuring the work. It should not be misunderstood as cost reduction program or any tactic. Lean transformation is used for moving form an old way of thinking to lean thinking which needs a long-term perspective and perseverance. In education system it is difficult like manufacturing to define or relate directly the concepts like products (students), customers (parents & society) & quality (employability index).

2. Lean Principles:

According to Womach,(1992), lean thinking is the conversion of waste into customer-defined value. Waste is any action or step in a process that does not add value to the customer. TaiichiOhno, the Chief Engineer at Toyota, defined the seven wastes (Muda) as Transportation, Inventory, Motion, Waiting, Over production, Over processing and Defects. In 1990s, 8th waste of non-utilized talent or 'Skills' of workers was introduced. Mapping this concept in technical education system we can identify and eliminate the various wastes in teaching, administration and assessment process to develop employability and entrepreneurial skills among budding engineers.

Lean philosophy is based on five principles as shown in Fig.1

Fig.1. Lean Principles

Industrial Automation In Food Industries

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Abstract
Food Manufacturers in the world are facing huge and unsustainable economic pressures on the food manufacturing system. Labour is year on year becoming more expensive as a result of growing sector competition for labour and a government commitment to increase by 2020. Also, retailers and food services are very competitive sectors put high pressure on the food manufacturers not to increase their end product costs as their manufacturing costs increase. Nowadays Food industry necessary required to accomplish national-international values and quality, safety, security, traceability in market requirements, and carbon footprint. Industrial Automation has been widely used in food packaging applications to fulfill market demands, while its usage in primary processing is mainly approached using standard automation technologies such as automatic types of machinery, while secondary processing is typically tackled through process control technologies. Automated Robotic Food Manufacturing System and Robotic Flexible Food Manufacturing System aim at tackling these issues through designing fully automatized food manufacturing robotics systems. The objective of the work to study the fundamentals of industrial automation and elaborates its potential in food industries. This work also presented types and tools of industrial automation used in different food industries. Automation is not replacing people but new skills require from them.

Keywords: *Industrial Automation, Robotic, Food Industry*

1. Introduction:

Automation includes mechanization with the use of machinery with or without aid of human being to perform task. Whereas automation substitutes using programming commands and powerful types of machinery. Generation of superior lean manufacturing methodologies contributed by digital communication, data analytics and Automation. The process of Industrial automation includes replacement of manually controlled operations using electrical, electronics and controller devices.

A process in the development of mechanized production in which the control and monitoring functions previously performed by humans are transferred to instruments and automatic devices. Development of modern industry with technical progress leads with production automation. Partial, integrated and total automation are illustrious goals to improve manufactured quality products with labour efficiency for optimum use of all resources of production in industry. The total automation of production is the highest stage of automation. Automation shifts all controlling and monitoring functions of human to automatic control systems.

Industries demands for consistency in quality of products with a competitive price hence some of food industries is in search of new techniques for quality improvements with automation system. Industrial automation is notable solution to challenges mentioned above and also helps to improve the quality, reliability of product and production rate whereas design costs and production reduced by implementing new, advanced and combined technologies and services.

Automation of production in the field of food industries is an important factor in improving the quality and nutritional properties of food stuffs. The development of automatic facilities for direct processing of agricultural products into semi-finished food products, culinary items, and even ready-to-eat dishes contributes to improved retention of the nutritional and original product flavor qualities with minimum losses. A very important trend in the integrated automation of the food industry is the transition from batch processes with a large number of operations to continuous streams; the introduction of chemical processes; the use of polyelectrolytes and enzymes to speed up filtration of juices; and the use of sublimation for dehydration, ultrasound for emulsification and extraction, electron beams and sterilization with radioactive radiation, Magnetic and electric fields with infrared rays for heating purpose. Automation technologies helps numerous industries for improving productivity. In twenty-first century, robotics is a crucial factor in automation technologies. Use of robot in manufacturing sectors leads to increase in efficiency and product consistency.

Industries captivating the automation benefit as demand of production increased. This was particularly so for end-of-line packaging and palletizing. Recently, the actual food production lines use highly operative pick-and-place robots for automation in upstream and undertake movement. However, these systems are now only installed on the

Recent Study of Nano Fluids Used in Heat Pipes in Solar Collectors

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Abstract

This paper reviews and summarizes the work on heat pipes using nano fluids as a working medium in solar collectors. The heat pipe is an innovative device capable of transferring large quantities of heat through relatively small cross-sectional areas. NANO fluids are the solid-liquid suspension created by the combination of small NANO particles with base liquid(water).The commonly used NANO fluids are Alumina(Al2O3),Copper oxide(Cu2O),Titanium oxide(TiO2) and Au/water. The recently discovered NANO fluid is Graphene oxide due to its high thermal conductivity. The NANO fluid plays a vital role in many of the thermal applications like heat exchanger, solar power generation and Automobile industries because of its higher efficiency less, friction less heat loss and more advantages. This paper discusses relativity of total heat resistance between the heat pipe with nano fluid and with existing fluids.

Keywords: *Heat Transfer, Solar Collector, Capillary Force, Heat Pipe, Nano Fluid.*

1. Introduction

The idea of the heat pipe was first suggested by Gaugler in 1942. A heat pipe heat exchanger is a simple device which is made to transfer heat from one location to another, using an evaporation-condensation cycle. There are three sections involved in the heat pipe evaporator section, adiabatic section and condenser section. Heat pipe is partially filled with working fluid. Nano fluids are the working fluid used here. When the working fluid absorbs the heat from the heat pipe it undergoes evaporation which converts fluid to vapor. The vapor then travels along the heat pipe to cold interface and condenses back into the liquid phase-releasing the latent heat. The liquid then moves to hot inter face to gravity and cycle repeats. Many researchers have presented the heat transfer characteristics of heat pipe using nano fluids. The concept of "nano fluid" has firstly proposed by Choi and Eastman. That is, adding nano scale metal or metal oxide particles in the liquid with a certain way and proportion, which forms a new class of heat transfer and cooling working fluid. Some examples of applied nano particles are pure metals (Au, Ag, Cu, and Fe), metal oxides (CuO, SiO2, Al2O3, TiO2, ZnO, and Fe3O4), Carbides (SiC, TiC), Nitrides (AlN, SiN) and different types of carbon (diamond, graphite, single/multi wall carbon nano tubes). Traditional liquids, such as water, ethylene glycol and engine oil are some examples of base fluids. Under appropriate operating conditions, nano fluids will exhibit high thermal conductivity and stability and are increasingly being used in many heat transfer applications in industrial fields.

2. Methods and Materials

2.1 Principle & Sections of Heat Pipe

The principle of heat pipe heat exchanger is Thermal conductivity and Phase transition. Thermal conductivity is defined as the property of the material to conduct the heat. Phase transition is the term which represents the transformation of phases between Solid, Liquid and Gases. The heat pipe has three sections the evaporator, the adiabatic, the condenser. When the evaporator section is exposed to a heat source, the liquid inside the heat pipe get vaporizes and the pressure in that section increases. The vapor flows fastly toward the condenser section of the heat pipe by the increased pressure. It is the middle section of the heat pipe, the adiabatic portion, has very small temperature difference. The section of heat pipe as shown in figure 1.

Figure 1. Heat Pipe Sections

Salt Gradient Solar Pond as a alternative solution against Global Energy Crises

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Abstract

The purpose of this paper is to present a concise overview of the progress of technology, economic condition and market in relation to renewable energy. The use of Fossil fuels in the transport sectors will be come to end as demand for day to day life is increases. The increase in Greenhouse Gas emissions recommends the countries to change the energy consumption and to base their welfare on a sustainable development. In 21stcentury not only with rapid growth of technological advancement but also due to richness of their technological option, application, widespread availability and from environmental perspective we are thinking of renewable energy that comes from continually replenished resources like solar energy, wind energy Tidal energy, Geo-thermal energy etc.Though fossil fuels have limited supply, 90% of worlds energy is derived from it. But the rate at which we are consuming that cannot be created and they are not environment friendly. From analysis it has been predicted that oil and gas are to be exhausted by 2045 and 2055 and after that coal. Hence we are expected to face global challenge regarding power supply in coming near future as the global requirements for energy has been continuously increasing for more than a century influenced by population growth and industrial development . Moreover the resource of fossil fuel is at a vanishing point; therefore global energy researchers are exploring alternative energy options. Salt Gradient Solar Pond (SGSP) is one such alternative which has been successfully applied in many parts of the world.

Keywords: *- Solar, Salt, Convective zone*

1. INTRODUCTION

With the exception of geo-thermal energy, tidal energy, solar energy is the driving force behind all other renewable energy sources. The average daily solar energy incident in India is 5kwh/m2.It is located between 20.30-26.38 north Latitude and 88.04-92.44 degree east Lattitude.It is an ideal location for solar energy utilization.

1.1 CHALLENGES FOR FUTURE EXPANSION OF RENEWABLE ENERGY

The International energy agency (IEA) doesn't only point to renewable energy sources as climatic, environmental friendly which measures in future society. They pointed out that the highly consumption of fossil fuels will increase in the worlds energy consumption can flatten out and the climatic threat can be handled with the help of among other things increasing the share of renewable energy sources. Despite of having certain shortcomings which can be also avoided solar energy plays great importance in power substitution. This energy can be captured, converted, and distributed in ACTIVE and PASSIVE ways. Active solar energy techniques uses photovoltaic panels and solar thermal collectors to harness the energy where as Passive solar techniques includes orienting a buildings to the sun, a selecting materials with favourable thermal mass or light dispersing properties and designing spaces that naturally circulates air. By producing solar electricity which is convenient for both remote areas and cities will be helpful to meet our energy need in large, if the government continues to invest in alternative energy so that we will be aware and work more on this energy to avoid the forthcoming power crises. Among all renewable energy sources solar energy is considered as the best one because

(i) It is free source of energy.
(ii) It is clean and environmentally friendly source of energy.
(iii) It cuts down electricity bill.
(iv) This industry is the fastest growing industry to create new job.
(v) Solar energy can be trapped using solar panel having lifespan of around 20+ years and requires less maintenance

1.2 CHALLENGES TO USE SOLAR ENERGY

The most important disadvantages about solar energy are that it can be assessed on a short term basis. The total incoming radiation normally doesn't vary much from year to year (typically+5%) but it is not easy to predict on a day to day basis. If one has to trust solar energy as the only energy source either one has to adjust to the variation given by nature, store the energy or invest in an alternative system to cover the energy demand when the sun doesn't shine. 89 Outside the Earth's atmosphere the solar radiation intensity is relatively constant at 1367w/m2+ 3%.The variation is due to the distance between the earth and the sun changing throughout the year. The suns radiation changes

The Differential Transform Method for Solving Higher, Fractional Order Boundary Value Problems

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Abstract: *In this paper, Differential Transform Method is used to solve some numerical examples of higher order and fractional order boundary value problems. It gives the convergent series form effectively and the result obtained by Differential Transform Method shows the approximate solution of the Differential equations.*
Keywords: *Series solutions, Differential transform Method, boundary value problem, Numerical solutions*

1.Introduction:

A variety of methods, exact, approximate and purely numerical are available for the solution of differential equations. Most of these methods are computationally intensive because they are trial-and error in nature, or need complicated symbolic computations. The differential transformation technique is one of the numerical methods for ordinary differential equations. The concept of differential transformation was first proposed by Zhou in 1986 [7.8] and Arikhoglu[7.1] and Ozkol, Ayaz[7.3],Chen[7.6,7.7] and Ho, 1996, 1999; Abdel-Halim[7.2] 2008, Duan[7.8] Khaled Batiha[7.10], Khambayat [7.9] it was applied to solve linear and nonlinear initial value problems in electric circuit analysis Bert [7.4].This method constructs a semi analytical, numerical technique that uses Taylor series for the solution of differential equations in the form of a polynomial. It is different from the high-order Taylor series method which requires symbolic computation of the necessary derivatives of the data functions. The Taylor series method is computationally time-consuming, especially for high order equations [7.5].The differential transform is an iterative procedure for obtaining analytic Taylor series solutions of differential equations. The Differential transformation method is very effective and powerful for solving various kinds of differential equation.

In this paper, we solve some numerical examples of linear, nonlinear higher order and fractional order boundary value problem by using Differential Transform Method the numerical results are compared with their exact solutions. The main advantage of the DTM is that, it can be applied directly to linear and nonlinear ordinary differential equations without linearization; it is reduces the size of computational work and providing the series solution with convergence.

2.Basic ideas of Differential Transform Method

The transformation of the k^th Derivative of a function with one variable follows:

$$U(k)=\frac{1}{k!}\left(\frac{d^k u(x)}{dx^k}\right)_{x=x_0} \qquad (1)$$

Where u(x) is the original function and U(k)is the transformed function and the differential inverse transformation U(k) is defined by,

$$u(x)=\sum_{k=0}^{\infty} U(k)(x-x_0)^k \qquad (2)$$

When x_0=0 , the function u(x) Defined in (2) is expressed as

$$u(x)=\sum_{k=0}^{k=\infty} U(k)x^k \qquad (3)$$

Equation (3) implies that the concept of one dimensional differential transform is almost is same as the one dimensional Taylors series expansion. We use following fundamental theorems on differential transform method

Theorem 1] If $u(x) = ag(x) \pm \beta h(x)$ then $U(k) = aG(k) \pm \beta H(k)$

Theorem 2] If $u(x) = x^m$ then $U(K) = \delta(k-m)$ where $\delta(k-m) = \begin{cases} 1, & \text{if } k = m \\ 0, & \text{if } k \neq m \end{cases}$

Theorem 3] If $u(x) = e^{\lambda x}$ then $U(k) = \frac{\lambda^k}{k!}$

Inverse Problem of Temperature Distribution for A Thin Clamped Circular Plate

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Abstract
In this paper, the solution of the problem of temperature distribution in an inverse quasi-static thermal condition for a thin circular plate subjected to some different types of boundary conditions and initial condition is obtained in the form of infinite series by using the Fourier and Laplace transform and their inverse transform. Initially the temperature of the plate is kept at zero.

Introduction

Nowaki [1] studied the direct problem of thermoelasticity in a thin circular plate and Roy Choudhari [2] Subherwal [3] studied an inverse problem of heat conduction, Deshmukh and Ingale[4] has solved an inverse problem of quasi static thermal deflection of a thin clamped circular plate due to ramp type heating of a concentric circular region on outer curved surface. and K.S.Parihar, Sunita Patil [6] derived expression of temprecture distribution in transient heat conduction problem. In the problem studied by N.L.Khobragade, K.C. Deshmukh [5] the inverse Laplace transform which is used in finding the solution is not applied properly , so the solution $T(r,z,t)$ have been derived is not correct and this solution is used to find quasi-static thermal deflection. In this paper solution is derived correctly which can be used to find quasi static thermal deflection for thin circular plate.

Inverse heat conduction problem

Consider a thin circular plate of thickness h occupying the space $D: 0 \le r \le a,\ -\frac{h}{2} \le z \le \frac{h}{2}$ Initially the plate is at zero temperature. The differential equation for the temperature function $[T(r,z,t)]$ is given by

$$\frac{\partial^2 T}{\partial r^2}+\frac{1}{r}\frac{\partial T}{\partial r}+\frac{\partial^2 T}{\partial z^2}=\frac{1}{k}\frac{\partial T}{\partial t} \qquad (1)$$

Subject to the initial, boundary and interior conditions

$$[T(r,z,t)]_{t=0}=0 \qquad (2)$$

$$\left[\frac{\partial T}{\partial z}-h_1 T\right]_{z=-h/2}=0 \qquad (3)$$

$$\left[\frac{\partial T}{\partial z}+h_2 T\right]_{z=h/2}=0 \qquad (4)$$

and

$$\left[\frac{\partial T}{\partial r}\right]_{r=a}=f(z,t) \qquad (5)$$

where k is thermal diffusivity and h_1, h_2 are the relative heat transfer coefficients on the lower surface $(z=-h/2)$ and on the upper surface $(z=h/2)$ respectively.

SOLUTION OF THE INVERSE HEAT CONDUCTION PROBLEM

Heat conduction problem is given by equation number (1) - (5) on which finite Fourier transform is applied over the variable z and its inverse transform is applied which is defined as in [8] given in by equation (6) and (7) respectively.

$$\bar{T}(r,\lambda_m,t)=\int_{-h/2}^{h/2} T(r,z,t)K(\lambda_m,z)dz \qquad (6)$$

Solution of Differential Equation Using Laplace Transform Method - A Review

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Abstract
Laplace Transform is use to solve differential equations in various Engineering Field. It is most suitable tool for finding solution of differential equations. In this paper we discuss the Laplace Transform method and explain about how to find solution of differential equation using Laplace Transform Method. Laplace transform method gives the approximate solutions of differential equations.
Keywords: *Laplace Transform Method, Inverse Laplace Transform, Differential Equation.*

1.Introduction

Laplace transform methods have been developed to solve the Differential Equation and boundary value problems arising in American option pricing under geometric Brownian motion Mallier and Alobaidi [1], Zhu [2] and Zhu and Zhang [3]) and constant elasticity of variance Wong and Zhao [4]Laplace Transform Method is widely used by scientist and engineers. Generally Transform means Transformation of one function into another function using some operators. Laplace Transform is mathematical tool to transform function of variables x, y or t into parameter "s" Poularikas [5].Conversion of function from some domain into another domain without changing value of function can be done by using Laplace Transform. Upreti [6] Solution of differential equation can be obtained by using Laplace Transform without finding general solution and arbitrary constants. Sawant [7].It reduce ordinary differential equation into algebraic equation.Bali [8].

2. Definition

Consider function f(t) ,where t>0.Laplace Transform of f(t) is written as
[f(t)]. and denoted by F(s).

$L[f(t)] = F(s) = \int_0^\infty e^{-st} f(t)dt$ where 's' is parameter which may be real or complex.

It is given by $L^{-1}\{F(s)\} = f(t)$.

Table1. Laplace Transform

Sr No.	$f(t)$	$F(s) = L[f(t)]$
1	1	$\frac{1}{s}$ $s>0$
2	e^{at}	$\frac{1}{s-a}$ $s>a$
3	$\sin at$	$\frac{a}{s^2+a^2}$ $s>0$
4	$\cos at$	$\frac{s}{s^2+a^2}$ $s>0$
5	$\sinh at$	$\frac{a}{s^2-a^2}$ $s>\|a\|$
6	$\cos hat$	$\frac{s}{s^2-a^2}$ $s>\|a\|$
7	t^n if $n>-1$	$\frac{\Gamma(n+1)}{s^{n+1}}$ $s>0$
8	t^n if n is positive integer	$\frac{n!}{s^{n+1}}$ $s>0$

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BEHAVIOUR OF MOTORCYCLE USERS TOWARDS VEHICULAR AIR POLLUTION: A STUDY WITH REFERENCE TO JALGAON CITY

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ABSTRACT

Air pollution is most important issue in the 21st century among all others. There is no need to reiterate it's important. Ample references are available in literature review on air pollution, its causes, impact and different types of air pollutants. It is also important to study behavior of motorcycle users towards air pollution that is basically being caused by vehicles used by them. As irregular and improper maintenance of vehicles are contributing to more air pollution.

This study is based on both primary and secondary data. Secondary data is used to conceptualize it and primary data is collected to analyze the behavior of motorcycles users in Jalgaon city towards cause of air pollution. Study reveals that awareness and attitude of motorcycle users in Jalgaon city towards air pollution is positive but it lacks actions from their side to minimize the pollution. Study covers various policy measures to control the same with emphasis on common directed efforts of human society.

Keywords: Air Pollution, Vehicle Air Pollution, Motorcycle Air Pollution Etc.

I. INTRODUCTION: AIR POLLUTION

Air pollution is most important issue in the 21st century among all others. There is no need to reiterate it's important. Ample references are available in literature review on air pollution, its causes, impact and different types of air pollutants.

Air pollution is described as contamination of the atmosphere by various substances that cause danger to health and welfare of plants, animals, material resources & property on earth. It reduces the capacity of earth to reproduce and contaminates biodiversity. Almost all economic activities of human society are source of air pollution directly or indirectly but major of them are transportation sources, stationary sources, industrial processes, solid waste disposal, forest fires, and coal mining many more. The major pollutants released by all these sources contain carbon monoxide (CO), lead (Pb), nitrogen oxides (NOx), ozone (O_3), particulate matter, sulfur dioxide (SO_2). These substances last long time in environment [4].

II. NEED OF RESEARCH

Transportation is the major contributor of air pollution. More than half of the carbon monoxide and nitrogen oxides, and almost a quarter of the hydrocarbons emitted into our air by transportation sector in 2013[13].

According to Road Transport Year Book (2011-12), the population of motorcycle in developing country against developed countries is four times greater. As well as population of motorcycles in India is 72 % of total vehicle population [7]. This signifies that contribution of motorcycles in developing country specifically in India is significant in nature. It also indicates the seriousness of air pollution in developing countries because minimizing air pollution in developing country means reducing the living standards of developing country.

Air pollution has multiple corners. It is not only a scientific process but also has some behavioral as well as social corner. Air is polluted through the industrial and mechanical process of human societies. Human behavior as well is a most important contributor in air pollution. Though pollutants are released by industrial and mechanical process, its proportion can be controlled through human care. Proper maintenance of machines and plants can be subjected to control the emission of many pollutants in the atmosphere [1].

Therefore, it is important to study pattern of behavior of motorcycle users towards air pollution that is basically being caused by vehicles used by them. As irregular and improper maintenance of motorcycles and vehicles are also important contributing factor of air pollution.

III. OBJECTIVES OF THE STUDY

- To study behavioral aspects of motorcycle users towards air pollution in Jalgaon City

IV. HYPOTHESIS OF THE STUDY

- 70 % motorcycle users take precautions to control air pollution through their motorcycles.

MACHINING OF METAL MATRIX COMPOSITE: A REVIEW

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ABSTRACT

This paper gives an overview of the present knowledge about the machining of metal matrix composite which is major concern. There is an increase demand of the development of advanced material for many industrial applications,to meet such demands composties are the right solution. Metal Matrix Composites (MMCs) have higher strength to weight ratio and their properties can be tailored as per the industrial requirements, MMC's are highly abrasive and tools can wear rapidly, machining of these materials attracted researchers and industrial community a lot.The main purpose of machining is to produce a product ofdesired shape and size with specific quality and surface finishby removing a material in the form of chips and it is effected by cutting parameters like cutting speed, feed, depth of cut and also the selection of cutting tool plays a major role.

Keywords: *Machining;MMC; Reinforcement; cutting tools; cutting speed*

1.Introduction

For any engineering applications the right selection of high performance materials is very important for its success and almost eighty percent manufactured parts need machining before they are ready to use.[1]Aluminium alloys are widely used in manufacturing aerospace and automobile structures is well recognized today. This is due to some superior properties of these materials such as high strength- to- weight ratio, superior low temperature performance, corrosion resistance, high machinability index and comparatively low cost. But aluminium alloys cannot meet all engineeringrequirements. Their main weaknesses are poor high-temperature performance and low wear resistance. To overcome these problems new engineering materials have been developed by reinforcing aluminium alloys with ceramic particles/ whiskers these are known as metal matrix composites (MMCs). [2, 3]Metal Matrix Composites (MMC's) are the major innovation in the development of advanced materials but hard and abrasive nature of the reinforcement particles in MMC's causes rapidly tool wear and deteriorate surface roughness during machining. [4]The metal matrix materials of MMCs are aluminium alloys, titanium alloys, copper alloys and magnesium alloys while the reinforcement materials are silicon carbide, aluminium oxide, boron carbide, graphite etc. in the form of fibres, whiskers and particles.[5]According to Broutman and Krock"A composite material is formed by a close combination of at least two chemically and physically distinct materials which should remain separate and distinct while a good and continuous interface between them is maintained: the reinforcing components in the whole volume of the matrix should be as uniform as possible".[6]The research on the machining of MMCs was first reported in 1985 and there is the investigation regarding performance of various tool materials during machining of an aluminium alloy reinforced with 40 vol % SiC particles (Al/40% SiC MMC) and concluded that edge cracking due to mechanicalchipping was the main cause of tool wear and that poly crystalline diamond (PCD) was superior to any other tool material for machining MMCs. Also in the same year the research committee of japan society for precision engineering (JSPE) started a cooperative research program on cutting and grinding of MMCs and published a summarized report in 1989, comprehensive research on

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A Review on Effect of Reinforcement Silicon Carbide (Sic) on Mechanical Properties of Aluminium Metal Matrix Composite

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Aluminum based metal matrix composite (AMMCs) finds wide industrial applications such as automobile, aerospace, structural, marine due to their low cost and excellent mechanical properties like high heat resistant, high corrosion resistance, high wear resistant makes them an attractive industrial option and these composites can perform over a wide range of operating conditions hence in today scenario they are replacing conventional materials. The reinforcement plays a major role in AMMCs that enhance the mechanical properties and also reduce some properties by selecting different volume fraction of it for the particular application and most commonly used reinforcement forAMMC'sissiliconcarbide(SiC)and aluminum oxide(Al_2O_3).In this paper a review has been done regarding effect of silicon carbide reinforcement on mechanical properties of AMMC's.

Keywords: AMMC, Reinforcement, Aluminum, Silicon Carbide (SiC)

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Thermoelastic Problem of Finite Length Hollow Cylinder

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ABSTRACT: The paper is concerned with the inverse unsteady-state problem of determining the temperature and displacement functions on the upper plane surface of a finite length hollow cylinder.Homogeneous boundary conditions of the third kind are maintained on curved surfaces of the cylinder while on the lower plane surface the heat flux is maintained at u(r, t) which is a known function of r and t. The Finite Marchi-Zgrablich and Laplace transform techniques are used to find the solutions of the inverse transient themoelastic problems of a finite length hollow cylinder.

I. INTRODUCTION

The inverse thermoelastic problem consists of the determination of temperature of the heating medium, the heat flux on the boundary surfaces of the solid when the conditions of the displacement and stresses are known at some points of the solid under consideration. The inverse problem is very important in view of its relevance to various industrial machines subjected to heating such as main shaft of the lathe and turbine and roll of a rolling mill.

Sierakowski and Sun [3] studied the direct problem of an exact solution to the elastic deformation of a finite length hollow cylinder. In [4] the inverse transient thermoelastic problem of determining temperature and displacement functions on the upper plane surface of a finite length hollow cylinder is investigated when the interior third kind boundary condition is known.The expressions of the temperature and displacement functions obtained at an arbitrary point of the cylinder in [4] are erroneous. The corresponding correct expressions are derived in the present paper. Also, the numerical results are obtained and presented graphically.

II. THERMOELASTIC PROBLEM OF A FINITE LENGTH HOLLOW CYLINDER

Of concern in this section is an inverse transient thermoelastic problem of determining the temperature and displacement and functions on the upper plane surface of a finite length hollow cylinder occupying the space $D : a \le r \le b,\ 0 \le z \le h$ when the interior third kind boundary condition is known.

Consider a hollow cylinder of length h occupying the space D. The differential equation governing the displacement function $\phi(r, z, t)$ is

$$\nabla^2\varphi = \frac{(1+\nu)}{(1-\nu)}\alpha_t T\,; \quad \nabla^2 = \frac{\partial^2}{\partial r^2} + \frac{1}{r}\frac{\partial}{\partial r} + \frac{\partial^2}{\partial z^2}, \tag{2.1}$$

where ν and α_t are Poisson's ratio and linear coefficient of thermal expansion of the material of the cylinder respectively, and T is the temperature of the cylinder satisfying the differential equation

Public Auditing Algorithm for Encrypted Data

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***Abstract*—Now-a-days most of services are offered on cloud platform, which demands for the secure data auditing of cloud. However people have failed to notice that, auditing cannot handle encrypted data in cloud computing environment. By rethinking the approach to auditing process over encrypted data, one fixes the security challenges in auditing of encrypted cloud data. To provide better solution, the proposed public auditing algorithm is used to support the encrypted data, to secure data from unauthorized user, cloud service provider and third party auditor. For security of data, data owner stores data in encrypted form. The proposed auditing algorithm handles encrypted data and follows auditing process of without decrypting data. The algorithm performs auditing over encrypted data. As data is not decrypted by auditors during auditing process, proposed algorithm becomes more secure than existing algorithms. Also the third party auditing process removes auditing overhead of data owner.**

***Keywords*— Cloud Computing, Cloud Security, Integrity, Encryption, Public Auditing.**

I. INTRODUCTION

Cloud computing is a recent computing term describing the development of many existing technologies and approaches to computing into something di9 erent. Cloud separates application and information resources from the underlying infrastructure and the mechanisms used to deliver them. Cloud enhances collaboration, agility, scaling and availability and provides the potential for cost reduction through optimized and e9 cient computing. More specifically, cloud describes the use of a collection of services, applications, information and comprised of pools of compute, network, information and storage resources [1]. Cloud computing has been assume to be a profound innovation in information technology industry. The features of ubiquitous access, high reliability, resilience, scalability and cost efficiency exactly satisfy the demand of both individuals and enterprises [6]. It is transforming the traditional view of data processing since the data is outsourced and centralized in cloud environment. As a key component of cloud computing, cloud storage has been adopted widely and deployed for commercial purposes in recent years. Compared with personal local storage, cloud storage has massive advantages. Especially, cloud storage releases users from the burden of local massive data processing. The mighty benefits of cloud storage are to be puts the data at a risk. The integrity of the data is hard to guarantee. cloud service providers usually claim to provide much more reliable infrastructures than personal storage devices, whereas, the cases of outages and security breaches of cloud services occur frequently. Hence, the risk of data loss still exists in cloud storage. On the other side, a service provider may delete or modify user's data by its own. Since users no longer possess their data physically after they have uploaded their data to the cloud, the integrity in the data is a major concern of users. Generally, it is a critical issue for users to check the integrity of their outsourced data with reasonable computation and communication cost in the cloud environment. Auditing process done by either cloud service provider or by third party, but they may not be fully trustworthy. Third party auditing brings many security challenges. Trusted authority is fully trusted authority. To secure data from unauthorized user, cloud service provider and third party auditor. Trusted authority provides a unique global identification parameter to entities in the system. Auditing algorithm must handles encrypted data and performing auditing without decrypting data. Currently auditing algorithms for non encrypted data exists. Multiple data owners store data in encrypted form on remote storage devices. Hence the contribution to implement an auditing algorithm supporting encrypted form of data is needed. Proposed work contributes to implement auditing algorithm which securely handles encrypted data and performs auditing without decrypting data. The algorithm reduced computation time required for public auditing over data. Most of services are offered on cloud platform, which promotes the secure data auditing of cloud. People have failed to notice however, existing auditing algorithm cannot handle over encrypted data in its encrypted form. By rethinking the approach to auditing process over encrypted data, one fixes the security challenges in auditing of encrypted cloud data. To provide better solution, public auditing algorithm supporting encrypted data is proposed. The public auditing algorithm handles encrypted data and performs auditing without

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Study on Optimization of Operating Performance of Bicycle, Tricycle and other Similar Vehicles

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Abstract *– The tricycle rickshaw or the bicycle is used for transportation in local areas. These vehicles are human-powered and pedal-driven. The tricycle rickshaw is often used for commercial purposes. The bicycles and tricycles which are available nowadays are having much deficiencies. This bicycles and tricycles are less efficient or you can say having less mechanical advantages .The purpose of this paper is to review the patents (which are able access) and experimental work of the researchers on the drive mechanism of bicycles and tricycles for optimizing the operating performance.*

Keywords- Chain drive mechanism, Sprocket, Velocity ratio.

INTRODUCTION

On small scale local means, bicycles and tricycles are widely used for transportation. The tricycle rickshaw is used hire passengers. In South Asia, Southeast Asia, the tricycle rickshaw is used as crucial option for employment by the people who migrate from rural areas, generally the poor men. Many locally arrayed cycles are used all over the world. Places where there is ban on use of motor vehicles, human-powered cycles are one of the main mode of transportation.

But still the cycles available in the local market are having much deficiencies. This bicycles and the tricycles have less efficiency or mechanical advantage.Researches and experimental work are carried out on increasing the efficiencies of the chain drive mechanism of this vehicles.

A. Mechanical Advantage

In physics and engineering, mechanical advantage (M.A) is the factor by which a machine multiplies the force put into it with the help a mechanical device , tool or arrangement of tools. For the cycles, the multiplication of forces on pedal and the rotating wheel is done to increase the mechanical advantage.It is possible to measure the mechanical advantage either by travelling a certain distance without varrying the magnitude of force applied (pedal) or by travelling the same distance by applying less force on cycle(pedal).

B. Drive Ratio

Generally,
Mechanical advantage, M.A. = V.R. = RPM of driving machine/ RPM of driven machine.

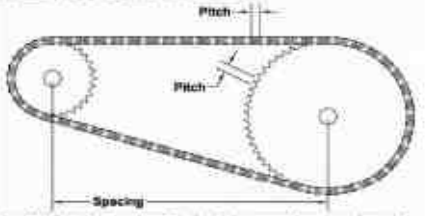

Fig. 1- fig shows the Chain drive mechanism in cycles

But in case of cycles,
M.A. = No. of rotation of driving sprocket wheel / No. of rotation of driven sprocket wheel.
Where,
M.A. = Mechanical advantage.
V.R. = Velocity ratio.
Therefore, if the velocity ratio is increased, M.A. is increased i.e. increment in efficiency too.

LITERATURE SURVEY

Kenneth S. Keyes have performed a patented work or invention related to drive shaft driven bicycle. The object of his invention was to provide a bicycle having a

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A Review On Third Generation Future Fuel : Sodium Borohydride Fuel

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Abstract – The current issues of the depletion of fossil fuels reserve and environmental changes have increased the concern for the hunt of sustainable renewable energy for the future generations. Biofuels emerged as a promising viable alternative to replace the existing fossil fuels. Among these, Sodium borohydride Fuel outstands due to its ability to substitute gasoline. Hydrogen is the most abundantly available element in the universe. It is environmentally friendly with its non-polluting nature. It has every reason to dominate the fuel market. Yet, it falls to fossil fuels, which is currently the driving force of our automobiles. Some have heralded hydrogen as the 'Energy of the Future', but sceptics say it will always be just that – A future fuel, which never makes it out of test cars. But this was until DaimlerChrysler came up with an innovative idea – SOAP to fuel the future automobiles. However, the major challenge in Sodium borohydride Fuel industry is the need to discover a suitable feedstock together with an environmentally friendly approach and an economically feasible process of production. The first generation and second generation Sodium borohydride Fuel appeared unsustainable due to its impact on food security as well as inflated production process. Therefore, the potential and prospects of the third generation Sodium borohydride Fuel feedstock are being highlighted in this review. This review can be crucial in providing ideas for the future studies that can be implemented in the commercialization of Sodium borohydride Fuelfrom the third generation feedstock.

Keywords — Liquefied Hydrogen, Compressed Hydrogen, Methanol, Gasoline Reformation, Metal Hydride, Natrium.

I. INTRODUCTION

Today, millions of people depend on the automobile as their main source of transportation. Unfortunately, most of the automobiles use fossil fuels such as oil. The internal combustion engine consumes the hydrocarbon fuels to release carbon monoxide, nitrogen oxides, hydrogen carbons, and carbon dioxide. In addition to these disastrous effects to the environment, hydrocarbon fuels are a finite energy source. Therefore, another efficient and cheap energy source needs to be found quickly. Ideally, this energy source should be unlimited in its supply and friendly to the environment.

Many alternatives have been considered. For example, researchers have attempted to power cars by the use of batteries and solar power. However, since batteries operate on a stored amount of energy, they have a limited range typically around 100 miles. The batteries are also very large since it consumes over 17 times as much space and 45 times as much weight as gasoline tanks. Solar powered cars are limited to its use on sunny days. On cloudy days and at night, the car operates on batteries. Therefore, solar powered cars have a driving range of approximately 135 miles. For years, visionaries have proposed that the world switch from using hydrocarbons — fossil fuels such as diesel oil, gasoline and coal — to pure hydrogen. Hydrogen is one of the simplest, lightest and the most abundant element in the universe. It is made up of a single proton with one electron. It can be obtained from electrolysis of water by using a number of energy sources such as nuclear, solar and fossil fuels. Presently 95% of the hydrogen used today comes from reforming natural gas. When combusted, it produces only water and heat. Today with an emphasis on emission free fuel source and the desire to find an alternative fuel, hydrogen is been looked at and touted by many as the fuel of the future.

The use of hydrogen will decrease our dependence on the finite amount of fossil fuels. It will also spur economic growth.

II. LITERATURE SURVEY

The Chrysler Town & Country Natrium, DaimlerChrysler's fuel-cell concept vehicle running on clean, nonflammable, and recyclable sodium borohydride fuel, participated in a ride-and-drive display program at the Pentagon at the request of acting Secretary of the Navy, Honorable H.T. Johnson. The Natrium is the first fuel-cell powered vehicle built to operate on sodium borohydride, a fuel made from borax which is a mineral available in abundant supply.
In the Natrium minivan, this technology delivers the environmental benefits of a fuel-cell vehicle without the loss of cargo or passenger space, while providing a range of 300 miles, which is about 50% longer than any other fuel-cell vehicle ever produced. Never had a fuel cell vehicle been driven so far, in challenging real-world conditions, including high elevation and low temperatures. Also it's range is comparable to that of I.C. Engine powered vehicles.

III. FINDING THE RIGHT FUEL

Hydrogen-powered fuel cells, by themselves are completely emission-free in operation. No pollutants are emitted by the reaction of hydrogen with oxygen, which generates electrical energy, heat, and pure water vapour. The problem is that the fuel cell is

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Solar Water Heating System Using Innovative Flat Plate Collector and Storage Volume

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ABSTRACT: An Innovative design of solar water heater flat plate collector is developed and tested. The collector is made-up of rectangular aluminimm having size 0.97 m X 1.81 m total surface area for heat conduction is 1.9845 m^2. The absorber is made of Aluminium box with one large surface exposed to sunlight having size 1.94 m x 1.1 m x 0.1 m, glass 4 mm thick toughened to cover the box large open surface, black paint for absorbing solar radiation and insulation layer. Maximum temperature of water obtained at outlet of collector is 73.3 ^{0}C. Also an innovative storage tank is investigated. The storage tank is made up of MS plate, 50 mm puff insulation, outer-cladding cover, inside coating with Fiber Reinforcement plastic and 60%-40% partition for hot and cold water. Due to this FRP coating thermal conductivity of tank material and night heat losses get reduced. In conventional hot water storage tank night temperature losses is found to be 9 ^{0}C while in modified FRP coating tank with partition night temperature losses is found to be 4 ^{0}C.

KEYWORDS: Fiber Reinforcement plastic (FRP),Collector, Hot water storage tank.

I. Introduction

A solar water heater consists of a collector to collect solar energy and an insulated storage tank to store hot water. The solar energy incident on the absorber panel coated with selected coating transfers the heat to the riser pipes underneath the absorber panel.

The water passing through the risers get heated up and is delivered the storage tank. The recirculation of the same water through absorber panel in the collector raises the temperature to 80 C (Maximum) in a good sunny day. The total system with solar collector, storage tank and pipelines is called solar hot water system.

Broadly, the solar water heating systems are of two categories. They are: closed loop system and open loop system. In the first one, heat exchangers are installed to protect the system from hard water obtained from borewells or from freezing temperatures in the cold regions. In the other type, either thermosyphon or forced circulation system, the water in the system is open to the atmosphere at one point or other. The thermosyphon systems are simple and relatively inexpensive. They are suitable for domestic and small institutional systems, provided the water is treated and potable in quality. The forced circulation systems employ electrical pumps to circulate the water through collectors and storage tanks.

The choice of system depends on heat requirement, weather conditions, heat transfer fluid quality, space availability, annual solar radiation, etc. The SHW systems are economical, pollution free and easy for operation in warm countries like ours. [1]

Based on the collector system, solar water heaters can be of two types.

- **Flat Plate Collectors (FPC) based Solar Water Heaters**

The solar radiation is absorbed by Flat Plate Collectors which consist of an insulated outer metallic box

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Performance Analysis of Hot Water Storage Tank in Solar Water Heating System with Different Insulation Using ANSYS

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Abstract – Analysis of solar domestic hot water (SDHW) storage tank carried out by using CATIA and ANSYS software. The tank fluid is in steady mode. The storage tanks made up of MS plate, 50 mm Polyurethane, Glass wool and Rockwool insulation, outer-cladding cover. Hot water storage tank model made in CATIA software and effect of different insulation materials such as Polyurethane, Glass wool and Rockwool analyzed in ANSYS. Due to improper insulation material the constant hot water temperature inside the tank drops after of certain period due to heat diffusion and natural convection from the tank walls and it is difficult to get constant temperature all the time. To keep constant temperature polyurethane is best insulation than Glass wool and Rockwool. Also for minimum night heat losses polyurethane is best insulation than Glass wool and Rockwool.

Keywords Polyurethane, Glass wool, Rockwool, Solar Hot Water Storage Tank, CATIA and ANSYS

I. *INTRODUCTION*

To minimize the loss of heat during the night the best insulation of the storage tank of a solar thermal system is of vital importance. Typical insulation materials are foamed polyurethane, polyethylene or polypropylene, at least 100 mm thick. Alternatively also organic materials made from cellulose or raw wool can be used, demanding a somewhat higher thickness or more layers of insulation to get the same effect. Since solar storage tanks are thermally stratified – with cold-water layers at the bottom and hot-water layers at the top – many state-of-the-art tanks are asymmetrically insulated, meaning an increasing insulation thickness from bottom to top.

II. *TYPES OF INSULATING MATERIALS*

POLYURETHANE FOAM

Polyurethane foam is widely used in high resiliency flexible foam seating, rigid foam insulation panels, microcellular foam seals and gaskets, durable elastomeric wheels and tires, automotive suspension bushings, electrical potting compounds, seals, gaskets, carpet underlay, and hard plastic parts (such as for electronic instruments).

One of the best commercially available choices of insulation material is polyurethane foam. It has good thermal insulating properties, low moisture-vapour permeability, and high resistance to water absorption, relatively high mechanical strength and low density. In addition, it is relatively easy and economical to install.

Polyurethane foam is effective as an insulator because it has a high proportion (90 percent minimum) of non-connected closed microcells, filled with inert gas. Until recently, the inert gas most commonly used in polyurethane foams was R-11 (trichlorofluoromethane).

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Devloping Knowledge Driven Ontology for Decision Making

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***Abstract*— Decision-making activity is carried out in an every organization to solve the problems or to take the decisions. To make an effective decision, decision maker needs relevant and meaningful information. But to retrieve meaningful information from such a huge database, decision maker needs background knowledge about the domain. Practically for a decision maker having background knowledge about each and every domain is not possible. Due to this meaningful information remains hidden in the database itself. Decisions made out using such irrelevant and meaningless information leads to irreparable damage and harm to the reputation of organization. Hence to retrieve the meaningful and relevant information, background knowledge about the domain is necessary. To solve this problem, ontology is used as a source of domain knowledge. By using ontology, meaningful information is retrieved from the database to help in taking decision. In proposed system, ontology is used to represent the background knowledge about the domain. Use of ontology improves the relevancy and meaningfulness of the retrieved information. Such meaningful and relevant information is used to improve the effectiveness of decision making. Experimental analysis of the results shows that, results obtained by using proposed approach are more meaningful and relevant as compared to existing approach.**

Keywords—Ontology, Decision-making, Prediction, Domain knowledge, Meaningful information, Background knowledge, Information retrieval, Business intelligence, Semantics .

I. Introduction

Knowledge base information retrieval is the process of obtaining relevant and meaningful information to meet the user need. Retrieving knowledge base information requires background knowledge about that domain. But, for a single person having domain knowledge about each and every domain is not possible. Hence, domain knowledge in the form of ontology is used to retrieve the knowledge base information.

Ontology is defined as a specification of a conceptualization. Ontology is a set of concepts such as things, objects, events, and relations that are specified in order to exchange the information. Knowledge in the form of triples i.e. subject, object and predicate is stored into the ontology. Ontology allows store the information more meaningfully for humans as well as machines or programs [1]. The framework of ontology is represented as follows:

$$O = (C, R, Hc, P, A) \quad (1.1)$$

Where, C: Set of Domain Concepts
R: Set of Conceptual Relations
Hc: Conceptual Hierarchy
P: Properties or Attributes
A: Axioms

Organization of the paper is as follows: Section 2 presents an overview of the related work; Section 3 describes the proposed approach; Section 4 presents the result and discussion and Section 5 concludes the proposed approach.

II. Related Work

In the past, there was lot of research done on the meaningful information retrieval. The huge number of available data on the web makes meaningful information retrieval a challenging task. There are various techniques used by information retrieval to retrieve the meaningful information. Quality of results generated by the information retrieval system still not meets the user's requirement. Due to lack of semantic knowledge and background knowledge, relevancy and quality of results reduces drastically. Hence to overcome this drawback, domain knowledge is necessary. Domain knowledge is stored in the ontology to overcome this problem. Ontology is a ray of hope to solve the problem of background knowledge. Ontology is widely used in various data mining techniques as a source of domain knowledge.

Classification of web data based on association rule mining using ontology driven approach is given, as in [2]. In this approach ontology is used for the pruning of association rules. In traditional approach apriori algorithm is used, but results generated by using this are not based on semantic knowledge. In order to improve the accuracy of rules, ontology is used. Due to use of ontology, numbers of irrelevant rules are reduced and quality of rules improved as compared to traditional approach.

Ontology-based approach for automatic classification and ranking for web documents is given, as in [3]. Ontology-based approach used to solve the problem of training dataset

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Requirement Prioritization using Adaptive Fuzzy Hierarchical Cumulative Voting

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Abstract— **Requirement prioritization is very useful for making decisions about product plan but most of the time it is ignored. In many cases it seems that the product hardly attains its principal objectives due to improper prioritization. Increased emphasis on requirement prioritization and highly dynamic requirements makes management of composite services time consuming and difficult task. When software project has rigid timelines, limited resources, but high client expectations, an instantaneous deployment of most vital and critical features becomes mandatory. The problem can be solved by prioritizing the requirements. Over the past years, various techniques for requirement prioritization are presented by a variety of researchers in software engineering domain. The proposed Adaptive Fuzzy Hierarchical Cumulative Voting (AFHCV) uses adaptive mechanism with existing Fuzzy Hierarchical Cumulative Voting (FHCV) technique, in order to increase the coverage of events that can occur at runtime. The adaptive mechanism includes Addition of new requirement set, Analysis and Reallocation of requirements, Assignment and Alteration of priorities and Re-prioritization. The re-prioritization is used to improve the results of proposed AFHCV. The proposed system compares the results of proposed AFHCV technique to the existing FHCV technique and the comparison shows the proposed AFHCV yields better results than FHCV.**

Index Terms— **Requirement prioritization, Re-prioritization, Fuzzy logic, Hierarchical Cumulative Voting, Fuzzy HCV, Adaptive Fuzzy HCV**

I. INTRODUCTION

Requirement Engineering is a crucial part of Software Development Life Cycle and is also regarded as a vital division of software engineering. Requirement engineering includes an identification of requirements (often termed as an Elicitation/ Gathering), analysis of requirements, their documentation, validation as well as management of requirements. Prioritization of requirements comes under Requirement Analysis phase of requirement engineering. One of the objectives of requirement analysis is to identify the requirements. When a project has inadequate resources, tough execution plan and too high customer expectations, the most significant aspects must be organized beforehand. Hence the prioritization of requirements becomes essential and many associates are engaged in the process [1].

Requirements make available the system description, behaviour, information on application domain, system constraints, attributes and specifications [2]. Requirements generally appear on varied levels of hierarchy, with diverse abstraction levels [3]. While prioritizing many requirements at several hierarchical levels the scalability problem exists [4].

Requirement prioritization is an imperative step in the software development process. It is of immense help for managing the relative importance of requirements as well as the software development, especially in case of limited resources [2]. Requirement Prioritization is a multistep process [5], mainly comprised of three stages- preparation stage, execution stage and presentation stage.

II. MOTIVATION

Now days, the fact that requirements have varying importance is a reality of wide recognition. Still it has not progressed, either theoretically or practically, with respect to the techniques for requirements prioritization [6]. As per review of the state of practice in requirements engineering, several organizations are of opinion that allocating priorities to requirements is an imperative step and decisions should be made as per the rational and quantitative data [7]. Yet it emerges that no organization actually knew about how to allocate priorities or about the way these priorities be communicated to the project team members. Various techniques of requirement prioritization are illustrated by researchers in the domain of software engineering. Choosing a particular prioritization technique totally depends upon type and purpose of the project. However, the existing requirement prioritization techniques do not consider adaptation every time a requirement attributes value changes and is not suitable for circumstances where decision-makers are not certain about allocating points to the requirement. Therefore the combination of fuzzy logic with requirement prioritization techniques is offered to deal with uncertainty and ambiguity. The cause of adaptation is the systems reaction towards change. The integration of adaptive mechanism and fuzzy logic is proposed to deal with problems where customers or stakeholders have highly changing requirements and require dealing with uncertainty.

III. RELATED WORK

Numerous techniques exist at the moment for prioritization of requirements. A lot of such techniques are quantitative, which offer a methodical mode for assortment of data and value assignment to different factors related to requirements for computing a priority. Further techniques depend on carrying out groupings and informal generalizations prior to assigning the priorities, which is

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Big Data Privacy using Fully Homomorphic Non-deterministic Encryption

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***Abstract*—Big data is a large amount of digital information. Now days, data security is a challenging issue that touches several areas along with computers and communication. The security of data which stored online has become a main concern. Several attackers play with confidentiality of the user. Cryptography is a approach that provide data security to the user. Despite of huge efforts to protect sensitive data, hackers typically manage to steal it. Computing with encrypted data is strategies for safeguarding confidential data. The partial homomorphic encryption is specialized for only one operation on the encrypted data. For example the Paillier encryption scheme performs only one mathematical operation on encrypted numerical data and is successful to compute the sum of encrypted values. The Paillier encryption scheme is unable to do multiple mathematical operations on encrypted numerical data. The proposed encryption algorithm computes more than one mathematical operation on encrypted numerical data thereby further protecting the encrypted sensitive information.**

***Keywords*— Security and Privacy, Big Data, Encryption, Non deterministic, Fully homomorphic encryption.**

I. INTRODUCTION

Data is growing at a massive speed making it hard to manage big quantity of data. Data security has become important concern on the Internet especially when one is using it to send confidential data between the parties. Big data is term as high-volume, velocity and variety [1].

The general meaning of privacy is preventing the discloser of sensitive information. The huge quantity and distinctive kind of information is being gathered this may additionally contain greater personal information of individual. Data privacy and security is one of most important issue [2].

Large amount of digital data gather from different sources such as credit card companies, government institutes, banking, health care systems [3]. Security is prime need in such areas. Hacker tries to access the user sensitive data. With computing on encrypted data protects sensitive information against theft, if even the attacker holding the data has no idea what the values mean and have nothing important to steal.

A. Encryption Based Approach

The principle goal of cryptography is preserving a information. Cryptography is keeping a data secure from unauthorized person. The framework of data protection is as shown in Figure 1. Data are encrypted before being sent to server, server performs computation on the encrypted data.

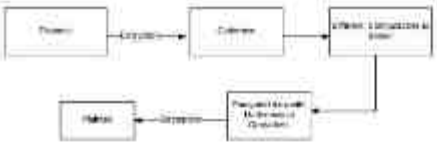

Figure 1. The framework of data protection

The encrypted data with mathematical operation is send to client. The plaintext are obtained by decrypting the encrypted data from the server. The encryption and decryption is in particular critical in wireless communications as cyber crimes is growing nowadays [4].

II. LITERATURE SURVEY

The speedy progression of digital data change in electronic manner, Information Security is becoming much more important for data storage and transmission of data over network. Security is required too conserving the integrity, confidentiality, availability of the data. If the operations or the computations on the encrypted data are to be executed, it's required to decrypt the data first and then most effective operations are carried out. The decrypted data is not secure. A new idea of the cryptosystem was proposed that allows the direct computation to be carried on the encrypted data, the concept is called as homomorphism [5]. The Figure 2 shows literature survey on Big data security.

A. Anonymization Based

The technique of privacy preservation, k-anonymity is the approach that anonymized records fields such that confidential data cannot be disclosed.

Salim et al., in [6], the k-anonymity model was proposed to deal with the possibility of indirect identification of records form public databases, k-anonymity means each released record has at least (k-1) other records in the release whose values are indistinct. For example, hospital incorporates large database in such way that identity of individual cannot be revealed. It assist to expose public databases without compromising privacy, it prevents database linkages. The method fails to maintain the privacy against background knowledge and homogeneity attack.

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Parallelism: A New Approach in Prediction System

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Abstract— **Now a days, people have a very free and convenient communication environment of internet where they show active participation to demonstrate what they actually feel about a particular event. May it be a poll result, incident, news, political issues, government schemes or any government decision for the citizens. People demonstrate their views by reacting through various parameters available on the social media. Some make a tweet using hash tags while some other prefer giving their views using statements, updating status or even updating their profiles in order to support a particular cause. But what if the predictors already know how the public is going to react on a particular event or news. For this prediction system help us out, in which there is analysis of the responses from public and then predict the future circumstances. Many applications are developed by using prediction systems. Some example are cancer detection, election poll results and many more. The day-by-day growing data can compromise the performance of the prediction system, because its obvious that growing network of data will require more storage and the system will also consume more time for its processing. In practical applications, maintenance of network storage and calculations will be costly with increasing number of nodes in the network. For this effective strategy for reducing processing time must be introduced. To reduce this processing time introducing parallelism concept can help.**

Keywords— **Sentiment analysis, partitioning dataset, parallel processing, combining results.**

I. INTRODUCTION

A prediction or forecast, is a statement about an uncertain event. It is often, but not always, based upon experience or knowledge. There is no universal agreement about the exact difference between the two terms, different authors and disciplines describe different connotations. Although guaranteed accurate information about the future is in many cases impossible, prediction can be useful to assist in making plans about possible developments. People are becoming increasingly enthusiastic about interacting, sharing, and collaborating through online collaborative media. In recent years, this collective intelligence has spread to many different areas, with particular focus on fields related to everyday life such as commerce, tourism, education, and health, causing the size of the Social Web to expand exponentially. The distillation of knowledge from such a large amount of unstructured information, however, is an extremely difficult task, as the contents of today's Web are perfectly suitable for human consumption, but remain hardly understandable to machines. Big social data analysis grows out of this need and combines multiple disciplines such as social network analysis, multimedia management, social media analytics, trend discovery, and opinion mining. For example, studying the evolution of a social network merely as a graph is very limited as it does not take into account the information flowing between network nodes. Similarly, processing social interaction contents between network members without taking into account connections between them is limited by the fact that information flows cannot be properly weighted. Big social data analysis, instead, aims to study large-scale Web phenomena such as social networks from a holistic point of view, i.e., by concurrently taking into account all the socio-technical aspects involved in their dynamic evolution. To improve the performance of prediction system such that it will be independent or least affected by the growing data network over time.

II. LITERATURE SURVEY

According to [1] Due to the rapid development of Web, large numbers of documents assigned by readers' emotions have been generated through new portals. Comparing to the previous studies which focused on author's perspective, our research focuses on readers' emotions invoked by news articles. The research provides meaningful assistance in social media application such as sentiment retrieval, opinion summarization and election prediction. Here, the readers' emotion of news based on the social opinion network are predicted. More specifically, the opinion network based on the semantic distance is constructed. The communities in the news network indicate specific events which are related to the emotions. Therefore, the opinion network serves as the lexicon between events and corresponding emotions. Leveraging the neighbor relationship in network to predict readers' emotions is done. As a result, the methods obtain better result than the state-of-the-art methods. Moreover, we developed a growing strategy to prune the network for practical application. The experiment verifies the rationality of the reduction for application.

According to [2] With the advent to social media the number of reviews for any particular product is in millions, as there exist thousand of websites where that particular product exists. As the numbers of reviews are very high the user ends up spending a lot of time for searching best product based on the experiences shared by review writers. Here it is presented as a sentiment based rating approach for food recipes which sorts food recipes present on various website on the basis of sentiments of review writers.

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Automatic Segmentation of Content and Noncontent based Handwritten Marathi Text Document

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***Abstract*— Handwritten character recognition has been emerging topic studied in the last half century and shape up to the level which is sufficient to develop a technology driven application. Now the rapidly increase in the computation power, CR creates an increasing demand for new emerging applications, which require more advanced methodologies. The problem of character segmentation and its recognition in India is promising and challenging task because of variety of writing styles and complex structural features. The presence of the header line (shirorekha), overlapping of characters in the middle zone, touching characters, conjunct character makes the segmentation task more complex. The overall performance of an OCR system depends on segmentation process. Hence, in this paper an attempt is made to segmentation of content and Non content based handwritten Marathi text document.**

Keywords—line segmentation, word segmentation, character segmentation, automatic conjunct character segmentation

I. Introduction

With the advent of digital computers, the researchers have been involved in the field of character recognition. Handwritten Character recognition is an exigent task due to the restricted shape variation, different script style & different kind of noise that breaks the strokes in number or changes their topology [1, 2]. Handwriting varies from person to person. When a person writes a character twice, there is enormous dissimilarity among the people. These are the reasons for development of handwritten character recognition [3, 4]. Among the various phases of an optical character recognition system the segmentation of handwritten document is important because the document is divided into lines, words and characters. The main objective of this paper is to study and implementations of algorithms for segmentation of handwritten Marathi document as well as the segmentation of content based handwritten Marathi conjunct characters written on database preparation sheet. For this sample of Marathi handwritten documents are collected from 100 different people of different educational background, age, and gender have been prepared. The paper is organized as follows: In section 2, includes literature survey. Section 3 deals with the implementation of segmentation algorithm. The section 4 gives details of the results and conclusion is discussed in section 5.

A. Devanagari Marathi characters

Devanagari is an ancient alphabetic script. It is used in number of Indian language. Sanskrit is the base of Devanagari language, but it is modified and used to develop other Indian language like Marathi, Hindi, Konkani, Sindhi and Nepali. Marathi script is made up of 11 vowels and 34 consonants. In addition to that, there are large number of conjuncts formed by combination of vowels and consonant, there half forms and modifier symbols called 'Jodakshara'. The modifier symbol placed on the top, bottom, left and right or combination of all. It has also a header line which are placed on the top of whole word called as 'Shirorekha'

1. Marathi Handwritten character

अ = a, आ = A/aa, इ = i, ई = I/ee, उ = u, ऊ = U/oo, ऋ = Ru, ॠ = RU, ऌ = Lu–, ॡ = LU–, ऍ = E, ए = e, ऐ = E–, ऐ = ai, ऑ = O, ओ = o, ओ = O–, औ = a/ou, अं = aM, अँ = aM–, अः = a:H

2. Marathi Consonant

क = k, ख = kh, ग = g, घ = gh, ङ = NG, च = ch, छ = Ch, ज = j, झ = z, ञ = NY ट = T, ठ = Th, ड = D, ढ = Dh, ण = N त = t, थ = th, द = d, ध = dh, न = n प = p, फ = f/ph, ब = b, भ = bh, म = m य = y, र = r, ल = l, व = v, श = sh/S, ष = Sh, स = s, ह = h, ळ = L, क्ष = x/kSh, ज्ञ = Gy

3. Additional Marathi Consonant

क़ = k*, ख़ = kh*, ग़ = g*, ज़ = j*, ड़ = D*, ढ़ = Dh*, फ़ = f*, य़ = y*

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Implementation of real time digital watermarking system for video authentication using FPGA

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View All Authors

Abstract:
This paper presents a hardware implementation of a digital watermarking system that can insert invisible, semi fragile watermark information into compressed video streams in real time. The watermark embedding is processed in the discrete cosine transform domain. Hardware implementation using field programmable gate array has been done, and project was carried out using a custom versatile breadboard for overall performance evaluation which become a viable target for the implementation of real time algorithms suited to video image processing applications. This System is developed on Xilinx Spartan3 Field Programmable Gate Array (FPGA) device using embedded development kit (EDK) tools from Xilinx. The results showed that the proposed algorithm has a very good hidden invisibility, good security and robustness for a lot of hidden attacks.

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