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Data Leakage Detection with K-Anonymity Algorithm

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Abstract—**A data owner or a outsourcing company distributes the crucial information to a number of trusted agent or a organization (third parties). Few data can be leaked and found in non authorized place. The data owner will be finding out the agent who receives the actual data. Recently watermarking technique have been successfully used for copyright protection of multimedia data, the research of database watermarking scheme is still facing a lot of challenges due to the differences between the relational database and multimedia data. Some of the times watermarks can be destroyed if the data recipient is malicious. This paper focuses on detecting the distributor's crucial information that has been leaked by the agent, and it is possible to identify the agents that who leaks the data. "Guilt" probability model for data leakage is also available here. In few cases we can also inject "realistic but fake" object into the original data set to further improve our chances of detecting leaks and find out the guilty person. K-anonymity algorithm is used to create a sensitive data, so data set will be hidden and third parties will not be able to view the original data sets.**

Keywords—**Data Leakage, K-anonymity, Fake Objects, Data Allocation, Guilt Model.**

I. Introduction

In the data mining the extraction of hidden, predictive information patterns from large data bases. It is helpful to identify the relevant and useful information from data bases. The overall goal of the data mining process is to extract information from a data set and transform it into understandable structure [14] [13]. Sometimes crucial information is leaked and found in non authorized place. For example, a college may have partnership with other colleges that require sharing the student data. Another enterprise may outsource its data processing, so data must be given to various other colleges. The owner of the data is called the distributor and the supposedly trusted third parties are called the agents. The aim is to detect when the distributors crucial data has been leaked by agents, and if possible to identify the agent that leaked the data [1] [2] [20]. A model for finding the guilty party is presented here. Also, an algorithm is presented for distributing objects to agents, in a way that improve the chances of identifying a leaker. The option of adding fake objects is considered to the distributed set. Such object do not correspond to real entities but appear realistic to agent. In a sense, the fake object act as a type of watermark for entire set, without modifying any individual members [11]. If it turns out that an agent was given one or more fake objects that were leaked, then the distributor can be more confident that agent was guilty. The optimization is considered in which leaked data is compared with original data and accordingly the third party who leaked the data is guessed. K-anonymity algorithm is proposed to create sensitive data, so the data will be hidden and third parties can not able to view the original data set.

This paper is organized as follows: In section II, Literature Review of paper. In section III, Explained Proposed System. In section IV, Results and Discussion and in section V and VI, future work and conclusion respectively.

II. Literature Review

Number of data leakage detection algorithm have been proposed in past, some are explaining as follows.

2003: Rights protection for relational data is handles data security through watermarking in the framework of numeric relational data and instead of primary key it uses the most significantly bits of the normalized data set. R.Sion, M. Atallah, and S. Prabhakar. Have proposes a watermark embedding algorithm such that it consist of sorting, partitioning used for marker location and bit embedding watermark bits are embedded in the numbers set. So as to provide a right protection to the data that are stored into it the relational databases [3].

2002: Generalization and suppression techniques to safeguard the data from the data distributors using K-anonymity privacy protection. The data in the system is analyzed for generalization, like replacing or recording a value with a less specific but semantically consistent values and suppression involves not releasing a value at all. It achieves that the released records adhere to K-anonymity, which means each released record has at least (k-1) other records. In the release whose values are indistinct over those fields that appear in external data [10].

2002: Watermarking the relational databases suggested that watermark can be applied to any database relation having attributes which are such that changes in a few of their values do not affect the application. R. Agrawal and J.Kieran enunciates the need for watermarking databases relations to detect their piracy, identify the unique characteristics of relational data which pose new challenges for watermarking, and provide desirable properties of a watermarking system for relational data [4].

2003: In a warehousing environment, the data lineage problem is that of tracing warehouse \data item back to the

Dynamic Chunk Allocation and Migration in Cloud Environment

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ABSTRACT
Cloud computing allows the all users to upload and download the resources as per their need. For allocating the resources cloud uses the virtualization concept. It allocates the data center resource to users on demand and minimizes the number of servers. If a load on server increases at that time user cannot get the required result within a time. For that purpose load rebalancing must be done. In this work we are applying the concept of "skewness" to measure the unevenness in utilization of servers. To minimizing the skewness, here we introduce the concept of load Re-balancing in cloud framework. It consider The CPU usage as well as memory for migrate the data object in to the server.

Keywords
Cloud computing, Virtualization, dynamic resource allocation, Data center, Load Re-balancing

1. INTRODUCTION
Cloud computing model allocates the resources dynamically. It automatically scales up and down the resources according to load variation. It optimizes the hardware cost, electricity and other expenses in large data centers. Most of the servers in data centers are under-utilized in cloud model due to excessed provisioning [2] [3]. Distributed file system is the basic building block of cloud computing. In distributed file system large files are fragmented into chunks and allocate each chunk to number of servers. In cloud, allocated files and number of servers are increased then the central node creates an obstacle. Virtual machine monitors (VMMs) like Xen hypervisor provide a mechanism for mapping virtual machines (VMs) to physical resources [4]. The mapping is hidden from the users. Amazon EC2 service does not know where their VM instances run [5]. Virtual Machine (VM) technology is used for resource provisioning. Virtualization reduces the average response time as well as according to the availability of resources it performs the task [12], [13]. VM live migration technology reduces the loads on servers and balances the load according to cpu utilization. During the load balancing cpu utilization is also increased and it overcomes the threshold value. To overcome this situation here introduces the concept of load Re-balancing which balances the load by calculating the cpu usage as well as memory utilization of server.

The load balancing cloud computing across the virtual machine maximizes the throughput. It uses the concept of skewness to measure the unevenness in server utilization. During load balancing it will first predict the load and then allocate the resources dynamically. The proposed load re-balancing model introduced here is aimed at the public clouds which divide the public cloud into number of cloud partition. It reduces the decision time and enhances the utilization of servers.

Our main focus on two concepts:

(a) Overload avoidance: PM should be capable to handle the VM running on it but if it overloaded then it degrade the performance of a system. Hence, to avoid overload on PM migration of resources should be takes place.

(b) Green computing: Dynamically allocated Resources can be handled by the VM so the Number of PM used should be minimized and Idle PM can turn off to save energy.

For overload avoidance we should keep the utilization of PM Low so that the resources can manage easily. To achieve green computing we should keep the utilization of some servers high. Here we present the resource management system to achieve these two goals.

We uses following concept to achieve results.

- Uses the concept of "skewness" for measuring the utilization of resources.
- Uses the load prediction for minimizing the migrations and data lost issues.
- The load Re-balancing concept to minimize the number of migration ie. Reduces the response time and increases the availability of resources.

2. LITERATURE SURVEY
Chase and Anderson [7] have proposed system for data center that perform the automatic scaling of web application for data centers. Here the replicas of web applications are stored by each server and hence the load of each server had increased suddenly. Tang [8] has proposed the load dispatch algorithm that performs the load distribution among all running machines. While minimizes the number of servers under utilization work uses network flow algorithm which allocate the load of web application among all running instances.

Chen [9] has presented an integrated approach for load dispatching and server storing technique for connection oriented services. Dynamic provisioning that dynamically turns on a minimum number of servers required to satisfy the quality services of web applications. Load dispatching distributes load on active servers. Above all work do not use virtual machines. A VM is just like a black box technique. Resource management is done in whole VMs. Zaharia [1] has proposed the mapreduce technique specially preserving data locality i.e. computations near their input data to maximize system throughput. In this technique if the data excessed then the threshold of the server goes increased and because of that hotspots had increased continuously.

Singh et. al [11] have proposed VM live migration technique.

Inverted L-shape line feed Quad-band Microstrip Antenna for Multiband Application

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ABSTRACT
We demonstrated and presented Multi-band line feed microstrip patch antenna for wireless communication application. In proposed design, we introduced quad band antenna two rectangular slot of L-shape on patch and one rectangular shape slot on ground plane of antenna. The impedance bandwidth can be tuned by changing the ground plane geometry parameters (length and/or its width). The overall size of the antenna is 24mm×22mm×0.8mm including finite ground feeding mechanism. The antenna operates in four bands which are

(3.3-3.6 GHz), (4.2-4.5 GHz), (6.9-7.2GHz) and (10.1-10.4GHz). Stable Omni-directional radiation patterns in the desired frequency band have been obtained.

Keywords
Triple band Microstrip antenna, bandwidth enhancement, line feed technique

1. INTRODUCTION
With rapid development of micro strip antenna it has been found that, Study of Microstrip antenna with symmetrical Feed Line technique, Patch Antenna experimentally increase the Return Loss up to -33dB at frequency range 2.4 GHz to 2.5GHz and VSWR is less than 1.5 by using RT DUROID 5880[1]. With further study and optimization of dual band microstrip antenna [2] it has been found that the return loss for dual band Frequency at 2.4GHz is -43dB and at 3GHz is -27dB and acceptable VSWR. To get compact size and maintain performance of antenna for multiple bands that is dual band, triple band antenna etc., various shapes of antenna was integrated [3]. It was presented in [4], introducing slot into patch that is L-Shape, experimentally increase bandwidth up to 13%. To enhance bandwidth further various shapes like L-shape, U-shape etc., slot was introduced and bandwidth up to 42% was increased [5,6]. In [7] and [8] the author's proposed bandwidth enhancement techniques that are by using photonic band gap structure and wideband stacked microstrip antennas respectively. By introducing stacked microstrip antenna bandwidth and gain was enhanced. While Designing of symmetrical microstrip antenna, it has been found that microstrip antenna has narrow Bandwidth [8,9], Asymmetrical position of patch antenna on ground affect the performance of antenna that is to enhance bandwidth it was also found that asymmetrical position of slot on patch affects performance of antenna[9] that is asymmetrical L-shape, U-shape position of slot on patch affects the performance. In [9] designed asymmetrical slot of L-shaped on patch antenna for UWB application with acceptable return loss that is -10dB and peak gain 2.2 to 6.1 dBi for operating bandwidth 3.01-11.30 GHz frequencies.

In this paper we proposed L-shaped microstrip antenna using line feed with two L-shaped slots printed on dielectric substrate (pl. ref. Figure 1). The proposed antenna offers multi-bands (four) operations. Design and optimization procedure of the proposed antenna is presented in Section 2. Section 3 presents the validation of the simulated prototype and discussions on the measured results are also presented there. Finally, conclusions of this study are presented in Section 4. This antenna presents an extension to Analysis of a Miniaturized Multiresonant Wideband Slotted Microstrip Antenna With Modified Ground Plane [10].

2. PROPOSED DESIGN
The results of proposed quad band microstrip patch antenna verified in HFSS Simulator with optimization. The initial antenna simulation setup is shown in Figure 1(a). Actual patch shape is shown in figure 1(b), it consists of two L-shape notch on patch and one rectangular slot on ground plane. The resulting antenna structure has the following parameters; the patch shape length Wp = 16 mm, and its width Lp =12 mm. The size of the ground plane has been found to be of Lg =22 mm and Wg = 24 mm. The height of substrate is h= 0.8 mm and dielectric constant εr = 4.4. A line feed is attached to the microstrip and has a length 5 and width 1.8mm.

The key design parameters used for the optimization are dimension of L-shape (length and width of L-slot), gap between to L-shape patch and dimension of rectangular slot on ground plane. The detailed analysis of these parameters is investigated in the following paragraphs of this section. As showed in Figure 1(c), ground plane of the geometry is varied to see its effect on the performance of antenna. For this, upper and lower ground plane is changed. The ground plane is located on the reverse side of the substrate in the shape of a rectangle, covering the entire back. Return loss characteristics of this study are presented in Figure 2.

From Figure 1(c) it may be noted that ground plane dimensions are finalized to get quad bands. Further we changed width of L-shape (Wt), length of L-shape (d) and gap. Figures (2), (3) and (4) show return loss characteristics plots of this study. From these figures it may be noted that the quad bands can be obtained for Wg= 24mm, Lg=22mm, and Lg2=12mm.The finalized dimensions obtained from these parametric studies are presented in Table 1.

Parameter	L_p	W_p	d	Wt	Ws	L_s	W_g	L_g	D_p
Unit(mm)	16	12	7	1.2	3	5	24	22	8

To study the effect of L-shape dimensions on the antenna performance, its dimension values i.e., d, Wt and Dp are varied. Initially, length of L-shape on patch varied from 6mm to 8.5mm in steps of 0.5mm keeping dimension of ground plane constant and return loss is presented in figure 2. The effects of variation of this study for different values of Wt and Dp in steps of 0.1mm and 1 mm respectively are presented in

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Study of Vibration of Three Wheeler Vehicle and Its Effects on the Health of a Driver

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***Abstract*— The majority population in India is depends on three wheeler vehicle for their transportation due to economic reasons. The vibration is common in most of the vehicle and it is more in the three wheeler vehicle because of its dynamic nature. Waves of energy of vibration transferred into the body of the driver are transmitted through the body tissues, organs and systems of the individual causing various effects on the structures within the body before it is dampened and dissipated. The vehicle vibration produces physiological effect on humans. The present work is carried out experimentally to measure the magnitude of vibration acting on driver on different Road profiles at different speed (10mkph,20kmph, 30kmph) using FFT analyser. As per ISO(2631) vibration evaluated with respect to whole body vibration considering frequency 0.5-80Hz.**

Keywords: *FFT analyser,ISO-2631, body vibration*

I INTRODUCTION

The vibration is common in most of the vehicle and it is more in the three wheeler vehicle because of its dynamic nature. The vehicle vibration produces physiological effect on humans.

The evidence suggest that short time exposure to vibration causes small physiological effects such as crease in heart rate, increase in muscle tension long term exposure to The health problems are also increasing, it is essential to identify whether there is any relation between the health problems of the driver. Vibration within the frequency range up to 12 Hz affects the whole human organs, while the vibrations above 12 Hz will have a local effect. Low frequencies (4-6 Hz) cyclic motions like those caused by tires rolling over an uneven road can put the body into resonance. Just one hour of seated vibration exposure can cause muscle fatigue and make a user more susceptible to back injury. Currently, there are two main standards for evaluating vibration with respect to the human responses to whole body vibration; British Standard BS 6841 (1987) and International Standard ISO 2631 (1997). BS 6841 considers a frequency range of 0.5-80Hz.This standard recommends the measurement of four axes of vibration on the seat (fore-aft, lateral and vertical vibration on the seat surface and fore-aft vibration at the backrest) and combining these in an evaluation procedure before assessing the vibration severity. Therefore it is necessary to evaluate the influence of vibration to the human body and to make up appropriate guidelines for the three wheeler design and selection parts.

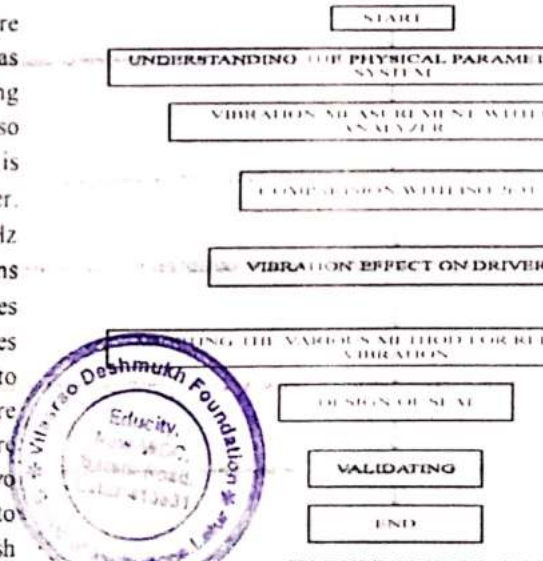
II PROBLEM IDENTIFICATION

India has a population of more than one billion people, many of whom do not have the means to own a car for their own. A common vehicle of transportation for these people is three wheeler vehicles. Therefore it becomes essential to study the phenomenon of vehicle vibration and its effects on human body. Exposure to whole-body vibration causes motions and forces within the human body that may:

1) Cause discomfort 2)Adversely affect performance 3)Aggravate pre-existing back injuries 4)Present a health and safety risk

In three wheeler vehicles the magnitude of the vibration is depends on the type of the vehicle, engine, body weight, age of the vehicle, type of seating, type of suspension and road surface factors etc. Hence it is necessary to evaluate the influence of vibration to the human body and to make up appropriate guidelines for the three wheeler design and selection parts. The intensity of these harmful vibrations is reduced by providing a standard type of seat, front and rear suspension.

III METHODOLOGY



IV EXPERMENTATION

The whole experiment was conducted with a three wheeler on different road profiles having different road conditions in Pune, India. Out of three road conditions firstly rough road is selected on each road; three speed conditions are selected (10 kmph , 20 kmph,

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CFD Analysis of an Automobile to Improve the Aerodynamics

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Abstract- **An Engineer is always focused towards challenges of bringing ideas and concepts to life. Therefore, Software and Computer Techniques must be constantly developed and implemented for Virtual and Economic Analysis. At the same time, we must take care that there is no compromise with the Accuracy of the Techniques used. In the Age of Speed, Automobiles have become an integral part of human routine. By designing Aerodynamically Sound Automobiles, overall efficiency of an Automobile can be increased, by reduction in the Drag Force (Losses) and too by the reduction in the Fuel Consumption, eventually developing an Environment-Friendly Vehicle. The Engineer is constantly conformed to the challenges of bringing ideas and design into reality. The Computational Fluid Dynamics is a step towards bringing numerous Hypothetical Concepts to reality, as the Analysis done gives better results compared to the Physical Analysis (Wind Tunnel Testing), without any costly setup and space requirement. In this Project, Modelling of Automobile (Car) was done using the Software-Solid works. The Lift and the Drag of the car were determined by the Analysis of Fluid (Air) Flow around it using Software-Ansys Fluent. After that, with modifications like Air Vents, Rear Spoiler, Analysis was repeated. Based on the values of Lift Force and Coefficient of Drag (C_d), optimal solution was considered as the success of the Project.**

Keywords: *CFD, Drag, Downforce, Lift, Solidworks, Ansys*

I INTRODUCTION

Speed is the need of today's world. The ironical saying that, 'Distance must be measured in minutes, rather than in miles' is turning out to be a reality in the current world of pace. The ambitious construction of the Autobahns in Germany which began in 1920s and which was carried forward by the Nazi Supremo - Adolph Hitler, encouraged the people in that region to shift from using the conventional carts to mechanically powered vehicles. Gradually the trend spread around the world and reached our country, which resulted in the construction of Flyovers, Expressways, Sea Links, etc. which connected the vastly spread India. But along with the availability of good infrastructure, the Automobile Manufactures started feeling the need to develop faster vehicles, which they have managed to do well in the past two decades. But, challenges never end. Lower efficiencies of the vehicles have troubled the Automobile world for years, as to produce good results, huge power inputs are required. Hence, an effective way known, to better the outputs without regulating the inputs is – '*Aerodynamics*'

II OBJECTIVE

This paper focuses on the CFD analysis of a car. The goal is to simulate the air flow around the vehicle and obtain an accurate value of its drag and lift coefficient. The next step would be to make modifications to the vehicle geometry which could improve its lift and drag characteristics making the vehicle handle better at cruise speeds and also improve its fuel efficiency. The major objectives are – Getting optimal solution with maximum number of iterations, reducing the lift, working out with the coefficient of Presentation drag in a way that it facilitates stability and better handling of the car, developing pressure and velocity contours and gaining proficiency in the modelling and analysis software.

III THEORY

CFD or Computational fluid dynamics is a branch of fluid mechanics that, with the help of computers, uses numerical methods to solve and analyse problems involving fluid flows. Computers are used to carry out calculations using an iterative procedure wherein the solution accuracy improves with every iteration. The underlying equations that are solved in CFD problems are the Navier-Stokes equations. In the laminar regime, the flow of the fluid can be completely predicted by solving the steady-state Navier-Stokes equations, which predict the velocity and the pressure fields. As the flow begins its transition to turbulence, it is no longer possible to assume that the flow is invariant with time. In this case, it is necessary to solve the problem in the time domain. As the Reynolds number increases, the flow field exhibits small eddies, and the timescales of the oscillations become so short that it is computationally unfeasible to solve the Navier-Stokes equations, so in such flow regime, Reynold's Average Navier Stokes Formulation is used to cope up with the issue.

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Generating Electricity using Piezoelectric Material

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Abstract: - Electricity is the basic need of everyone. And the idea of harvesting an alternative energy surfaces a new interest due to rise in energy consumption. We are trying to develop a piezoelectric generator. It can produce energy from the mechanical energy (like pressure or vibration). It shows how we can use piezoelectric materials to produce energy from applying pressure for generating the energy. This idea can also be used where large pressure, vibration sources are available.

Keywords: Piezoelectric sensor; rectifier; battery; Load (LED).

I. INTRODUCTION

In this fast developing world the major problem and issue which we are facing is lacking of energy. Whereas there is a solution for it, we can use renewable energy sources to solve this crisis which the whole world is facing. As we know there is a limit to the natural energy sources. Hence the last hopes on which we can depend is on renewable energy or introduce the substitute energy sources form the nature, therefore the researchers are trying to find out the way to create the substitute energy sources form nature. The energy sources that are derived from natural sources that replenish themselves over short periods of time are known as renewable energy. Energy harvesting is a method of capturing energy from the surrounding energy sources and converted into usable electric power. This technology is already been started to use in the form of windmill, geothermal and solar energy. Thus in this project we are doing piezoelectric energy harvesting i.e. energy generation from pressure and vibration by using piezoelectric material.

II. LITERATURE REVIEW

Piezoelectric Sensor

Alternative renewable sources of energy are the future of today's world and Piezoelectricity is one of them. Most of the researches are now doing on piezoelectric materials. It seems that the piezoelectric material has very unique properties. The piezoelectric materials have a unique property its produce electrical energy from mechanical energy (like they can convert pressure, vibrations in to electricity). Piezoelectric materials have two properties that are known as direct and converse effect. The direct piezoelectric effect is present when an electric charge appears on the opposite faces of the material when mechanical energy (like pressure or vibration) is applied on them, whereas converse effect is present when material is deformed when an electric charge is applied. It is shown in the recent research and experiments that these materials can be able to use as power generators, though they need to be optimized as the amount of energy produced is very low.

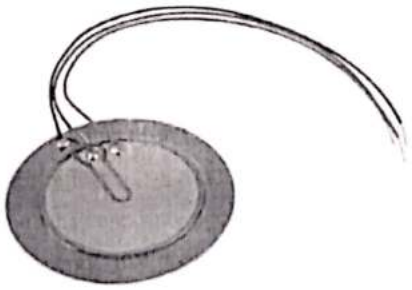

Fig.1: Piezoelectric Transducer/Sensor

Rectifier

The piezoelectric sensor generatesAC output, and to light up the LEDs constant supply of voltage is needed. So rectifier circuits is used which convert an output AC voltage to a DC voltage. Thus LEDs can light up without damaging with the help of rectifier.

Battery

The energy generated by piezoelectric sensor is not continuous due our installation so a battery is used to store the energy.

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This is to certify that PATIL NAGENDRA PANDITRAO

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Industrial Area Mapping using High Resolution Satellite data: MIDC area of Latur city (Maharashtra) India

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Abstract - **This paper describe the industrial Area development in MIDC area of Latur city (Maharashtra).The satellite data used in the present study includes a Quick Bird II image, was also used for large scale mapping of industrial Area mapping with using GPS and GIS.This paper will try to explain GIS-GPS integrated systems and give applications to industrial area mapping in MIDC block in Latur city. For industrial area mapping, visual interpretation technique was used to mapping total industrial area as a polygon layer. The integration methodology with hand held GPS receiver is used to collection the location of industries in the study area. More than 50 waypoints were collected in the Industrial area of MIDC block. In this study the waypoints which were collected from the industrial area were overlapped on the Satellite image and industrial area maps are prepared by visual mapping method. Road and settlement layers were also digitized using high resolution data and by integration of all the layers a base map was prepared for MIDC block. This study shows that the maps which are obtained by using handheld GPS and GIS softwares can be used effectively for getting information, querying and analyzing the industrial area in MIDC block.**

Keywords: GIS, GPS & Industry, RS.

I. INTRODUCTION

This Industries play a very important role in the development of any country. Due to industrial development and increasing process of urbanization, there is an urgent need to provide accurate and timely geospatial information that will assist the planners and decision makers in understanding, planning and managing the changing urban Therefore, for the proper planning and management, of the industrial areas and the process or environment. Industrialization has a great impact on several aspects of a given nation. It usually provides jobs for citizens and therefore boosts the economy, but with the new technology of today's world industrialization also means new technology which replaces the human that used to be responsible for a given job.

Industrialization is on the increase, which of course is necessary for the progress of human civilization but so is the environmental pollution due to emissions and waste generated from these industries. The industrial pollution due to its nature has the potential to cause irreversible reactions in the environment and hence is posing major threat to our very existence. Since the carrying capacity of the environment is not unlimited and some areas or ecosystems are more susceptible to adverse environmental impacts than others, unplanned and haphazard industrialization has substantially increased the risk to the environment. So there is an urgent need to provide accurate and timely geospatial information that will assist the planners and decision makers in understanding, planning and managing the industrial area development.

II. OBJECTIVES

In the present study we have taken the industrial area of MIDC block in Latur city of the Maharashtra state. The major objectives of this study are:

i. Identification of Industrial area using GPS in MIDC Block.
ii. To generate Industrial Area map of MIDC block.

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IPR Perception and Awareness among the P.G Students Studying in the Colleges in Latur City

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Abstract

This paper deals with the basic concepts of IPR including Patent, Trademark, design, copyrights. Present Survey based study has completed by collecting primary data from the PG students studying in various colleges in Latur city. It observed that the Students have a very lack of knowledge about IPR. To find out the perception and awareness of students about the concept of IPR and to suggest ways to avoid its violence, at the end findings has been given.

Keywords: - IPR, Copyright, Trademark, Fair Use, Patent, Plagiarism, Anti-Plagiarism Software,

1. Introduction

After the World Trade Organization TRIP (1995) agreement the outlook for the intellectual property rights increased. To meet the agreement, developing countries amended their Intellectual Property Law. With the experience of the world, some countries are beginning to learn. India realized that patents of turmeric, curry and basmati rice were gone. The invention of how the word 'invention' was applied to a patent was invented. Understanding the value of the right to patent rights, the right to know the costs and the time required to settle the tort and other matters. Awareness of Intellectual Property Rights began to grow. Today, whether it is PhD research or writing articles on research, there has been widespread plagiarism. This has been proved by the Plagiarism system. If a copyright infringement is not consciously or unconsciously, the

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A Solar Powered Brushless Dc Motor Drive For Water Pumping System

Hambire Anjali S.[1], Kadam Namrata S.[2], Sabale Akshata V.[3], Prof. More S.S[4]
[1, 2, 3, 4] Dept of Electrical Engineering
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Abstract- *In this paper describes solar PV system worn for pumping system in order to gain the maximum benefits from solar source along with also gives soft starting of BLDC motor.*

The model is inured study manifold parameter alternative effects upon the PV array in conjunction with operating temperature along with solar irradiation level. This paper accommodates an analysis regarding the photovoltaic system's interpretation in real time in addition to the factor disturbing it such Temperature along with Irradiation. BLDC Motor speed is regulated all the way through inverter. The VSI is regulated via fundamental frequency switching, escaping the losses owing to high-frequency switching, in regulate to augment the efficiency of the proposed system.

Keywords- (Ppv) Photovoltaic System, (Voc) Open Circuit Voltage, (Iph) Photo Current, (Irev) Reverse saturation current of the module

I. INTRODUCTION

Renewable energy is generally defined as the energy collected by naturally reproduced resources of human period like tides, rain, sunlight, and wave geo-thermal heat and wind. Renewable energy regularly delivers energy in four major areas: generation of electricity, water heating and cooling and air, rural energy services and transportation. Solar energy, receives heat from the sun, is harnessed using technologies such as concentrated photovoltaic, solar heating, photovoltaic, artificial photosynthesis and solar architecture.From the above various technologies, the photovoltaic scheme takes advantage of the photo-voltaic effects and changes to the light into electrical direct current. Solar PV has changed to a multi-billion, fast increasing industry, which improves efficiency [1].

Generation and consumption of electricity or power play very important role in well-being of country and economic growth. The existence and development of sufficient organization is necessary. For the first country to become a developed country, continuous growing of the economy of Indian is essential. With these passing years, the demand for electricity has increased in the nation and is predictable to increase further in the years to come [2].

II. PV SYSTEM

Photovoltaic Technology

The device or elements capable of transforming photons light into an electrical voltages and current energy is called photovoltaic. Electrons in photovoltaic materials are formed due to small-scale wavelength and high-energy photon, so that they are atoms free. Electrons around the electrical field will be attracted towards metallic contact where they can flow as electrical current. The driving force to power photovoltaic comes from the sun, and it is interesting to note that the total energy demand of the earth's surface takes like 6000 times more energy.

Photovoltaic began in 1839, when the Nineteen year old French physicist, Edmund Becquerel published a diluted electrolyte solution (Becquerel, 1839) on the metal electrode, voltage could be seen. Almost 40 years later, Adams and Day Solids (Adams & Day, 1876) were the first to study photovoltaic influences. They were able to create selenium-made cells that are 1% to 2% active. The emerging photography industry quickly accepted Selenium cells for photographic light meters; In fact, they still use it for the purpose [19].

$$I_d = I_0 \left(e^{\frac{qV_d}{kT}} - 1 \right)$$

Where,

I0 - Diode saturation current

Q - Electron charge (1.602×10-16 C)
Vd - diode voltage

K - Boltzmann constant value is 1.3806×10-10 J/K

III. MPPT ALGORITHM

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GIS BASED TRAFFIC PARKING MANAGEMENT PROTOTYPE: A CASE STUDY OF VARANASI

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CHAPTER 1

INTRODUCTION

1.1 General

The GIS is one of the most innovative advances in the study of geography. Since its development in the 1970s, GIS has had a major impact on geographic analysis and on business practice in government and the private sector. Most transportation agencies now use GIS and Geospatial Information Systems for Transportation (GIS-T) is one of the largest users of GIS technology. The significant innovation that GIS provides is the ability to manage data spatially in layers and then overlay these layers to perform spatial analyses. Therefore, a roads layer can be integrated with a land use layer enabling a buffer analysis of the land uses within a given distance of the road. The capabilities of GIS have improved over the past three decades, and GIS now provide a wide range of tools for data management and analysis. In the early 1990s, GIS added specific tools for linear data management of transportation data that has proved to be extremely successful among transportation organizations. These capabilities enable transit agencies to georeferenced their bus routes, stops, time points, and other features to a digital street centreline file, and keep all these data in synch.

The deployment of GIS has attracted the interest of transportation software vendors who provide scheduling, vehicle tracking, and trip itinerary planning programs. In some cases, these vendors have developed their own mapping interfaces with GIS-type functionality. In other cases, they provide import and export programs to convert data into compatible GIS formats. These developments reflect in part the demands from the customers for mapping inter-faces. Another interesting trend has been the convergence between geospatial technologies comprising GIS, GPS (global positioning system), and remote sensing technologies such as satellite images, LIDAR (Light Detection and Ranging), and products that orthorectify remote sensed data. This convergence is occurring in part because of IT compatibility and the overlap and

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Traffic Parking Management Analysis Using GIS Method

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ABSTRACT

With the increased number of vehicles, parking supplies should meet parking demands. In urban areas due to Irregular construction and excessive population growth cities required re-planning and site selection of parking places. In this have a look at, technical evaluation became developed to determine vicinity-based totally parking call for with the aid of the use of Geographic data gadget (GIS). After doing observe on parking call for and deliver balance, the region-allocation strategies have been implemented to decide the great places of parking, depending on parking call for. This technical tool becomes tested for an urban location. As a result, a creative records processing method became evolved to determine the quality locations of vehicle parking. Geographic statistics structures (GIS) technology has been used for a numerous plans inside the transportation industry. This GIS device has come with many new makes use of, benefits, and demanding situations. This challenge can display the ability of GIS to help transportation evaluation and planning.

Keywords-- Component, GIS, Network analysis, Parking, Transportation planning geographic information systems

INTRODUCTION

Objective: The paper explains the problem of parking in cities and urban areas:

1. To find different types of data that will give a parking solution.
2. To assess the problems encountered in accessing and handling parking.
3. To review current tools and techniques used in managing urban parking.
4. To develop a prototype for parking management.
5. To test and analyze the prototype.

GIS

The GIS is one of the maximum revolutionary advances inside the study of geography. For the reason that it's improvement inside the Seventies, GIS has had a first-rate effect on geographic evaluation and commercial enterprise exercise in government and the non-public region. Most transportation corporations now use GIS and Geospatial facts structures for Transportation (GIS-T) is certainly one of the biggest customers of the GIS era. The huge innovation that GIS offers is the capacity to manipulate information spatially in layers and then overlay those layers to perform spatial analyses. Therefore, a roads layer may be integrated with a land-use layer allowing a buffer analysis of the land uses inside a given distance of the street. The competencies of GIS have advanced over the last 3 years, and GIS now provides an extensive range of equipment for information control and analysis. Inside the early 1990s, GIS brought unique tools for linear statistics management of transportation information that has proved to be extraordinarily a fulfillment amongst transportation agencies. Those abilities allow transit organizations to Geo-referencing their bus routes, stops, time factors, and different functions to a virtual avenue centerline file and keep most of this information in synch.

Traditional methods of data gathering

This Part introduces the general research strategy in terms of data gathering and the

Flexural Analysis of Thick T-Beam Using Fifth Order Shear Deformation Theory

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Abstract— A fifth order shear deformation theory is considered for the mathematical solution of thick beam with simply supported boundary condition. The number of variables in this theory is same as that in the first order shear deformation theory of Timoshenko. In this paper thick T-section beam is considered for to demonstrate the efficiency of theory and their results are compared with other refined shear deformation theories. This comparison shows that the present theory is more accurate than Euler-Bernoulli theory and also comparable with Timoshenko beam theory. Also, in this paper results obtained are discussed with other refined theories. The novelty of the paper is, many researchers used rectangular section for analysis, here first time irregular shape i.e. T section is considered for the purpose of analysis.

Keywords: Thick Beam, Fifth Order Shear Deformation, Equilibrium Equations, Simply Supported

I. Introduction

Since the elementary theory of beam (ETB) is based on the assumptions of Bernoulli-Euler. The elementary theory of beam (ETB) is a model of beams behave under axial forces and bending and we often used to analyze the behavior of bending elements. The elementary theory of beam (ETB) based on the major assumptions. The assumptions of elementary theory of beam (ETB) are 'plane section remains plane' means the section normal to neutral axis before bending remains so during bending and after bending, imply ing that the transverse shear strain is zero. Whereas, this assumption is not being valid to thick or deep beam. In case of thick or deep beam transverse shear deformation is predominant. It leads to less accurate result in case of isotropic thick beam, the Euler-Bernoulli beam theory (ETB) is only suitable for thin (slender) beams. This theory is almost 300 years old.

Later Timoshenko [1] developed the first order shear deformation theory (FSDT) for flexural behavior of moderately thick and thick beam in which rotary inertia and shear deformation is taken into account. Timoshenko [1] was the pioneer investigators to include refined effects such as rotary inertia and shear deformation in the beam theory. In this theory (FSDT) transverse shear strain distribution is assumed constant and requires shear correction factor. Mindlin [2] shows the Timoshenko's shear coefficient for flexural vibration of beam. This correction factor in elementary theory of beam (ETB) and first order shear deformation theory (FSDT) led to the development of higher order or refined shear deformation theories.

The higher order shear deformation theory which are based on the trigonometric and hyperbolic functions presented by Heyliger and Reddy [3], Krishna Murty [4]. As by the higher order shear deformation theory shear stress free boundary condition is not satisfied so, this drawback removed by Ghugal and Shimpi [5] and presented review on refined shear deformation theories for isotropic and anisotropic laminated beam.

Ghugal and Sharma [6] developed a hyperbolic shear deformation theory for the static and free vibration flexural analysis of thick beam. Ghugal and Dahake [7], Dahake and Ghugal [8] employed the refined shear deformation theory for flexural of thick beam simply supported and cantilever beams. Ghumare and Sayyad [9] presented a new fifth order shear and normal deformation theory for static bending and elastic buckling of P-FGM beams. In this paper T-section beam with simply supported with uniformly varying load is considered for to demonstrate the efficiency of theories and their results are compared with other refined theories.

II. Mathematical Formulation

The beam under consideration

The beam under consideration as shown in Fig. 1 occupies in $0 - x - y - z$ Cartesian coordinate system the region:

$$0 \le x \le L\,; \quad 0 \le y \le b\,; \quad -\frac{h}{2} \le z \le \frac{h}{2} \qquad (1)$$

Where,

x, y, z = Cartesian coordinates, L = Length in x direction, B = Breadth in y directions and h = Thickness in the z-direction. The beam is made up of homogeneous, linearly elastic isotropic material.

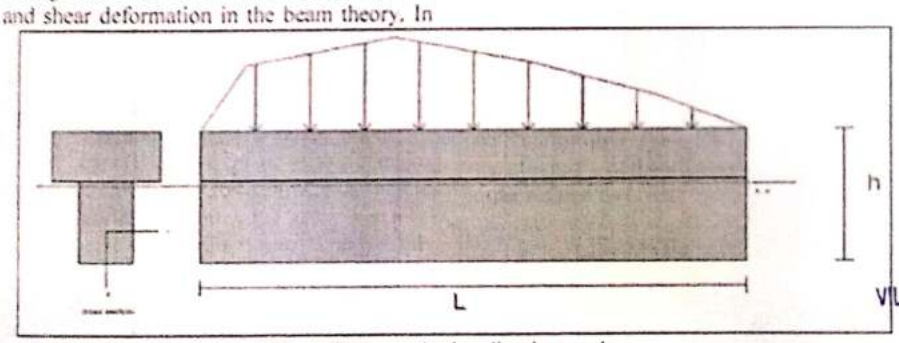

Fig. 1: Beam under bending in x-z plane

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