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Waste-To-Energy Solutions That Is Technically and Economically Feasible for Investment in India: A MOORA Technique Based on MCDM Method Strategy

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Abstract

In the Vellore District of Tamil Nadu State, Due to the unprofitable nature of phase extension in isolated rural areas, small-scale power generation has recently come to be recognized as a viable option for energy access. It might be possible to develop an Integrated Renewable Energy System to meet the hamlets' energy and culinary requirements. Techno-Economic Research on This article conducts Technologies for converting waste into energy (WtE) has been acknowledged as one solution to India's persistent problem with unannounced power outages and load shedding. Research significance: Which of the four potential WtE technologies—pyrolysis, gasification, plasma arc gasification, and anaerobic digestion—will have the highest techno-economic return on investment? MCDA, or multi-criteria decision analysis, is employed in the current study. Methodology: The four solutions were assessed using 10 chosen techno-economic criteria by five academic and business professionals. After pyrolysis and plasma arc gasification, gasification, according to the available statistics, commonly known as anaerobic digestion, is the third most investable WtE technology in India. The annual energy production and initial investment are, respectively, the most important technical and economic factors. Results: Based on MOORA set theory, some multi-criteria decision-making (MCDM) paradigm is suggested in this paper. Alternative methods include pyrolysis, gasification, plasma arc gasification, and anaerobic digestion. The following criteria are used for evaluation: net present value, internal rate of return, transformative capacity, generational capacity, annual energy generation, initial investment, operations, and maintenance, balanced energy expenditure, repayment duration, and cost of electricity. As a result, the Gasification is in 1st rank and anaerobic digestion is last rank. Conclusion: The results of sensitivity analysis are more robust, Showing stability and consistency. According to the present analysis, anaerobic digestion and gasification should be integrated rather than used separately, because it balances well as a WtE technology. The results of this study will help potential WtE technology investors in India make decisions.

Keywords: Anaerobic digestion, Pyrolysis, Gasification

Introduction

Energy is a necessity for human life as well as for a society's ability to develop economically sustainably. Fossil fuels are the main way to produce electricity on a global scale. Fossil fuels account for 84% of the world's electricity production, according to the most recent statistical analysis of global energy [1]. However, a heavy reliance on traditional fossil fuels poses a serious issue due to the diminishing supply, It increases the cost of fuel and leads to the creation of greenhouse gases and other pollutants, all of which have a big impact on global warming [2]. The advancement of renewable energy sources will play a significant role in the achievement of the Paris Climate Change Agreement and the 2030 Agenda for Sustainable Growth of the United Nations. To address energy issues and preserve the environment, the majority of wealthy countries have made significant investments in technologies converting to renewable energy sources [3]. As a result of their reliance on the weather, alternative energy sources like solar, wind, and hydro have irregular supplies. Municipal solid waste (MSW) has demonstrated to be a very reliable source of plentiful, environmentally friendly energy when employed as the main feedstock for power generation [4]. Due to the numerous economic and environmental advantages of MSW management, it has gained interest in the majority of studies. Both the production and management of MSW have seen tremendous change in the last several decades. Recycling, composting, and energy recovery are becoming increasingly popular alternatives to unmanaged landfills in solid waste management across the globe. In 2018, recycling and energy recovery rates for MSW generated were 32% and 12%, respectively, up from 6% and 0% in 1960. Contrarily, land filling has dramatically dropped, from 94% of the quantity produced in 1960 to 50% of the amount produced in 2018 [5]. Recently, it has become clear that MSW may really be more of a "resource" than a "burden," one of the world's undiscovered resources. Depending on the changing composition and moisture content of the trash as well as the local population and culture, the energy present in MSW can be used to produce heat and power through a variety of biochemical or thermochemical processes [6]. A circular economic system can be created by simultaneously tackling the problems of energy consumption, waste management, and greenhouse gas emissions through the supply chain for waste-to-energy (WtE) technology [7]. The potential for the global market for WtE technologies to produce around 13 GW of energy has increased dramatically despite the recent economic slump, according to predictions from the International Renewable Electricity Agency [8]. Due to advancements in technology, access to sufficient technical and analytical data, and political support, several WtE innovations show significant promise in industrialised nations [9]. This

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Application of predictive analytics (PHRA) and its effects on Practices of HRM among HR professionals.

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Abstract

This research done on Predictive HR Analytics' (PHRA) and its effects on HR practices like Recruitment and selection, performance evaluation, and succession planning Among HR Professionals in Marathwada region of Maharashtra state in India, A cross sectional study with the use of questionnaire survey was adopted, and the questionnaires were distributed.

Data from 159 respondents was collected. made up of HR professionals at all levels of Marathwada region . Data generated was examined using the statistical tool SPSS, version 20. The Mean scores and standard deviation were computed using these statistics to evaluate PHRA. It was determined through a correlation analysis what kind of link the PHRA had with the HRM practise. Also to forecast the importance of the connection between PHRA and the outcomes of HRM practices. The outcome from the correlation analyses, revealed a substantial positive association between PHRA and the HRM practices used for this research. Considering the results, it can be concluded that PHRA plays a significant role in improving the effectiveness of HRM practices. As a result, the research advises HRM professionals to embrace the use of PHRA in their regular practices. It further stresses that practitioners should not just stop at simple data.

It also highlights that practitioners shouldn't limit themselves to data alone presentation but aim to include predictive analytics into their daily work in order to, Effectively and efficiently enhance the results of their organization's human resource practices. The report adds more information by demonstrating that the majority of Marathwada practitioners quit the descriptive step of their analytics. Uncertainty regarding the ability to identify and application of appropriate metrics amongst the respondents was also identified It also highlighted general contributions while making suggestions for future study.

Keywords: Predictive HR Analytics, Human Resource Management, Predictive Analytics, Recruitment and selection, performance evaluation, and succession planning

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RECENT HAPPENINGS AND DEVELOPMENTS IN GLOBAL TRAVEL AND TOURISM INDUSTRY – A CASE STUDY OF THOMAS COOK

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ABSTRACT
Travel and tourism industry is among the world's major service providing industries. It drives economic growth, creates job opportunities, improves social development and also promotes sustainable development. Millions of people around the globe are dependent on this sector for their employment (Directly or indirectly). In some developing economies of the world, travel and tourism industry is not just the major source of national income, but it is also the single largest employer of that country. The role of travel and tourism industry is to effectively and efficiently contribute in the sustainable development of that country. Travel and tourism industry is a huge diversified sector, consisting of millions of organizations, and employers, from the heavyweights in international travel brands to the smallest tour operators located in a small city. The purpose of this paper is to see how the travel and tourism industry has impacted the global economy. The paper further goes on discussing the rise and collapse of an international travel and tourism giant, Thomas Cook.

Keywords: Travel and Tourism, Thomas Cook, rescue

Recent Happenings and Developments in Global Travel and Tourism Industry – A Case Study of Thomas Cook

An Overlook of Global Travel Industry

Travel is a complex and complicated topic not only from a personal point of view but also from an economic perspective. Global internal tourism revenues amounted to approximately 5.9 trillion U.S. dollars in 2019 and this number is bound to grow as the global travel and tourism industry is forecast to continue its steady growth in the foreseeable future. The travel and tourism sector is among the world's biggest industrial sectors with an overall economic contribution of over 7.6 trillion U.S. dollars in 2016. The direct economic implication of this service industry, including accommodation, transportation, entertainment and attractions, was approximately 2.3 trillion U.S. dollars that year. A good number of developed economies, such as France, Germany, Japan and the United States, are the most common tourism destinations, but other, less well-known especially developing economies are quickly emerging in order to encash the financial benefits of the travel sector.

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Feature Extraction Methods for Plant Disease Detection using Image Processing – A Review

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Abstract: - Agriculture is the primary source of livelihood for about 58 percent of India's population which contributes around 17-18 percent to the country's GDP (gross domestic product). The crop losses due to diseases are approximately 10 to 30%. Farmers judge the diseases by their experience but this is often not accurate and proper way. Sometimes farmers call the experts for detecting the diseases but this also a time-consuming way. The diseases totally on leaves and on a stem of plant. The diseases caused by different types of fungi, bacteria, Leaf Curl, phytoplasmas, viruses, Anthracnose, viroids, nematodes, and other agents, etc. on the plant. It is an important task for farmers to seek out these diseases as early as possible. Plant diseases can cause a big reduction in both the standard and quantity of agricultural products. Automatic detection of diseases is a crucial research topic because it's going to prove benefits in monitoring large fields of crops, and thus detect the symptoms of diseases as soon as they seem on plant leaves. An accurate, automatic and rapid method for detecting the diseases is required. This review paper provides an summary of various features of extraction methods for disease detection and classification.

Keywords:- Plant Leaf Diseases, Deep Learning, Feature Extraction, Classification, Support Vector Machine, Neural Network.

assembly get stricken by diseases of the crop. The diseases of the crop square measure caused by pathogens, deficiency of nutrients, fungi etc.Police work diseases at early stages allows to beat it and treat it fitly. The oculus observation of specialists is that the main approach adopted in observe for detection and identification of plant diseases. But, this needs continuous observance of specialists which could be prohibitively dear in giant farms. Further, in some developing countries, farmers could need to go long distances to contact specialists, this makes consulting specialists too dear and time overwhelming and furthermore farmers square measure Automatic detection of plant diseases is a vital analysis topic because it could prove advantages in observance giant fields of crops, and so mechanically notice the diseases from the This allows machine vision that's to supply image primarily based automatic scrutiny, method management and golem steering. relatively, visual identification is labor intensive, less correct and might be done solely in little areas. Image feature may be a straightforward image pattern, supported that we will describe what we tend to see on the image. Electronic knowledgeable systems allows farmers in distinguishing style of diseases; creating the correct call and choosing the correct treatment. The knowledgeable systems square measure intelligent pc programs that square measure capable

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WEB IMAGE SEARCH RE- RANKING DEPENDENT ON DIVERSITY

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ABSTRACT
Social media sharing websites sanction users to annotate images with free tags, which significantly contribute to the development of the web image retrieval. Tag-predicated image search is a consequential method to find images shared by users in various networks. However, how to make the top ranked result germane and with diversity is arduous. In this paper, we propose a topic diverse ranking approach for tag-predicated image retrieval with the consideration of promoting the topic coverage performance. First, we construct a tag graph predicated on the homogeneous attribute between each tag. Then community detection technique is led to mine the subject network of each tag. From that point forward, inter network and intra network positioning are acquainted with acquire the last recovered outcomes. In the inter-community ranking process, an adaptive desultory walk model is employed to rank the community predicated on the multi-information of each topic community. Besides, we build an inverted index structure for images to expedite the probing process. Experimental results on Flickr dataset and NUS-Wide datasets show the efficacy of the proposed approach.

Keyword: Image search, Re-ranking

I. INTRODUCTION

Web-scale image search engines mostly use keywords as queries and rely on circumventing text to probe images. It is prominent that they suffer from the ambiguity of query keywords. For example, using "apple" as query, the retrieved images belong to different categories, such as "red apple", "apple logo", and "apple laptop". Online image re-ranking and searching it has been shown the effective way to improving the image searching results. Real web picture web search tools have since embraced the re-ranking methodology. Given a query keyword input by a utilizer, according to a stored word-image index file, a pool of images pertinent to the query keyword are retrieved by the search engine. By asking a user to select query image, which reflects the user's search intention, from the pool, the remaining images in the pool are re-ranked based on their visual similarities with the query image. The visual highlights of pictures are pre-processed disconnected and put away by the web crawler. The principle online computational expense of picture re-positioning is on contrasting visual highlights. In order to achieve high efficiency, the visual feature vectors need to be short and their matching needs to be expeditious. Another major challenge is that the similarities of low-level visual features may not well correlate with images' high-level semantic meanings, which interpret users' search intention. To narrow down this semantic gap, for offline image apperception and retrieval, there have been a number of studies to map visual features to a set of predefined concepts or attributes as semantic signature However, these approaches are only applicable to closed image sets of relatively small sizes. They are not congruous for online web-predicated image re-ranking. According to our empirical study, images retrieved by 120query keywords alone include more than 1500 concepts. Therefore, it is arduous and inefficient to design an immensely colossal concept dictionary to characterize highly diverse web images.

RELATED WORK

Social networks allow users to annotate their shared images with a set of descriptors such as tags. The tag-predicated image search can be facilely accomplished by utilizing the tags as query. However, the weakly relevant tags, noisy tags and duplicated information make the search results unsatisfactory. Most of the literature focuses on tag processing, image relevance ranking and diversity enhancement for the retrieval results. The following components present the subsisting works cognate to the above three aspects respectively.

NOISE IN DIGITAL IMAGE AND DIFFERENT FILTERING TECHNIQUES USED FOR IT

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ABSTRACT
Digital images play a very important role in digital image processing research and technology. For the good result of Digital image processing system noise must be removed from the image. Noise is nothing but the unwanted pixels in the image represent different intensity values rather than the true pixel values. Noise can occur during image processing, compression, capture, transmission, etc. and classified as Gaussian noise, Salt-and-pepper noise, Film grain, Multiplicative noise, etc. These noises can be removed by using different filtering technologies like Linear Filters, Adaptive Filter, etc. This paper provides the basic information to the researcher, about the noise in the digital image processing, and different filtering technologies to remove it.

Keywords: Digital Image processing, types of Noise, Different filters.

1. INTRODUCTION

In the digital image processing area, for the good result of system noise must be removed from the image, which may be added at the time of image capturing, transmission, processing, compression, etc. This type of noisy images destroy the result of Digital image processing system like Brain Tumor classification system, breast cancer detection system, etc.

1.1 Degraded or Noisy Image [1,2]

The original images are blurred with or get affected with additive noise and degradation function. A noisy image can be considered as:

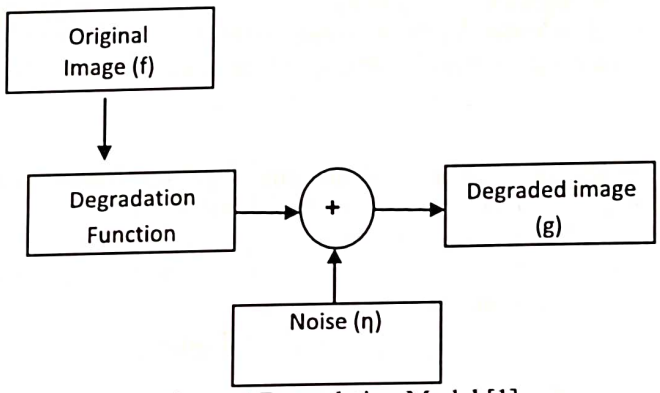

Figure 1 Degradation Model [1]

$$g(x,y) = f(x,y) + \eta(x,y) \ldots\ldots\ldots\ldots (1)$$

In equation 1 f(x, y) is the original image pixel, η(x, y) is the noise term and g(x, y) is the resulting noisy pixel. Figure 1 shows the structure of degradation model.

The main sources of digital image noise are:

- Image sensor noise
- Noise from transmission channel
- Due to environmental conditions

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A REVIEW PAPER ON CRYPTOGRAPHY ENCRYPTION AND COMPRESSION TECHNIQUES WITH MATRIX

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ABSTRACT

Data collection is a type of digital information. Using it will prevent unauthorized access to data security computers, personal databases, and websites. Cryptography is an advanced technology. Protects users through the functionality and authentication of other users for encryption of data using cryptography. Compression is the process of reducing the number of bits or bytes in a given data. This allows more data to be saved. Cryptography is a sophisticated technique for sending important information. In the current information security system, privacy, integrity, and denial are involved. The security of communication is an important issue on the World Wide Web and it is about confidentiality, integrity, the acquisition or quantity of confidential internal documents. The matrix multiplication technique is used during message transformation as a message.

KEYWORDS: -DATA ENCRYPTION AND DECRYPTION, COMPRESSION, CRYPTOGRAPHY CONCEPT, SECURITY, INTEGRITY MATRICES, INVERSE MATRICES, ENCRYPTION, DECRYPTION, PLAINTEXT, CIPHER TEXT

INTRODUCTION

Cryptography is study of science of secrete writing .Also we can say Cryptography is the study of mathematical techniques related to the concept of message security as confidentiality,integrity,authentication of entry and data origin authentication as. To secure the data, compression is used because it uses less disk space (saves money), more data can be transfer via internet. It boost the speed of data transferring from disk to memory. Data security has some goals; these goals are Confidential, Authentication, Integrity, and Non-repudiation. Data security provides data protection across enterprise Information security is an increasing issue among all IT industries. To overcome from this growing concern, more and more IT firms are moving towards cryptography to protect their valuable information In addition to above concerns over securing stored data, IT organizations are also facing challenges with ever increasing costs of storage which is required to make sure that there is enough storage capacity to fulfil the current and future demands of organizations. Data compression is known for minimizing the storage and communication costs. It includes transforming data of a given format, called source message to data of a smaller sized format called code word. Data encryption is known for protecting information from eavesdropping. It transforms data of a given format (plain text) to another format (cipher text) using an encryption key. Currently compression and encryption methods are done independently. Modern cryptography is based on two things mathematical theory and computer science practice. Cryptographic algorithms are designed around hardness assumptions. They make such algorithms hard to break in practice by any adversary. It is theoretically possible to interrupt such a system, but it's infeasible to try doing so by any known practical means. Due to growth in cryptographic technology a number of legal issues are arises in the information age. Cryptography's potential to be used as a tool for espionage and sedition has led many governments to classify it as a weapon and to limit or maybe prohibit its use and export

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CYBERCRIME SCENARIO IN INDIA AND CHALLENGES TO INDIAN CYBER LAWS

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ABSTRACT

Today, with the invent of digital platforms multiple things are done using Cyberspace and Internet ranging from official work, online resource sharing, online dealing and online transactions to e-learning. Cyberspace is a "virtual world" created by links between computers utilized by government and organizations for giving basic facilities to public. As we all know new technologies have lot of benefits if used properly but few people are misusing it. Internet is worldwide platform and might be accessed from anywhere within the world. But few peoples are using it for performing some criminal activities like cyber Terrorism, cyber warfare, financial scams, unauthorized access of network etc. These unauthorized and criminal activities are termed as cyber crime. India has been ranked second amongst the countries affected by cyber attacks considering reports of last two years. Some legal systems are necessary for restricting these criminal activities, so for these "IT Act 2000" was introduced in India. IT Act 2000 was referred from UNCITRAL Model Law adopted by the United Nations Commission on International Trade Law. Indian cyber law has multiple challenges considering current cybercrime scenario in India [1]. This article evaluates the current scenario of cyber crimes in India, its detection and also the controls.

Keywords: Challenges, IT Act 2000, UNCITRAL Model Law, Cyberspace, Cyber Law, Cybercrime.

1. INTRODUCTION

The Internet is one among the fastest growing platforms available worldwide [2]. In today's business environment, disruptive technologies like cloud computing, Artificial Intelligence, Computing and next-generation mobile computing are fundamentally changing how organizations utilize information technology for resource sharing and for conducting online transactions [3]. Today over 80 percent of total commercial transactions are done online, this gave birth to cyber crime, so this field required a prime quality of security for transparent and best transactions.

The scope of Cyber Security isn't limited to particular IT infrastructure, it covers worldwide network [4]. Cyber security is incredibly important and necessary for providing continuous and secure internet services [5]. Enhancing cyber security and protecting critical information and database are important for any country. Protecting web from cyber crime has become crucial. [6]. Deterring cybercrime is an integral component of a national cyber security and important information infrastructure protection strategy.

As nearly all countries face problems related with cyber crime and considering current scenario, a comprehensive approach is required regarding secure use of technologies [7]. Cyber security strategies must be developed as an example, creating awareness among the web users regarding cyber crime and protecting them from becoming cyber crime victims [8]. The development and support of cyber security strategies are a significant element within the fight against cybercrime [9]. In India we are having IT Act 2000 as one among different preventive measures against cyber crime. [10]. The UN's General Assembly recommended the first IT Act of India which was based on the "United Nations Model Law on Electronic Commerce" (UNCITRAL) Model [11].

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Impact of Mobile Phone on Human Health: A State of Art

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Abstract: *These days' mobile phones becoming an elementary a part of our life. This is often one in every of the foremost important medium for the communication. The countless increase in mobile phones has increased the number of non-ionizing radio waves in surroundings during last twenty years the possible risks by frequency electromagnetic field exposure of the bod are a significant concern for the society. Although the familiarization and dependency of mobile is growing at an alarming pace, the Human health effects because of the exposure of radiations became a subject matter of intense debate. The consequences of radiofrequency radiation is incredibly broad and heterogeneous. The likelihood of a relationship between mobile use and carcinogenic processes, reproduction and development, the vascular system and longevity – that's, exposure of the full body. The speed at which radiation is absorbed by the bod is measured by the SAR, and its extreme levels for currenttelephones are set by legislativeadaptableinterventions in many nations.*

Keywords: *Radiations, effects, mobile, frequency,human health*

1.0 Introduction

Electromagnetic radiations are included in these factors which are utilized in cell-phones and wireless devices for signal transmission. Various research studies have illustrated that EMF radiations are found to be liable for various harmful effects on health, development, reproduction, immune system, growth, sleep, skin and brain [1-

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CYBERCRIME SCENARIO IN INDIA AND CHALLENGES TO INDIAN CYBER LAWS

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Impact of Mobile Phone on Human Health: A State of Art

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PARAMETER OPTIMIZATION OF CO2 LASER CUTTING MACHINE FOR IMPROVED SURFACE QUALITIES IN IS2062 (E450) STEEL SHEETS

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ABSTRACT

Now a days lot of research in the use of various different materials consisting specific properties is being conducted in sector building machines where strength is of prime importance. One such material is steel of grade IS2062 (E450) which has specific properties not present in regular steel. E450 has high yield point and fatigue point on stress strain curve with high weldability and malleability properties. The material thus is used in various applications such as submarines, boilers, chemical vessels, ships, aircraft, light motor vehicle and heavy motor vehicle, infrastructure and material handling equipments. The present paper discusses the effect of CO2 Laser cutting machine parameters such as laser power, cutting speed, gas pressure, standoff distance and focal length on output parameters such as kerf angle and surface roughness. RSM methodology was used to design and conduct experiments using Minitab software. It was concluded from experimentation that a combination of low laser power with high gas pressure and low cutting speed gives the most desirable results.

Keywords: IS2062, laser cutting, optimization, RSM, Kerf angle and Surface roughness.

I. INTRODUCTION

Laser cutting (L.C.) is one of the most generally utilized heat based non-contact type latest machining process which can be utilized to machine wide scope of material. Adalarasan R et al. in 2015 stated that in laser machining, the strong laser beam liquefies the material from that point followed by vaporization of material, this material is then removed by pressurized stream of gas along these lines getting an edge with high cut quality [2,3]. Dubey AK, Yadava V in 2008 found that it is especially reasonable for cutting geometrically complex profile and for making small scale gaps in sheet metal [12]. Presently a-days, for keeping away from delays in cost and time, industries are severe as for the nature of cut/machined surface. Laser cutting is generally utilized machining process for cutting different evaluations of steel principally in light of its cutting rate and machining cost while cutting sheet metals. There are two modes in laser cutting continuous wave mode and pulsed mode out of which continuous wave mode laser cutting is a famous procedure in businesses for cutting maximum share of materials, for example, metals, wood, attractive silicon sheets, paper, elastic, and different composites. Late progressions additionally propose utilization of laser for smaller scale machining of segments [4]. Lasers are comprehensively arranged by the sort of lasing material they utilize, for example, strong state crystals, semiconductor, , ionized gas, atomic gas, fiber laser. Out of these CO2 lasers are generally utilized in companies as they produce high force with ease. Because of these qualities CO2 laser is broadly used to cut thin steel sheets, and the present work is pulled in by the motivation to find ideal information process parameters for Marathwada Auto Cluster, Aurangabad to cut E450 steel sheet.

A. Riveiro et al. in 2011 examined laser cutting on aluminum compounds and found for acquiring great surface completion argon gas is best for aluminum copper combinations, nitrogen for tempered steel and oxygen for carbon steel [1]. Ahmet Hasc-alık and Mustafa Ay in 2013 checked laser slice nature of hard to cut Inconel 718 nickel based super alloy and found that cutting rate impact on surface unpleasantness and kerf tapper proportion higher than laser power [6]. Anders Ivarsona in 2015 expressed that silicon content doesn't influence cut edge quality, expanded manganese content diminishes cut edge quality and expanded carbon content improves cut edge quality in spite of the fact that manganese content is high, in the wake of considering impact of alloying components on laser cutting procedure [8]. Aghdeab SH et al.

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PARAMETER OPTIMIZATION OF CO2 LASER CUTTING MACHINE FOR IMPROVED SURFACE QUALITIES IN IS2062 (E450) STEEL SHEETS

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ABSTRACT

Now a days lot of research in the use of various different materials consisting specific properties is being conducted in sector building machines where strength is of prime importance. One such material is steel of grade IS2062 (E450) which has specific properties not present in regular steel. E450 has high yield point and fatigue point on stress strain curve with high weldability and malleability properties. The material thus is used in various applications such as submarines, boilers, chemical vessels, ships, aircraft, light motor vehicle and heavy motor vehicle, infrastructure and material handling equipments. The present paper discusses the effect of CO2 Laser cutting machine parameters such as laser power, cutting speed, gas pressure, standoff distance and focal length on output parameters such as kerf angle and surface roughness. RSM methodology was used to design and conduct experiments using Minitab software. It was concluded from experimentation that a combination of low laser power with high gas pressure and low cutting speed gives the most desirable results.

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Purification of biodiesel: A review

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Abstract— **The global energy consumption is expected to grow in a faster rate than the population growth. An increase of 53% of global energy consumption and 39% of greenhouse gases emissions from fossil fuels is anticipated, by 2030. Therefore, it becomes a global agenda to develop clean alternative fuels which are domestically available, environmentally acceptable and technically feasible. Biodiesel seems as one of the best choices among other sources as an alternative fuel due to its environment friendly behavior and similar functional properties with diesel. Biodiesel is produced through the trans-esterification of triglycerides with an alcohol in the presence of a proper catalyst. The crude biodiesel needs to be purified to meet the standard specifications before marketing after initial separation of the by-product (glycerol). The impurities in the biodiesel affect its engine performance and also complicates its handling and storage. Therefore, purification of biodiesel is required prior to marketing. Biodiesel purification methods can be classified based on the nature of the process into equilibrium-based, affinity-based, membrane-based, reaction-based, and solid-liquid separation processes. This paper provides overview on the techniques and methods used for purification of biodiesel.**

Keywords— **Biodiesel; Purification of biodiesel; Upgrading of biodiesel;**

I. INTRODUCTION

Biofuels have received a great deal of attention due to the increase in global energy demands and the necessity of alternative clean fuels and energy (1). Biodiesel is a petroleum diesel substitute and one of the most promising biofuels due to its environmental compatibility and biodegradability (3). Non-edible vegetable oils as well as algae and waste oils, consisting mainly of triglycerides and free fatty acids (FFAs), are potential biorenewable feedstocks for producing biodiesel since they have hydrocarbon chains in the range of diesel fuel (C12-C18) and do not raise the "food *vs.* fuel" conflict (4,5). In line with that, many researchers have attempted to produce transportation fuels from these feedstocks *via* various methods. Thermal cracking (pyrolysis), catalytic cracking, and catalytic hydrocracking have been tested on these feedstocks (6). The problem with these processes is the overall low energy efficiency due to considerable formation of C1-C4 hydrocarbons (7). Microemulsions of oil with solvents (and/or surfactants) such as water, methanol, ethanol, and 1-butanol have also been proposed to reduce the viscosity of bio-oils (8). However, several issues like unstable fuel properties, miscibility limitations, and heavy carbon residues during combustion have not been addressed (9). Transesterification of triglycerides with short-chain alcohols (i.e., methanol or ethanol) in the presence of an alkali catalyst has been most widely used to obtain "biodiesel" or essentially fatty acid alkyl esters (FAAEs) (9). Glycerol is an important by-product of the transesterification reaction, which needs to be separated from the biodiesel phase (10). Depending on regional regulations, biodiesel needs to meet certain characterizations prior to reaching the market. Even though the densities of biodiesel and glycerol are distinct enough from one another to be separated *via* gravitational settling and centrifugation (10), further purification is required to remove impurities (i.e., remaining vegetable oil, alcohol, catalyst, soap, and FFAs) and meet the standard specifications introduced in ASTM D6571 or EN14214. Low-quality biodiesel due to impurities can not only compromise the engine performance but also complicate the storage and transportation of the fuel. Biodiesel purification techniques include wet washing using water, acidified water, organic solvents, or ionic liquids, dry washing *via* adsorption

2. Biodiesel Purification

2.1. Equilibrium-based separation processes

Absorption and distillation, as well as supercritical fluid extraction and liquid-liquid extraction (LLE), are some of the most common equilibrium-
based separation processes (13). Absorption is commonly utilized for separating particles and impurities from a gaseous mixture; therefore, it does not have a major application in biodiesel separation.

2.1.1. Distillation

Distillation is the most common method for separation of more volatile compounds from heavier substances in a liquid mixture (14). There are different distillation techniques including conventional distillation (ordinary, vacuum, and steam distillation), azeotropic distillation, extractive

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A REVIEW ON SYNTHESIS OF INDOLE PHAMACOPHORE

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[2]Department of Chemistry, Sant Dnyaneshwar Mahavidyalaya, Soegaon (Dr.BAMU) Aurangabad

ABSTRACT
Nitrogen-Containing compounds are a building block of heterocyclic chemistry which is used for synthesis of bioactive molecules and biological activity of various compounds. A large number of heterocyclic compounds are also used for various research field like medicinal discovery, pharmaceutical field, and agriculture field etc. These compounds are heart of drug discovery more than 90% of the novel drugs are synthesized from heterocyclic, hence Nitrogen containing heterocyclic compound are better than other heterocyclic compounds Heterocyclic compounds provides high structural diversity and it proved to be vast area of research in organic chemistry

Keywords: Indole, Biological Activities, methods of synthesis

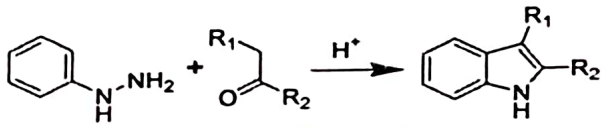
INTRODUCTION

Heterocyclic chemistry is most important fundamental branch of organic chemistry which deals with synthesis, properties, and applications of various compounds. The name heterocyclic comes from the Greek word "heteros" which means "different." The Heterocyclic compounds are cyclic organic compounds that contain at least one hetero atom, like Nitrogen, oxygen and sulphur and other atoms important in many biological processes The indole ring is the most unique heterocyclic in nature which having the great structural diversity of biologically active compounds, it is become an important structural component in many medicinal research.

Here involve Examples of indole ring system, a few novel syntheses of indolines, oxindoles, isatins, indoxyls, carbazoles, and related ring systems are included in this review

Fischer Indole Synthesis -: it is most important and oldest methods of synthesis of substituted indoles is the Fischer indole synthesis, developed in 1883 by Emil Fischer. The Fischer indole synthesis. they maintained its important role as a route to indoles, both new and old methodes , and to the production of its pharmaceutical moites. Further, new and novel methodologies have been developed

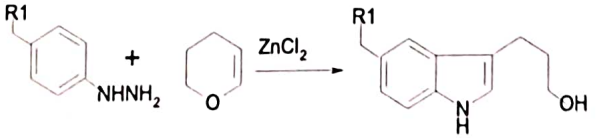
1) Chemical reaction gives aromatic indole from reaction of phenylhydrazine and substituted aldehyde or ketone under acidic conditionsChemical reaction produced aromatic indole from reaction of phenylhydrazine and substituted aldehyde or ketone under acidic conditions.



Scheme 1.

Antimigraine drugs of the Triptan class are synthesized by this Fischer indole synthesis method.

1) Reaction of an aryl hydrazine with dihydropyran to give the hydroxypropylindole.



Scheme 2.

Review on Prefabricated Cage System

Kishor B Shikhare[1], Vinod B Shikhare [2]

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ABSTRACT

Prefabricated Cage System (PCS) is introduced as a new steel reinforcement system that can be used in reinforced concrete members. PCS is expected to perform as an integral system performing the functions of both longitudinal and lateral reinforcement. The proposed system is anticipated to be a superior alternative to the existing reinforcement systems in reinforced concrete members, most notably in beams and columns.Prefabricated Cage System (PCS) can be used as the entire or part of the reinforcement in concrete columns, beams, beam column joints, shear wall, foundation, slabs or other structural members.

Prefabricated Cage System can be used as an alternative to the normal rebar system. PCS is a prefabricated reinforcement that enables easier, faster and more reliable construction. PCS reinforcement is prefabricated off site then placed inside the formwork eliminating the time consuming and costly labour associated with cutting, bending and tying steel bar in traditional rebar construction. Behaviour of column specimens reinforced with a Prefabricated Cage System is investigated.

Keywords- Prefabricated Cage System (PCS),Reinforced Concrete.

1. Introduction

Prefabricated Cage system of reinforcing is claimed to be stronger, safer, more ductile, simpler in construction, and more efficient as compared to the existing reinforcing system such as regular rebar reinforced concrete and composite sections. Prefabricated Cage System (PCS)reinforcement is prefabricated off-site and then placed inside the formwork eliminating the time consuming and costly labour associated with cutting, bending, and tying steel bar in traditional rebar construction.

Review on Prefabricated Cage System

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Can Artificial Intelligence replace Creativity of Being?

DR. C.S. Padmavat

Miss. Meghanajoshi

Abstract: *Creativity is the characteristic of human beings that distinguishes them from any artificial things. human being have the capability to grasp and analyse the condition of the anything around, evaluate about it and define it to be good or bad, beautiful or ugly etc as per set human brain algorithms. But, the most beautiful feature of the human being is to explore beyond that algorithm to achieve certain good things around. It is the provision due to creativity. Creativity plays vital role in each and every domain of the Universe such as art, Science, Engineering, technology and so on. Still, this characteristic of human being is depends on the kind of nurture, care and value of it. According to Brian Christian, humans are likely to behave as machines as following certain algorithm by fading up with the out of box thinking approach. The era of the decade is all about the utilization of Artificial Intelligence in each and every domain. The aim of this paper is to study, whether Artificial Intelligence can replace the human being.*

Keywords:*Creativity, Human, Artificial Intelligence, technology, Art*

I. Introduction:

The classically inspired portrait seen here wasn't created by human hand, but rather a painting-generating algorithm trained by a collective of French artists who pass the name of Obvious. Machines today make it possible to color pictures, compose music, invent recipes, and write scripts without human intervention. The new artistic ability of AI (AI), therefore, calls the very concept of creativity into question. So, to what extent can AI technology display its creativity?

To find some answers, we spoke with Pierre Fautrel, artist and co-founder of Obvious, shortly after his talk eventually year's talent-development festival L'EchappéeVolée (which has now merged with the Boma France Festival), and took a behind-the-scenes check out the creative process with EmilienDereclenne, a PhD student in science and AI, baroque musician, and entrepreneur.

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METALLIC 3D PRINTING: AN OVERVIEW

*Dr C S Padmavat, *S A Chavan and *S A Saiyad

ABSTRACT

3D printing is the process of deposition of stacking of the material layer by layer to produced desired product. 3D printing is been extensively used in the production of complex object using non-metallic materials. The process of development of the 3D printed object by using stereolithographic format file of the 3d drafted object on CAD software. The process of development of the object is low cost and time consuming as the availability of the open source software and hardware for the purpose. Many attempt have been made about the investigation for non-metallic 3D printed objects for topological, dimensional and metallurgical aspects. Still, it is important to study for the objects made from 3D printing technology using metals based material for evaluation of its characteristics regarding metallurgical, structural, dimensional or geometrical aspects. This paper is an extensive review of the metal based 3D printing process and its effects on object produced.

Keywords: 3D printing, metals, additive manufacturing, process, rapid prototyping

1.0 INTRODUCTION

3D printing technology is the future of the manufacturing system. Most of the companies are adopting this technologies due to its accuracy, reliability, cost reduction and compatibility. The 3D printing method shapes a 3D object from a computer-aided design (CAD) model, commonly by consecutively addition of material by stacking, due to which it is called additive manufacturing, contrasting traditional methods, , where material is subtracted from a the workpiece or decanted into a mould and moulded by dies, presses and hammers. There are different 3D printing processes. They are as follows:

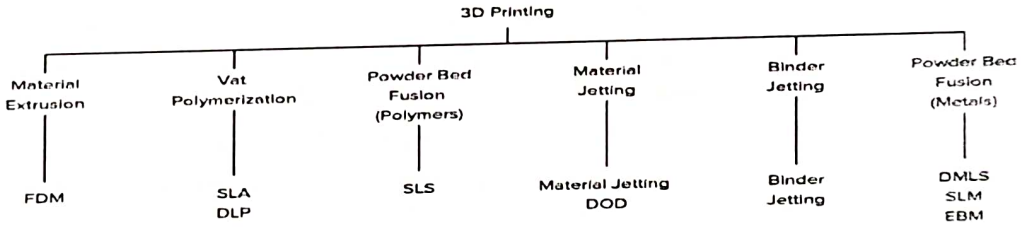

Diagram 1 Types of 3D Printing

In this paper we are going to study the metallic 3D printing process, parameters and its effect on the different aspects pf the object formed underneath.

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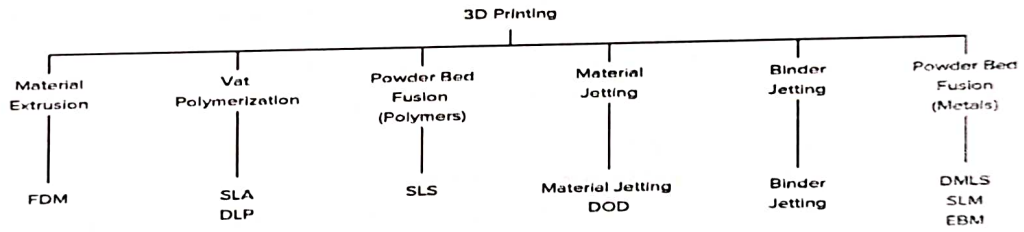

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OPTIMIZATION OF FUEL AND ENGINE PARAMETERS FOR BETTER PERFORMANCE AND EMISSION CHARACTERISTICS OF SINGLE CYLINDER VARIABLE COMPRESSION RATIO DIESEL ENGINE USING TAGUCHI UTILITY CONCEPT

Dr. C.S. Padmavat, S A Saiyad and S A Chavan

ABSTRACT

Optimization is the process of finding the best possible solution for the given problem. For single response problems traditional Taguchi method is widely used for optimization. In multi response optimization problems the value of individual response may not be same for all remaining responses, but, the performance of the system or process is often evaluated by several responses. Under such conditions, Taguchi method with utility concept may be applied for optimization of multi responses optimization. This paper presents optimization of different fuel parameters and engine parameters for better performance and lower emission characteristics of single cylinder Variable Compression Ratio diesel engine using Jatropha, Cottonseed and Jatropha-Cottonseed mix biodiesels and their blends with diesel using Taguchi Mixed design with Utility concept.. On the basis of preliminary experimentation and previous literature five input variables are selected i.e. Compression Ratio with two levels, Speed, type of fuel, blend ratio and load with three levels. The responses are performance parameters as brake thermal efficiency, specific fuel consumption and exhaust gas temperature while emission characteristics are NOx, CO2, CO, HC and smoke opacity..It is found that the optimum combination for better performance and lower emission characteristic is fuel Jatropha biodiesel with blend ratio as 40%, at Compression ratio 18, Load 3 kg and 1700 rpm. ANOVA and regression analysis are applied to find optimum solution. The confirmatory test has been conducted and found to be in acceptable confidence level.

Keywords: Multi response optimization, Taguchi mixed design, Utility Concept, performance and emission

1.0 INTRODUCTION

Biodiesels made from Jatropha, Karanja, Sunflower ,Rapeseed, cottonseed, waste fried cooking oil, palm etc are some of the popular biodiesels currently considered for research purpose as a substitute for diesel. The properties of each biodiesel differ from each other. The properties affect combustion, performance and emission characteristics [1]. Though researchers have suggested that biodiesels with different blend percentages can be used on the same engine without change in design but in actual practice the use of biodiesel is yet to be commercialized [2]. Different empirical models have been suggested to find performance and emission characteristics of the engines. The effect of different variables is different on each performance and emission characteristics. delete

The optimization techniques available for optimization for engineering applications include classical methods, Taguchi method, surface response method etc. In practical engineering problems, the problem under investigation often relates to "fine tuning" of a process where the people involved have a reasonable "feel" for the process. The Taguchi approach is quite suitable for this purpose. Taguchi is attractive because of two reasons first is that it confines the experimental space and other is economics [3].

The literature indicates that though researchers attempted Taguchi method for optimization of engine performance using biodiesels but considered only single response parameter. Maulik Modi et al [4] considered brake thermal efficiency as a output parameter and suggested optimum values for load (10kg), compression ratio (16) and injection pressure (180bar) for highest brake thermal efficiency while varying blend ratio have been neglected. Tamilvendhan D et al [5] attempted to optimize brake thermal efficiency using injection timing (29 BTDC), injection pressure(180 bar) and blend ratio(40% blend ratio) for higher brake thermal efficiency. Single response optimization can give idea for only one output, hence multi response optimization is essential. However, most reports on Taguchi applications to date have been concerned with the optimization of a single performance characteristic. Delete Handling the more demanding multiple performance characteristics are still an interesting research problem. Gautam Pohit

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OPTIMIZATION OF FUEL AND ENGINE PARAMETERS FOR BETTER PERFORMANCE AND EMISSION CHARACTERISTICS OF SINGLE CYLINDER VARIABLE COMPRESSION RATIO DIESEL ENGINE USING TAGUCHI UTILITY CONCEPT

Dr. C.S. Padmavat, S A Saiyad and S A Chavan

ABSTRACT

Optimization is the process of finding the best possible solution for the given problem. For single response problems traditional Taguchi method is widely used for optimization. In multi response optimization problems the value of individual response may not be same for all remaining responses, but, the performance of the system or process is often evaluated by several responses. Under such conditions, Taguchi method with utility concept may be applied for optimization of multi responses optimization. This paper presents optimization of different fuel parameters and engine parameters for better performance and lower emission characteristics of single cylinder Variable Compression Ratio diesel engine using Jatropha, Cottonseed and Jatropha-Cottonseed mix biodiesels and their blends with diesel using Taguchi Mixed design with Utility concept.. On the basis of preliminary experimentation and previous literature five input variables are selected i.e. Compression Ratio with two levels, Speed, type of fuel, blend ratio and load with three levels. The responses are performance parameters as brake thermal efficiency, specific fuel consumption and exhaust gas temperature while emission characteristics are NOx, CO2, CO, HC and smoke opacity..It is found that the optimum combination for better performance and lower emission characteristic is fuel Jatropha biodiesel with blend ratio as 40%, at Compression ratio 18, Load 3 kg and 1700 rpm. ANOVA and regression analysis are applied to find optimum solution. The confirmatory test has been conducted and found to be in acceptable confidence level.

Keywords: Multi response optimization, Taguchi mixed design, Utility Concept, performance and emission

1.0 INTRODUCTION

Biodiesels made from Jatropha, Karanja, Sunflower ,Rapeseed, cottonseed, waste fried cooking oil, palm etc are some of the popular biodiesels currently considered for research purpose as a substitute for diesel. The properties of each biodiesel differ from each other. The properties affect combustion, performance and emission characteristics [1]. Though researchers have suggested that biodiesels with different blend percentages can be used on the same engine without change in design but in actual practice the use of biodiesel is yet to be commercialized [2]. Different empirical models have been suggested to find performance and emission characteristics of the engines. The effect of different variables is different on each performance and emission characteristics. delete

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Optimization of Process Parameters on CO_2 Laser Beam Machine for Minimum Surface Roughness of Hot Rolled Micro Alloy Steel (E34)

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Abstract— **Recently, Hot Rolled micro alloy steels (E34) have found wide application in the automotive sector. These are high strength micro alloyed steels having a mixture of desirable properties not attainable in conventional low-carbon steel. These steels have higher yield strength, higher notch toughness, good fatigue properties, excellent weld ability and good formability. These steels can be used for general structural applications, including ships, railway wagons and carriages, pressure vessels, pipes, heavy duty transport vehicles, earth moving equipment and storage tanks. The present study reports the appliance of non-contact type (thermal energy based) continuous wave CO2 laser cutting process on Hot Rolled micro alloy steels (E34). The process parameters in laser cutting influence the surface finish and kerf angle. These quality characteristics were observed for the varied combinations of cutting parameters like cutting speed, beam power, assist pressure, focal distance and standoff distance. The cutting trials were designed according to Taguchi's L27 orthogonal array and a hybrid approach of response surface methodology (RSM) was disclosed for predicting the optimal combination of laser cutting parameters. A substantial improvement in the kerf angle and surface finish was observed in the responses obtained with the optimal setting of parameters.**

Keywords— Kerf width, Kerf angle, Response Surface Method, E34 steel, Standoff distance.

I. INTRODUCTION

Laser beam machining (LBM) is widely used thermal energy based non-contact type advanced machining process which may be applied wide selection of fabric. Laser beam machining, the material melts due to the high intensity of the beam, then burns, vaporizes away, or is blown away by a jet of gas, leaving an edge with a high quality surface finish [1,2]. It is suitable for geometrically complex profile cutting and making miniature holes in sheet. Modern industrial requirements are stern with regard to the quality of machined surfaces, demanding a superior finish to avoid further processing, cost and time. The commonly used method for cutting complex profiles in steel is by using laser beam. It is a non-contact method of machining, where cost effectiveness and superior speed of lasers while handling thin sheets is noteworthy. Continuous CO2 laser cutting could also be a recognized process among the laser-based industrial methods for handling ceramics, metals, plastics and composites particularly in aerospace and material processing industries. Even micro-machining of components like micro-lenses, micro-gear wheels and bio-compatible components using laser is identified as an appropriate alternative to the prevailing etch technology [3, 4]. CO2 laser sources can breed higher power at lesser costs and hence widely used for flat sheets. Generally, CO2 laser is employed in machine shops to cut steel sheets, and the present work is drawn by the motivation to find optimum input parameters for Marathwada Auto Cluster, Aurangabad to cut E34 steel sheet. Sharma and Yadava [5] investigated laser cutting of nickel based super alloy and found that smooth cut surface could be produced by using oxygen as assisting gas. Laser-assisted machining was also tried to hard to machine materials like Inconel 418 and high chromium alloys successfully [6, 7]. CO_2 lasers could also cut polymers with desired finish, and therefore the relationship between cutting speed and surface finish was observed to be non-linear [8]. High power solid state laser was observed to chop the difficult to machine titanium alloys with good cut surface texture [9]. The characteristics of choosing the laser system and the machining parameters play a prime role in establishing the desired quality characteristics [10, 11]. Kumpulainen et al. [12] observed that pulse overlapping might be prevented by applying short oscillations, and characteristics of cut surface might be improved. Hence, identifying the optimal combination of laser cutting parameters like beam power, pressure, cutting speed and pulsing frequency becomes vital to urge the required cut characteristics [13] Santhana kumar et al. [14] employed different techniques to obtain optimal operating conditions in multi input multi-output processes including grey theory employing signal-to-noise (S/N) ratio, artificial neural network ANN), response surface methodology (RSM), genetic algorithm (GA), etc. Taguchi-based techniques employing orthogonal array and S/N ratio was wont to study the consequences of process parameters, and analysis of variance

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Keywords— Kerf width, Kerf angle, Response Surface Method, E34 steel, Standoff distance.

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MODELING AND SIMULATION OF DIODE CLAMPED MULTILEVEL INVERTER

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ABSTRACT
As the multilevel inverters synthesize waveforms with better harmonic spectrum and less harmonic distortion, are considered as an optimal choice for high voltage and high power applications, but the choice of suitable topology for respective application is the major concern. The paper gives detail modeling and simulation of Diode clamped Multilevel Inverter. The MATLAB simulation and detailed analysis has been made on the basis of various parameters.

Keywords—MLI(Multilevel Inverter,Diodeclamped MLI,Flying Capacitor MLI,Cascade MLI)

I. INTRODUCTION

Multilevel Inverters was first introduced in 1970s, as the first patent on producing multi voltage levels from DC voltage source was published by Baker and Bannister in 1975 but the significant work on MLI is carried out from mid 1990s which leads to various classification of the multilevel inverters with single & multiple DC voltage sources and different arrays of power electronic switches.

In recent years multilevel inverters have been attracting attention as conventional Inverters can only produce two voltage levels i.e. (+Vdc) & (-Vdc), multilevel inverters produces various voltage levels which reduces (dV/dt) stress along with that MLI has High power quality, high voltage capability, low switching losses and low Electro Magnetic Interference (EMI) which makes it optimal choice for medium and high voltage application such as static VAR compensators and large electrical drives.[1]

Along with all the benefits multilevel inverters do have some disadvantages. One being the requirement of many power semiconductor switches which requires complex gate triggering circuitry, which also increases the cost of MLI.

Depending upon the DC voltage sources MLI can be divided into two types, first using Multiple DC voltage sources which is Cascade Multi level inverter & second type is using single DC voltage source which uses specific structures of diode and capacitors to produce various voltage levels which is further classified into two types i.e. diode clamped MLI (DC-MLI) or Null point clamped MLI (NPC-MLI) & Flying Capacitor MLI (FC-MLI). The Fig. 1 gives hierarchical representation of classification of MLI.

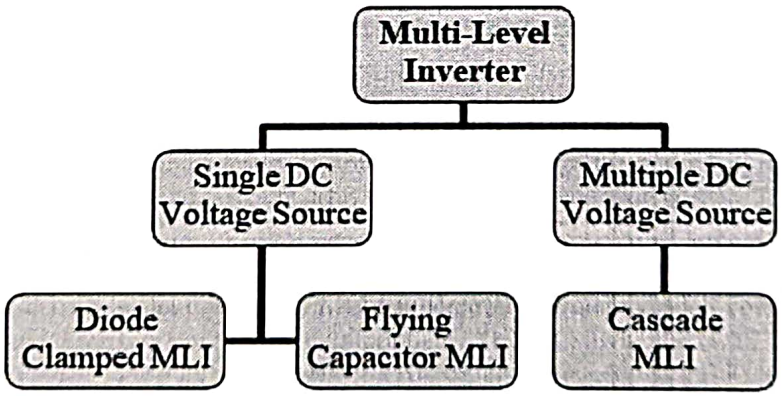

Figure 1: Classification of MLI

Advanced comatose patient monitoring system using IoT

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Abstract– The proposed system is highly efficient and reliable for alert the doctors about the movements of the different part of the body of patients through SMS on their mobile. The aim of this project is to send alert message to the concern persons in emergency times, i.e. when a person is in coma, whenever person moves any finger the flex sensors will detect moment of the finger, whenever person moves any eyelid the IR sensor will detect the movement of the eyelid and whenever person moves whole body the accelerometer will detect the movement of the body. According to these an input to the processor ATMEGA 328 and it send message through the GSM modem to the concern person's mobile showing the status of which part of the body has been moved and same message display on computer.

Keywords— flex sensor; eye blink detector; MEMS body sensor; Atmega328; ICU

I. INTRODUCTION

As we see a more number of the accident happens everywhere, if there is an accident, the patients are admitted in in normal care unit or ICU (Intensive Care Unit), In ICU the patient may goes in coma state [1], coma means a serious injury in the brain so the challenge is to back in normal condition that have need to get the proper information about the development in physical movement of particular person for further treatment [2]. Now days the coma person is going into the different test for diagnosis. There are different diagnosis test such as ECG, EEG, CT scan, X-ray, heart beat test etc. These tests are required to diagnosis the coma patient internally for the internal function of heart, brain, and bones. For monitoring the patient physically it is usually happen in hospitals where two or three hospital staff needed to monitor the patient 24*7 for watching if there is movement or not, but this is not efficient method to get maximum efficiency. So this project helps to monitor the patient physically for every moment [3][4].

The system developed based on Flex sensor, eye blink detector and MEMS body sensor [5] using Atmega328 processor is an exclusive project which is used to design a system which monitors the movement of the person at coma stage and alerts automatically by sending a message to the concerned person using GSM modem [6].

II. DIAGNOSIS FOR COMATOSE PATIENT

Coma is an insensitive state so the patient is not able to open the eyes. Coma may serve as a mechanism for the brain to preserve itself during times of deep stress. It is important that families know the rehabilitation process can begin while the patient is still in a coma. The importance of previous intercession is supported by recent studies. The length of time that a person is in a coma, unavoidably determine the degree of recovery [7]. The treatment hospitals used on comatose patients depends on both the severity and cause of the comatose state. Although the effective treatment for comatose patients remains unknown, hospitals are usually keep comatose patients in an Intensive Care Unit (ICU) immediately. In the ICU, the hospital monitors a breathing of the patient and brain activity through CT scans and EEG test. Attention first move towards be directed to maintaining the patient's respiration and blood circulation using intubation test and the ventilation, usually carry out of intravenous fluids or blood and other supportive care as needed. Once a patient is stable state and no longer in forthwith danger, the medical staff may center the patients on maintaining the health of patient's physical state [8][9].

The main objective of the project is to recognize the movement of different part of the body of the comatose patients. Whenever person moves any finger the flex sensors will detect moment of the finger. According to that an input to the processor Atmega328 and it send message through the GSM modem to the concern person showing the status of finger. Whenever person moves any eyelid the IR sensor will detect the movement of the eyelid. According to that an input to the processor Atmega328 and it send message through the GSM modem to the concern person showing the status of eyelid. Whenever person moves whole body the MEMS body sensor will detect the movement of the body. According to that an input to the processor Atmega328 and it send message through the GSM modem to the concern person showing the status of the body. The system monitor physically 24*7 for getting the improvement of comatose patient for further treatment over them [10].

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A Smart way to Monitor & Control Electricity Bill & Loads using IOT

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Abstract: *India is developing country, the effort of collecting electricity bill and detecting illegal usage of electricity is a very difficult and time consuming task which requires a lot of human resources and efforts. using Internet of Things (IoT) Electricity reading and monitoring system is an efficient and cost-effective way to transfer the information of energy consumed by the consumer wirelessly on to the smart phone or consumer's personal website with consumer's personal login id. The main aim of this project is to measure electricity consumption in the house and generate its bill automatically using IoT and send data on to cloud. The ATMEGA 328 uc is used to measure electricity consumed and to connect the system to a Wifi network and subsequently to the Internet and Server. An infrared sensor is engaged with the system to detect when any illegal alteration happen in the metering system. In such case, system will send an alert to the server as well as it has the facility to disconnect and reconnect the electricity supply automatically to the consumer. The proposed system will continuously monitor and will notify the number of units consumed to the energy supplier and energy consumer. The energy consumed is calculated automatically and the bill generated is updated on IOT using internet. The loads can also be controlled using IOT which can help the consumer to control the appliances remotely resulting into ease of use. If non conventional source of energy like solar panels is used to give supply we can also monitor the energy generated and send it to the server using IOT.*

Keywords: Electricity meter, IOT (Internet of things), ATMEGA 328 Uc(Microcontroller).

Introduction: We all comprehend Electricity energy meters that area unit put in everyone's house or offices to live the electricity consumption. Ultimately of each month, several folks get disquieted concerning the high electricity bill and that we have to be compelled to investigate the energy meter once in an exceedingly whereas. However what if we will monitor our electricity uses from anyplace within the world and acquire associate degree SMS/E-mail once your energy consumption reaches to a threshold worth. Here we tend to area unit building associate degree IoT based mostly Project of Energy Meter.

Antecedently we've engineered a Energy Meter circuit that sends you SMS concerning the bill victimization GSM module. during this project we tend to create a wise Electricity Energy meter victimization Arduino and ESP8266 Wi-Fi module which might not solely sends you a SMS/Email of your electricity Bill however conjointly you'll be able to monitor the energy uses anytime and from anyplace within the world. Here we've used a Current device ACS712 to live the energy consumption, we are going to discuss concerning it shortly.

We will take facilitate of IFTTT platform to link our Wi-Fi to SMS/E-mail notifications. We are going to conjointly use MQTT Dashboard golem App to watch our Energy uses.

EFFECT ON COMPRESSIVE STRENGTH AND FLEXURAL STRENGTH OF HIGH STRENGTH CONCRETE BY USING ALCOFINE, FLY ASH AND STEEL FIBERS

Vinod B Shikhare[1] and Goving R Sangwai[2]
Research Scholar[1], Dr. B.A. Marathwada University, Aurangabad
Head of Department[2], Department of Civil Engineering, Government Polytechnic

ABSTRACT
In this experimental study the changes on some mechanical properties of concrete specimens produced by Alcofine, Fly ash and Steel Fibers were investigated. The most objective of this work is to get a more ductile and high strength concrete produced by using Alcofine, ash and Steel Fiber. Two sorts of steel fibers were utilized in the experiments and volume fractions of steel fiber were 0.5% to 4.0 %. Addition of Alcofine and fly ash into the concrete were 5 attempt to 10 you interested by weight of cementitious material content respectively. Water/cement ratio was 0.27. Compressive strength and flexural strength tests were made on hardened concrete specimens. The utilization of Alcofine increased mechanical strength of concrete. On the opposite hand, the addition of steel fiber into concrete improves ductility of high strength concrete significantly.

Keywords: Compressive Strength, Fly Ash, High Strength Concrete (HSC), Alcofine, Flexural Strength, Steel Fibers.

I. INTRODUCTION

The study of high strength concrete has become interesting when the concrete structures are growing taller and bigger. High strength concrete (HSC) may be a sort of high performance concrete with a specified compressive strength of 40 N/mm2 or greater. Alcofine may be used as a Supplementary Cementitious Material (SCM) in concrete to reduce cement consumption, to increase strength and the rate of strength gain, to decrease permeability, and to improve durability. Alcofine reduces the porosity of concrete. Plain concrete possesses a really low lastingness, limited ductility and tiny resistance to cracking. Internal micro cracks are inherently present within the concrete and its poor lastingness is because of the propagation of such micro cracks, eventually resulting in brittle fracture of the concrete. It has been recognized that the addition of small, closely spaced and uniformly dispersed fibers to the concrete would act as crack arrester and would substantially improve its compressive and flexural strength properties.

II. MATERIAL USED

2.1 CEMENT

Ordinary hydraulic cement of 53 Grade conforming to IS: 12269-1987 was utilized in the investigation. The specific gravity of cement was 3.10.

2.2 COURSE AGGREGATE

Crushed stone metal with a maximum size of 12.5 mm from an area source having the precise gravity of 2.7 conforming to is: 383-1970 was used.

2.3 FINE AGGREGATE

Locally available river sand passing through 4.75 mm IS sieve conforming to grading zone-II of IS: 383-1970 was used. The specific gravity of fine aggregate was 2.54.

2.4 ALCOFINE 1203

Alcofine 1203 is a supplementary cementitious material suitably replaces Silica fume used in high performance concrete. Alcofine 1203 is proprietary low calcium silicate based mineral additive. Controlled granulation process leads to unique particle size distribution.

Review on Effect Shape and Size on Al Alloy Metal Matrix Composites in EDM of Tool

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Abstract

A composite material is a combination of two or more chemically distinct and insoluble phases; its properties and structural performance are superior to those of the constituents acting independently. Metals and ceramics, as well, are often embedded with particles or fibers, to enhance their properties; these combinations are referred to as Metal-Matrix composites. Particle reinforced metal matrix composites of aluminium alloys are rapidly becoming favorites of aerospace, automobile and other industries. Electric discharge machining is a perfect method for precise machining of such hard composites. In this paper, copper tool electrode shape and size factors are investigated with reference to the obtained surface finish in EDM of LM24 Al alloy MMC (reinforced with SiC). An L36 Taguchi orthogonal array was designed to conduct experiments. MMCs were prepared with 3, 5 and 7 of SiC particles. It was found that surface integrity improved with rising burden of SiC. Square shaped electrodes produced better surface finish than circular electrodes. Circular electrodes of smaller diameters yielded improved surface quality.

***Keywords*- Al Alloys, MMC, EDM**

Introduction

Conventional monolithic materials have limitations in reference to achievable combinations of strength, stiffness and density. MMCs consisting of continuous or discontinuous fibres, whiskers, or particles during a metal achieve combinations of very high specific strength and specific modulus. From the previous couple of years in much industrial application the important parameter in material selection is restricted strength, weight and **price.** Today, aerospace and automobile industries require modern materials that outsmart the conventional materials in terms of strength to weight ratio, hardness, stiffness and wear resistance. EDM is a non contact machining method in which material is removed in a series of electrical discharges (sparks). Work piece and tool are the two electrodes in this process. These electrodes are immersed in a bath of a dielectric fluid that breaks down under high applied voltage in the inter electrode gap. The tool advances by servo control and produces a cavity in the work piece. This cavity is of same shape and size as that of the tool. Here we discussed the review paper relevant to this.

Literature Review

Kathiresan and Sornakumar studied the effect of electrical parameters in EDM of SiC reinforced Al alloy MMC.

Velmurugan et al. investigated machining characteristics in EDM of Al 6061 alloy MMC. Iosob et al. examined the effect of tool diameter and pulse on time on primary outcomes in EDM of hybrid aluminium matrix composites.

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AUTOMATIC PURIFIED WATER DISPENSER SYSTEM

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Abstract: ***Water is one amongst the foremost necessary substances on earth. Providing clean beverage to anyone, anytime, and anyplace is that the necessary services offered by organizations. In Asian country there's downside of safe beverage so we have a tendency to square measure planning to give drinking water. Solenoid valve is employed for flow rate of water. This paper presents description of sublimate coin primarily based water dispenser system with advancement of cashless water dispenser system using QR code.***

Keywords: Arduino, solenoid valve, coin receptor, LCD, Keypad, Relays, QR code.

I. INTRODUCTION

The water dispensing machine dispenses water on the detection of the proper coin (correct denomination).The dispenser is meant victimization At mega controller. Regulated power offer is meant to provide system with constant supply of five volts. The dispenser can dispense water only the proper coin is inserted further like the location of glass below the nozzle. The correctness of coin is detected by the coin device and also the object detection is finished by Associate in Nursing IR device. If each the conditions are satisfied then a sign is given to the microcontroller and consequently pump gets activated and water are going to be distributed. This coin primarily based water dispenser system works on the principle of coin detector once anyone or client can insert the silver coin in coin device, then first, this device can detector the coin suggests that it'll check, is it valid or not if it's not valid then it'll not offer the logic high signal to microcontroller. Similarly, if it's valid pump. IR device additionally tells the presence of glass suggests that it tells the microcontroller that activate the water If glass isn't out there then it tells the microcontroller don't activate the pump. During this whole system, microcontroller is that the main intelligent controller of this technique. Mobile phones are essential a part of people's lives. They're not solely used for communication purpose however additionally for remote health observance systems and security systems .The recent years have seen fast advancements within the worth addition applications in mobile phones like high definition cameras and high speed net property. The country has additionally practiced developments within the infrastructures. Paper currency and coins are harmful to the setting. Giant numbers of trees are abating annually for currency printing purpose, additionally great deal of metal is needed to form coins. Deforestation is that the one main issue poignant setting and this has got to be reduced within the future decades. Digitalization provides a correct answer for this drawback wherever would like for physical medium is eliminated. Transferring the currencies is another tough issue that is resolved by digitalization. This paper reviews refined coin operated water dispenser system with advancement of cashless water dispenser system

II. LITERATURE SURVEY

Author B. Narendra Kumar,Raffi Mohammed, SK Azeez, Y. Venkatesh and A.Rahul Kumar[1] proposed Fabrication of water dispensing system

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A REVIEW PAPER ON INDUSTRY 4.0

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ABSTRACT
The research aims to identify Industry Revolution 4.0 (Industry 4.0) skills and enablers that should be included in TVET Curriculum namely the National Occupational Skills Standards (NOSS) which is developed by the Department of Skills Development, the government agency responsible for skills training in Malaysia. A Conceptual Framework has been developed to identify and confirm the list of Industry 4.0 Generic Skills and Enablers of an Industry 4.0 working environment. Industry 4.0 is a strategic initiative recently introduced by the German government. The goal of the initiative is transformation of industrial manufacturing through digitalization and exploitation of potentials of new technologies. An Industry 4.0 production system is thus flexible and enables individualized and customized products. The current status of Industry 4.0 readiness of the German companies is presented and commented. Finally it is discussed if Industry 4.0 is really a disruptive concept or simply a natural incremental development of industrial production systems

1.INTRODUCTION

Industrial production is nowadays driven by global competition and the need for fast adaptation of production to the ever-changing market requests. These requirements can be met only by radical advances in current manufacturing technology. Industry 4.0 is a promising approach based on integration of the business and manufacturing processes, as well as integration of all actors in the company's value chain (suppliers and customers).

Technical aspects of these requirements are addressed by the application of the generic concepts of Cyber-Physical Systems (CPS) and industrial Internet of Things (IoT) to the industrial production systems. The Industry 4.0 'execution system' is therefore based on the connections of CPS building blocks. These blocks are embedded systems with decentralized control and advanced connectivity that are collecting and exchanging real-time information with the goal of identifying, locating, tracking, monitoring and optimizing the production processes. Furthermore, an extensive software support based on decentralized and adapted versions of Manufacturing Execution Systems (MES) and Enterprise Resource Planning (ERP) is needed for a seamless integration of manufacturing and business processes. The third important aspect is handling of a big amount of data collected from the processes, machines and products. [1]

The role of TVET is imperative in terms of preparing students and existing workers to be prepared for an Industry 4.0 working environment. One of the main criteria of TVET curriculum development is that the input must be obtained from industry practitioners so that the input is in line with current industry demands and practices. This is an important contributing factor to this research, so that in order to identify the Industry 4.0 skills and enablers to be included in TVET curriculum, it has to be suitable for the industry and must be based on input from those in the industry. [2]

2.LITERATURE REVIEW

1] The research paper entitled "Industry Revolution 4.0 Skills and Enablers in Technical and Vocational Education and Training Curriculum" published by Evarina Amiron concluded that By identifying the elements of an Industry 4.0 working environment, conducive training of skills required for workers to perform competently in an Industry 4.0 working environment can be implemented by including the finalised list in TVET curriculum.[3]

2]Jelena Ugarak in their "industry 4.0: the future concepts and new visions of factory of the future development" worked and came to conclusion that Five million workplaces could be lost due to digitalization in major industrialized nations by 2020. Also, it will quickly stop the market demand for the

THE IMPACT AND IMPORTANCE OF STATISTICS IN DATA SCIENCE

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ABSTRACT
With the massive amount of data pouring in, the data science has become one of the most challenging yet promising field to deal with such tremendous quantity of data and bring out the quality information out for strategic business decisions. The way to data science begins with collection of huge amount of data which should be managed enough to start processing on it to analyze it. The statistics plays a vital role from molding data into the required format to final presentation of results to make it easy for the operations to be carried out on data almost in every step of data science.

In this paper, we give a manifestation of how important the statistics is to provide the necessary tools and methods to handle data to provide deep insights into the data and how useful statistics is for quantification and analysis of data. We will discuss various tools and techniques of statistics used in data science beginning from measures of dispersion to advanced tools for visualization of results to be able to understand the role and importance of statistical approaches in data processing and analysis.

Keywords— Data Science, Statistics, Dispersion, Visualization, Data, Information

I. INTRODUCTION

The data science is an advanced branch of science and engineering which combines the areas of mathematics, statistics, computer science, informatics, management and research.

In 1996, for the first time, the term Data Science was included in the title of a statistical conference (International Federation of Classification Societies (IFCS) "Data Science, classification, and related methods")[2]. The data science term was coined by statisticians but the branches of computer science and informatics are given more importance in this world of increasing data.

In 1977, the International Association for Statistical Computing (IASC) was established whose objective was to combine traditional statistical methodology, modern computer technology, and the knowledge of domain experts in order to convert data into information and knowledge. [4]

In 1989, Gregory Piatetsky-Shapiro organized and chaired the first Knowledge Discovery in Databases (KDD) workshop.
In 1995, it became the annual ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD).[2]

Statistics provides the tools and techniques to not only provide mathematical results but also provides the deeper insights into the unstructured complex data.

As Josh Wills once said, "Data Scientist is a person who is better at statistics than any programmer and better at programming than any statistician."[8]

As the need of statistics was realized in dealing with data and uncertainty, statistical learning was evolved.

We understand the crucial role of statistics in the basic to advanced concepts of data science. This paper aims at stating the importance of statistics in data science.

FUSED DEPOSITION MODELING REVIEW: THE STATE OF ART

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ABSTRACT
Additive manufacturing is the process of fabricating the three dimensional CAD data to real world product by using different group of technique. One of the most popular method of additive manufacturing is Fused Deposition modelling. In Fused Deposition Modeling, the CAD 3D data is visualise and fed to the printing system, which process on the data and manufacture the product layer by layer. In this competitive era, it is very important to reduce the cycle time of the production, reducing steps between designs to develop and limiting the cost requirement for tooling and accessories. Hence, additive manufacturing have been evolved with limiting steps, cost, accessibility and accuracy as the steps get reduced, and no special tooling required for manufacturing. Still it is very important to study about the topology, structural and mechanical properties of the component derived from this technology.

This review paper is an attempt to study the view of the investigators about the technology, process parameters and its effect.

Keywords: Fused Deposition modelling, additive manufacturing, 3D printing

1.0 INTRODUCTION

Additive manufacturing process is the process of manufacturing of any object, component or part layer by layer. It is completely opposite of subtractive manufacturing.

There are different additive manufacturing methods. They are as follows:

- Stereo lithography (SLA)
- Digital Light Processing (DLP)
- Fused deposition Modeling (FDM)
- Selective Laser Sintering (SLS)
- Selective Laser Melting (SLM)
- Electronic Beam Melting (EBM)
- Laminated Object Manufacturing (LOM)
- Binder Jetting (BJ)
- Material Jetting

In this research paper, we are going to focus on the study of Fused Deposition Modelling.

1.1 Fused Deposition Modelling

Fused deposition modelling is the process of deposition of material layer by layer as in the fused form. Fused Deposition modelling is used for rapid prototyping, modelling, and production purpose.

1.2 Working of FDM machine

In the fused deposition modelling process, a gantry-robot can move in two orientation i.e. X and Y which is fixed with extruder and the table in Z orientation. Table moves in Z orientation, down direction as per thickness of the layer and as layers are deposited.

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Design of Modified Z-Source Inverter system & applications

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Abstract: *Z-Source inverters are used mainly for buck boost energy conversion with the help of passive elements. In Z-source inverter topology, LC impedance network (Z-Source network) is connected between the input DC source and the inverter bridge with AC load to achieve power conditioning and inversion. Input to the Z-Source inverter can be obtained from DC source (PV panel or batteries).*

This paper reviews the existing Z-source topology, control methods which includes calculations of boost factor, type of output voltage and waveform, total harmonic distortion, magnitude of output voltage etc. Pulse Width Modulation (PWM) technique used to control the switching of the proposed inverter is explained in detail. In this paper the new modified system is proposed to overcome the drawbacks of existing inverter system. The new improved design of inverter system is given in which the signal processing and conditioning can be carried out at the output side of inverter. Various filtering techniques can be used to filter the output AC waveform and can be directly feed to wide AC applications.

The Simulation and results of existing system is shown. This can be carried out using MATLAB-SIMULINK. Hardware implementation and Microcontroller programming can be done in the laboratory.

Keywords*: EZ-source inverters, voltage boost, Z-Source inverter and Pulse Width Modulation (PWM), Total Harmonic Distortion (THD).*

Introduction: Inverters are static power converters that produce an AC output waveform from a DC power supply. They are applied in adjustable AC speed drives, Uninterruptible Power Supplies (UPS), shunt active power filter, etc.

For sinusoidal AC outputs, the magnitude, frequency, and phase should be controllable. If a DC input is a voltage source, then the inverter is called a Voltage Source Inverter (VSI). Similarly in case of a Current Source Inverter
(CSI), the input to the circuit is a current source. The VSI circuit has a capability of controlling AC output voltage, whereas the CSI directly controls AC output current.

Voltage source inverter is a buck (step-down) inverter for dc-to-ac power conversion and the voltage source converter is a boost (step-up) rectifier for ac-to-dc power conversion [6] [10]. Current source inverter is a boost inverter for dc-to-ac power conversion and a buck rectifier (or buck converter) for ac-to-dc power conversion [6] [10]. Both the VSI and the CSI have the common problem that they can operate either a boost or buck converters and cannot be a buck–boost converter.

By Z-source inverter the limitations of the traditional voltage source and current source converters can be eliminated [6]. Z-Source inverter utilize LC impedance network which performs both buck-boost energy conversions [1] [2] [4]. This circuit can be implemented in various power converter devices such as in dc-to-ac, ac-to-dc, ac-to-ac, and dc-to-dc power conversion. The Z-source network boosts the input voltage level for inverter and also provides filtered output. *AC output can be*

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ARTIFICIAL INTELLIGENCE WITH ITS APPLICATION IN DIFFERENT AREAS : CHALLENGES AND SCOPE

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ABSTRACT
Artificial intelligence plays a vital role in computer science. Now a days, human work or capabilities are replaced by machine intelligence. One of such technique is Artificial intelligence. Artificial intelligence is a part of computer science, which is popular technology in computer science. With the help of artificial intelligence human life is enhanced in many areas as human work is done by machine using the intelligence of artificial intelligence. From last two decades the performance of the manufacturing and service system has greatly improved with the uses of artificial intelligence technology. Artificial intelligence has a huge impact in various areas such as networking, medicine, engineering, science, business, politics, games, journalism etc. With the help of artificial intelligence technology these areas improved their quality as well as efficiency. This paper gives an overview of artificial intelligence technology and the application areas of this technology as well as challenges and scope of artificial intelligence.

Keywords: Artificial Intelligence, Intrusion Detection Systems, Neural Networks.

I. INTRODUCTION

Artificial intelligence is an invariable part of computer science, which is popular technology in computer science. Artificial intelligence can be defined as the ability to recognize patterns, to understand, to think, learn from experience, try alternatives and make a choice, to memorize thing . The computer can do all the things that a human can do but in much less time by using artificial intelligence technology. Artificial intelligence has a huge impact In various areas such as networking, medicine, engineering, science, business, politics, games, journalism etc. With the help of artificial intelligence human life is enhanced in many areas as human work is done by machine using the intelligence of artificial intelligence. With the help of artificial intelligence technology these areas improved their quality as well as efficiency.

Artificial intelligence plays a major role in research areas. The complex problems can be solved using AI technology by collecting knowledge and reasons of that knowledge. Now a days , various human activities are replaced by intelligent machines in various areas. AI makes machines more useful and intelligent. It works with the help of artificial neurons (artificial neural and scientific theorems (if then statements and logics). Artificial intelligence technologies have matured to the point in offering real practical benefits in many of their applications. Pattern recognition , Robotics, Machine learning, Natural language processing and planning, speech recognition, Neural networks, Vision, Expert systems, Evolutionary computation are the various areas of Artificial Intelligence. These Expert Systems using a rapidly growing technology is having a huge impact on various fields of life. The most of the techniques applied in artificial intelligence are Evolutionary Computing, and Hybrid Artificial Intelligence Neural Network, Fuzzy Logic. Artificial intelligence has the advantages as compared to the natural intelligence as it is more permanent, consistent, less expensive, has the ease of duplication and distribution, can be documented and can perform various tasks much faster and better than the human.

The recent developments in the field of artificial intelligence impacted upon politics, journalism, games and public life. In politics the use of artificial intelligence helped to better use of resources, energy and time in the election campaign to reach the target audience. The high computing power of AI is used to analyze public opinion and the nature of voters across all regions accurately. In journalism, bots are performing very well in converting raw data into narrative text with much speed and efficiency. The life of people is directly or indirectly affected by artificial intelligence. Now intelligent keyboards are

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Thermal Power Plant Equipment Using IBM SPSS Statistics

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Abstract

Thermal Power Plant Equipment. Introduction: A thermal power station is a power station called, the prime mover this is the steam mover. Made to enter the water system then heated, then vaporized will change. The steam rotates in it tries an electric generator and a steam turbine. A type of power plant where thermal energy is transformed into electrical energy is a thermal power plant. Steam high pressure occurs during the formation cycle. A sizable one for creating water steam in a pressure vessel. Boiling is accomplished by the application of heat and an electrical generator. The turbine is powered by steam. From the turbine, low pressure the exhaust is in a steam condenser enters, where it heats up the condenser cooled to form, it is more heat to form pressurized steam the process is recycled. This is it is called the Rankine cycle. The design of thermal power stations depends on the intended power source fossil fuel, nuclear and geothermal energy, solar energy, biofuels, and waste incineration is all used. Research significance: Thermal power plant equipment is a power plant that transforms heat energy into electrical energy. As part of the steam-generating cycle, high pressure is used to produce steam. An enormous pressure vessel heat to boiling water used, it is an e steam connected to a generator drives the turbine. Traditional thermal power plants: combustion power plants also called, coal, natural gas, heating oil, and biomass-fueled steam boilers with the energy produced by running a steam turbine activates, which is electricity operates a transformer to produce thermal power plants are the most important part of the energy sector one of the important elements, and they of life after water and food as one of the basic needs produces considered electrical energy are masterpieces. Nearly all coal power plants, petroleum power plants, nuclear power plants, geothermal power plants, solar thermal power plants, waste incineration plants, and all-natural gas power plants are also hot. Creates what is regarded as electrical energy in gas turbines and boilers natural gas is often burned. Methodology: SPSS statistics is a data management, advanced analytics, multivariate analytics, business intelligence, and criminal investigation developed by IBM for a statistical software package. A long time, spa inc. Was created by, IBM purchased it in 2009. The brand name for the most recent versions is IBM SPSS statistics. Evaluation parameters: water treatment plant, Forced draft fans, Boiler feed pumps, Fuel handling plant, Steam boiler system, Generators, Dust collector system, Mobrey switch, Miscellaneous Auxiliary Equipment. Results: The Cronbach's Alpha Reliability result. The overall Cronbach's Alpha value for the model is .599 which indicates 59% reliability. From the literature review, the above 60% Cronbach's Alpha value model can be considered for analysis.

Keywords: water treatment plant, Fual handling plant, Dust collector system, Miscellaneous Auxiliary Equipment.

1. Introduction

Some industrial thermal power plants generate heat for intended uses, such as desalinating water to provide electricity or for district heating. Gasoline or crude oil turbines can be powered by fuels like gas that are burned internally. These facilities are open-cycle or very effective combined-cycle types. Nearly all coal fired power plants, all-natural gas-fired power plants, petroleum, nuclear, geothermal, solar, and waste fired power plants are also hot. Natural gas is frequently consumed in gas turbines and boilers. A gas turbine effluent this gas heat recovery steam generator hrsg uses heat in the form of hot exhaust gas to raise the steam that passes through. Overall effectiveness in a combined cycle plant that is being upgraded, the steam turbine is powered by steam. Fuel: coal gas or crude oil fuel-fired power plants are defined as those that predominantly burn fossil fuels. There are now a few thermal power plants using biofuels. Alternative thermal energy co-creation between stations, particularly fossil fuel factories unused power plants are occasionally referred to as conventional power plants. Reform and opening up in china since progressing, there has been plenty of electricity to support social and economic growth. Needs manufacturing plant projects to be built. To meet this growing demand, since 1985, a public auctions for the purchase of devices and tender system is used. Suppliers of thermal power equipment