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ECO-EFFICEINCY OPTIMIZATION FOR MUNCIPAL SOLID WASTE MANAGEMENT–STATE OF ART

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Abstract: This paper reviews the effect of applying optimization methods on the gathering process of solid waste, with particular interest inmathematical programming and geographic data system approaches in developing countries.Mathematical programmingapproaches maximize or minimize an objective function for improvement in procedure, to make sure operational efficiency and alsoserve as decision support tools. They however provide partial solutions when implemented actually and can't fully handle roadnetwork constraints. Geographic data system approaches allow processing of additional considerations, often ignored inother methods, like the road network modeling. Incorporating environmental pollution Sconsideration is extremely challenging inthis approach, the vehicle routing solver encountering limits for giant data. For enhanced efficiency of the vehicle routingsystems, studies should further specialize in incorporating all network constraints, environmental pollution considerations, and impactof land use changes on routing.

Keywords: Geographic Information System, municipal bins, optimization, reallocation, Solid waste management system

I. INTRODUCTION

Solid waste is that the term to explain non liquid waste materials arising from domestic, trade, commercial, agricultural and industrial activities and from public services. In Indian cities it is a mixture of various heterogeneous waste materials[1]. It's commonly referred to as garbage, refuse, rubbish or trash. Its main sources are residential premises, business establishments, and street sweepings. It's a mix of vegetable and Solid Waste Management (SWM) may be a civic problem and it's to evolve optimally and continuously to serve the longer term generation. Solid waste if unchecked not only be a hazard but will impart multidimensional threats, which include session's detrimental, environmental, social and economic impacts [2].

Solid waste management in developing countries may be a complex issue because the sorts of waste generated vary widely due to the varying localities with diverse populations. The boundaries of the analysis of the waste problem are difficult to define. An entire and environmentally sound SWM requires effective contribution from all people who are involved

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Morphometric Evaluation of Indla Ghatkheda Watersheds, Using GIS and Remote Sensing Technique

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Abstract

A morphometric analysis was carried out to describe the topography and drainage characteristics of Indla Ghatkhed watersheds. These watersheds are in satpuda region, Amravati district, Maharashtra, India. The drainage area of Indla Ghatkhed watersheds, are 933 & 539 ha. and they show patterns of dendritic to sub-dendritic drainage. The slope of both watersheds varied from 1 to 35% respectively. Moreover, the slope variation is chiefly con-trolled by the local geology and erosion cycles. Each watershed was classified as a forth-order drainage basin. The total stream length of the Indla Ghatkhed watershed is 47.61 km. comprised of 73 streams of 1st to 4th order. Mean stream length of the watershed (LSM) is 0.65 Km. Bifurcation ratio (Rb) is stand for 3.91, Relief ratio (Rh) is 12.59, The Circulatory ratio (Rc) is 0.74, Elongation ratio (Re) is 0.20, Drainage density (Dd) is 2.25, Form factor (Rf) is 0.007, Stream frequency (Fs) is 4.99, Drainage texture (Rt) is 4.62, Length of overland flow (Lg) is 0.15, The stream order of the basin was predominantly controlled by physiographic and structural conditions. The development of stream segments is affected by rainfall and local lithology of the watersheds.

Keywords: *Morphometric analysis, Indla Ghatkhed watersheds, Vidarbha region, GIS, Watershed management*

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Evaluation of Impact on Watershed by Using Different Indices" of Indla-Ghatkhed, District-Amravati, Maharashtra

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Abstract

Evaluation of impact on watershed by using different indices was carried out to evaluate the watershed performance of Indla Ghatkhed watersheds. These watersheds are in satpuda region, Amravati district, Maharashtra, India. The drainage area of Indla Ghatkhed watersheds, are 933 & 539 ha. The Land Leveling Index in Indla-Ghatkheda watershed attain maximum value of 1.0, The Critical Area Index reported is 0.85.The reported value of Irrigability Index is 1.39, Poverty Index before the implementation of project was 30 which decrease to 16 after the completion of project. It is a very good impact of project on the level of poverty The Regular Employment Generation Index of Indla-Ghatkheda village found to be 255.31 after completion of watershed project. The Human Development Index reported for the Indla-Ghatkheda watershed is found to be 1.03, The runoff conservation index for Indla village is 47%. Total runoff conservation index for Ghatkheda village is 17%. The assessment of soil erosion has been carried out in Indla-Ghatkheda and Mavod watersheds. Out of total area 7.3 Sq.Km. area have soil loss range is less than 0.20 tons/ha/year categorized as very low erosion area. 6.4 Sq. Km. area have soil loss range between 0.21 to 0.45 tons/ha/year. 3.1 Sq Km. area have soil loss range between 0.46 to 0.84 tons/ha/year. It is observed that, approximately 1 Sq. Km area have soil loss range between 1 tons to 4.50 tons per ha per year. The induced watershed eco index found to be 0.193%.The Carrying Capacity Index reported for the Indla Ghatkhed and Mavod

MANTECH Publications

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A Significant Review on Lean Technology/ Practices in Construction Industry

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Abstract

Development in construction industry is a need of this developing era. New and advance technologies are introduced, which ease the construction sector load by lending a helping hand to skill work force of the industry. Lean technique/ procedure are found to be effective in many industrial sector including construction but deal with soft interventions. These interventions take into account planning and allocation of resources, strategic planning on managerial level with less focus on reducing the waste on construction site thereby earning profit in a particular project. The paper focus on various dimensions of lean technology / practises observed in construction industry and the need of cohabiting use of recycled/ reusability of smart sustainable construction material on regular basis. This review paper explores various possibilities and opportunities of incorporation sustainable materials along with lean construction practices.

Keywords: *- Lean technology, smart sustainable material, recycled materials*

INTRODUCTION

Lean construction technology/ practices in construction industry consists of gratify the requirement of clients somewhere instantly or in long terms. Lean thinking in general has a long history of generating radical improvements in fields like manufacturing, health care and construction (Poppendieck et al., 2003).As the lean principles are being adapted and tested in other sectors, the concept evolves and changes. Nevertheless, comparing the lean manufacturing and the lean construction literature the manufacturing

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MANTECH Publications

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Removal of Arsenic Traces from Soil by Phytoremediation

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Abstract

Arsenic is emitted into the atmosphere by high-temperature processes like coal-fired power plants, burning vegetation and volcanism. Arsenic is introduced into soil and groundwater during weathering of rocks and minerals followed by subsequent leaching and runoff. It can also be introduced into soil and groundwater from anthropogenic sources. There is crucial requirement to develop inexpensive, effective, and sustainable method for removal or detoxification. Removal of arsenic by conventional method is extremely costly. Plant especially based approaches, like phytoremediation, are comparatively cheap since they are performed in situ and are solar-driven. During this evaluation, Specific advances in plant-based approaches for the rectification of contaminated water and soil. Phytoremediation is an alternate technology to urge eliminates heavy metals in contaminated soil. This paper focuses the strategy of phytoremediation to get rid of arsenic from soil. Liliaceae, Launeae, Cocculus were harvested; their growth ascertained and analysed for arsenic accumulation in their roots, stems and leaves each days. From the results, variety of the plants grew well in concentration of arsenic. Additionally, arsenic removal efficiency of all species exaggerated with increasing exposure time. It was observed that each one the plants were harvested and tested, result showed that these plants can accumulate significant amount in soil. Wild plants were chosen for arsenic removal experiments. These studied once nursing for one month. They were then grown in the experimental pots, which contained soil with arsonite (AS2O3) at

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Assessment of Soil Erosion by RUSLE Model using Remote Sensing and GIS of Indla-Ghatkhed, District-Amravati, Maharashtra

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Abstract: *The catchment boundary of Indla Ghatkhed watershed covers an area about 14. 62 sq km. The erosion is a natural geomorphic process occurring continually over the earth's surface and it largely depends on topography, vegetation, soil and climatic variables and, therefore, exhibits pronounced spatial variability due to catchments heterogeneity and climatic variation. This problem can be circumvented by discrediting the catchments into approximately homogeneous sub-areas using Geographic Information System (GIS). Soil erosion assessment modeling was carried out based on the Revised Universal Soil Loss Equation (RUSLE). A set of factors are involved in RUSLE equation are A = Average annual soil loss (mt/ha/year), R = Rainfall erosivity factor (mt/ha/year), k = Soil erodibility factor, LS = Slope length factor, C = Crop cover management factor, P = Supporting conservation practice factor. These factors extracted from different surface features by analysis and brought in to raster format. The output depicts the amount of sediment rate from a particular grid in spatial domain and the pixel value of the outlet grid indicates the sediment yield at the outlet of the watershed.*

Keywords: GIS; revised universal soil loss equation; soil erodibility; slope length factor; spatial analyst

I. INTRODUCTION

The soil loss results in the decrease of arable land and its quality by depleting the top fertile soil and there by affecting the land productivity as a whole [1]. Estimation of soil loss from a place is necessary to measure sediment deposition in any area [2]. Linkage of GIS and erosion is made possible by the spatial format in which RUSLE factors are presented [3]. The most common and effective method such as universal soil loss equation (USLE) by Wischmeier and Smith [4] is investigated to construct soil erosion modeling in study area through spatial analysis tool in ArcGIS 9.3. The USLE algorithm widely accepted method to estimate soil loss at catchment scale [5]. Erosion Models are helpful for evaluating the impact of land use practices on soil losses, and are increasingly being used for establishing guidelines and standards for regulation purposes [6]. Coupling GIS and USLE/RUSLE has been shown in many cases to be an effective approach for estimating the magnitude of soil loss and Identification spatial locations vulnerable to soil erosion [7,8,9]. The USLE model actively involved in Raster grid in GIS environment to compute various parameters such as R factor, P factor, Ls factor and K factor, etc., The technology of remote sensing and GIS is gaining importance as a powerful tool in the management of information in agriculture, natural resources assessment, environmental protection and conservation.

Degradation of agricultural land by soil erosion is a worldwide phenomenon leading to loss of nutrient rich surface soil, increased runoff from more impermeable subsoil and decreased water availability to plants. Thus, estimation of soil loss and identification of critical area for implementation of best management practice is central to success of a soil conservation program. The total land area subjected to human-induced soil degradation is estimated at about 2 billion hectares. By this, the land area affected by soil degradation due to erosion is estimated at 1100 Mha by water erosion and 550 Mha by wind erosion [10]. Soil erosion in India has a major effect on the agricultural sector, situation of

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Development of Phytoremediation Technology For Arsenic Removal-A State of Art

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Abstract: *Toxic heavy metals and metalloids, like lead, mercury, arsenic, and selenium, are perpetually free into the surroundings atmosphere. There is a vital need to develop low-priced, effective, and supportable technique for removal or detoxification. Plant primarily based approaches, like phytore mediation, are unit comparatively cheap since they are performed in place and are solar-driven. Now this review, Specific advances in plant-based approaches for the remediation of contaminated water and soil. Phytoremediation is an alternate technology to remove of heavy metals in polluted soil. Wild plants were chosen for arsenic removal experiment. Removal of arsenic by conventional method is very costly; this paper focuses the review on method of phyto remediation to remove arsenic from soil. This method is being aesthetically pleasing and is on average tenfold cheaper than other physical, chemical or thermal remediation methods. This paper attempted to provide a brief review on recent progresses in research and practical applications of phytoremediation for soil and water resources.*

Keywords: Arsenic, Contaminated Soil and Water, Phytoremediation, Toxic

I. INTRODUCTION

Arsenic enters the atmosphere through inputs from wind erosion, volcanic emissions, low-temperature volatilisation from soils, marine aerosols and pollution and is returned to the earth's surface by wet and dry deposition. [1] Arsenic poisoning in groundwater events is familiar to the world, but the consequences of soil contamination are still unrevealed to the community, specially the people of contaminated counties. Arsenic is a serious instantaneous concern for the people and other life forms regarding the poisoning through crops and vegetables. The current scenario of arsenic contamination of groundwater in countries across the globe with an emphasis on the Indian Peninsula. We review the global As contamination in groundwater, its ill effects on humans, sources characteristics, remediation, and also attempt to propose some recommendations for policy makers. [2, 3]Arsenic (As) is one of the toxic compounds which pose a high risk to large human populations. Although it had been historically used as a drug to treat skin infections, and beautification, it was also used for human murder. Many remediation technologies that mainly include physical, chemical, and a few biological methods have been evolved with time to check its effects.[3] The reduction in the concentration of dangerous contaminants present in various segments of the environment or minimizing their toxicity by using soil microbes or plants is known as phytoremediation [4] Phytoremediation is a viable, efficient and useful for cleaning contaminated soil technology.[5]Phytoremediation is a technology based on the use of green plants to remove, relocate, deactivate, or destroy harmful environmental pollutants such as heavy metals, radio nuclides, hydrocarbons, and pharmaceuticals. Under the general term of phytoremediation, several processes with distinctively different mechanisms of action are hidden. In this paper, the most popular modes of phytoremediation are described and discussed. A broad but concise review of available literature research with respect to the dominant process mechanism is provided. [8] This technology is environmental friendly and potentially cost effective.[12] It also reviews deeply about phytoremediation technology, including the heavy metal uptake mechanisms and several research studies associated about the topics. Additionally, it describes several sources and the effects of As, Pb, mainly on the environment, the advantages of this kind of technology for reducing them, and also heavy metal uptake mechanisms in

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Eco-Efficiency Optimization for Municipal Solid Waste Management with Respect to Greater Mumbai

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Abstract

Rapid urbanization, surging population numbers, limitations of funding, emerging limitations of both energy and raw materials, including increasing industrial, commercial and economic development in the Juhu (MCGM) area, has given rise to an increased generation of varied sorts of wastes. Among these wastes, managing solid waste may be a major problem faced by the town. Maintaining daily logs of collection and transport of solid waste is time-consuming and difficult because it involves huge data and statistics 80% of the entire cost of solid waste management is being spent on collection and transportation, so there's a requirement for proper monitoring of the system. This paper attempts to research the prevailing status of the location of municipal bins alongside the varied secondary routes followed for the solid waste collection of Juhu under MCGM. Then using Arc GIS 9.3 GIS based urban solid waste management system is proposed for the study area by proper optimizing the waste transportation routes and reallocating the bins of efficiency in distance travelled and time taken. Thus Geographical data system model would scale back the complications in the waste management system to some extent and exhibit remedies for an equivalent within the study area.

Keywords: *- Geographic Information System, municipal bins, optimization, reallocation, Solid waste management system.*

INTRODUCTION

MS (MS)

An Investigation on Structural Performance of High Rise Building with Core and Outrigger System

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Abstract— In India, The tall building has always been a vision of dreams and technical progress leading to the progress of the world. Currently, with rapidly growing urbanization, the tall building has become a more convenient option for office and residential housing. Tall buildings are usually designed for residential, office or commercial use. They are primarily a reaction to the rapid growth of the urban population and the demand for business to be as close as possible to each other. Much of India is prone to damage to seismic hazards. Therefore, it is necessary to take into account the seismic load for the design of the height structure. Various resisting side load systems are used in a high-rise building because the side loads caused by the earthquake are a cause for concern. These lateral forces can create critical voltages in the structure, causing unwanted voltages in the structure, and unwanted oscillations or cause excessive lateral oscillations of the structure.The different nine models are modeled in the ETABS software. The results in the terms of the lateral displacement, storey drift, storey forces, storey stiffness, Fundamental Time Period of Building are observed for all the nine models. The graphs are plotted for these parameters and comparative points are observed.

Keywords: Outrigger, Seismic, Storey Drift, Storey Forces and Time Period

I. Introduction

A tall building like a skipping rope has always been a vision of dreams and technical progress with new types of equipment leading to the progress of construction in the world. To date, the Tall building has become a more convenient option for residential and commercial housing due to the rapid growth of urbanization. Tall buildings are designed for residential and office use. This is a major response to the rapid growth of the urban population and the demand for business. Much of our country is prone to damage to seismic hazards due to earthquakes. Therefore, it is necessary to take into account the seismic load to design the altitude structure. Various side load resistance systems are used in the high-rise building . These lateral forces can create critical stresses in the structural and non-structural element in construction, causing unwanted stresses in the structure, and unwanted oscillations or cause excessive lateral oscillations of the structure.

Constructive design of high-altitude structures with the provision of drift limitation due to seismic load and wind load up to acceptable limits without paying additional steel costs. Steel savings and cost reductions can be made, using certain methods in this regard; one such system Outrigger, The beam and strap system is one of the side load resistance systems, in which the central core is tied to external columns with a very rigid tank and a belt rafters on one or more levels

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II. Review of Literature

S Jagadheeswari et al [1] the studied analysis of the response spectrum gives lower results compared to static analysis, the decrease in values is about 24%. This explains that ESA gives higher results and safety, which will be sufficient in the analysis of buildings of low lift and less important. Floor drift values will always be consistent with displacement values.

Abbas Haghollahi et al [2] studied the development of a tall building that is growing rapidly around the world. In the typical practice of structural design, the performance of systems that withstand lateral loading is the main direction of lateral analysis. Structural outrigger systems are one of the systems that withstand lateral loading, which can provide significant drift control for tall buildings.

Abdul Karim Mullah et al [3] investigated the behavior of the autrigger with and without a system of belt farms is studied in both symmetrical and asymmetric structure. It has been studied that an outrigger with a system of belt farms is effective in controlling the drift of a building. Even in the asymmetric structure, drift is controlled to the maximum. Thus, autrigger systems with belt farms improve the performance of the building by resisting the side forces.

Alpana L. Gawate et al [5] investigated the use of an outrigger system in high-rise buildings, increasing rigidity and making the structural shape effective at lateral loading. X Weaving and sliding walls as certain shelter floors can be used as transportation systems. The system of outriggers as an X-tightening on the periphery of the building on the 12th and 24th floors reduces the volume of the upper floor by 4.5%. There is a slight change in the construction period and the basic shift of the building. The autrigger system as sliding walls on the periphery of the building on the 12th and 24th floors reduces movement by 3.5%.

Doctor. S. A. Halkude et al. [8] the study shows that: 1) The maximum reduction in lateral displacement is 31.18%, when on the 10th floor there is a exposure due to wind loads. 2) From the results of drift in the store it is concluded that a decrease of 42.59% when the outrigger is placed on 40 floors, ie. at the top of the building. 3) The use of an autrigger did not show significant changes in the baseline shift, as the total force acting on the structure does not change with the addition of an autrigger. 4) Therefore, it can be concluded that outriggers are effective in controlling the movement of the floor, floor drift. The use of an autrigger system in high-rises increases rigidity and makes the structural form effective at lateral loading.

Hemant B. Dahake et al [10] studied from the analysis of the history of acceleration time is low for a high structure based on the autrigger, which makes it stiffer and stiffer. The location of the outrigger plays a very important role in the design of tall buildings. This study concludes that

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An Investigation on Siesmic Performance of RCC and Structural Steel-Concrete Composite Structure

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Abstract: *Steel and concrete composite construction is a relatively new concept for the construction industry. R.C.C is no longer economical due to increased dead load and dangerous formwork; also steel is not economical for high building frames due to less rigidity and greater ductility, so the steel concrete composite structure has been widely perceived due to the combination of positive properties of both steel and concrete. This paper discusses that folded frames are best suited for high-rise buildings compared to steel and R.C.C. frame buildings. The work includes a comparative study of the seismic performance of Steel, R.C.C. and composite (G + 7) frames. Aspects of comparison are deviations, drift of history, haircut of the base, force of shift and moments of bending in the beam, axial force and moments of bending in the column, weight of frames, material value of superstructural frames and fire performance of the building. RCC, steel and composite frame of the building located in earthquake zone V. The equivalent dynamic method is used for seismic analysis. ETAB 2015 software is used and results are compared.*

Keywords: RCC, Steel, ETABS and design

I. Introduction

Low-rise buildings have generally been selected in India as a general option, but now in India the population is growing rapidly, and as a result, there is also a growing need to build medium and high-rise buildings. Reinforced concrete elements are mainly used in the frame system, as this system is the most convenient and economical for low-rise buildings, but for medium and high-rise buildings, this type of structure is no longer economical due to dangerous shape, less rigidity, flight restrictions and increased dead load. The composite structure may be suitable in this case. The composite design has a wide range of applications. It is very necessary to choose the appropriate type of building in accordance with the requirements of the owner, as well as the construction site. Compared to other developing countries, the use of steel for construction purposes in India is very less. Steel structural elements are prone to local and side buckles. Concrete structural elements are usually thicker and less often fastened, but they are eventually subjected to slidering and shrinkage. Steel is a more plastic material, so it can absorb more shocks and shock loads. Thus, the composite structure is designed to use both materials.

II. Literature Review

J. M. Castro, A.J. Elgazuli and B.AND. Izuddin [1] In this article, they study the seismic performance of composite steel-concrete frames that oppose the moment. Several sensitivity studies and parametric studies are conducted using an advanced analysis program that takes into account material and geometric nonlinearities.

LIU Jingbo and LIU Yangbing [2] To study the seismic behavior of composite frame structures made of steel, based on studies of composite beams and joints between beams and columns, 4 polylinear plastic hinges are offered for inelastic analysis of composite frames. .

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Seismic Response of Irregular Structures

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ABSTRACT

The main objective of earthquake engineering is to analyse, design and build a structure in such a way that the damage to the structure and its structural component during an earthquake is minimized. A large number of papers have focused to study the effect of irregular structures. Being inspired from the work contributed in the study on effect of earthquake on irregular shaped building this research work presents effect of plan and shape configuration on irregular shaped structures. Building with irregular geometry responds differently against seismic action. Plan geometry is the parameter which decides its performance against different loading conditions. This research work aims to evaluate the behaviour of irregularity (plan and shape) on structure under seismic effect. To workout the performance of structure, equivalent static analysis and response spectrum analysis has been adopted. For achieving this objective by using structural based software ETABS 19. Estimation of response such as: lateral displacement, storey drift, and base shear are carried out. Based on these parameters we have compared response of each model. Results are expressed in form of graphs and bar charts. From research it is observed that to minimize the effect of earthquake simple plan and configuration like regular shape must be adopted at the planning stage.

Keywords— *ETABS, Irregular plan, Irregular shape, Equivalent static analysis, Response spectrum analysis, Lateral displacement, Storey drift and Base shear*

1. INTRODUCTION

Many buildings in the present scenario have irregular configuration both in plan and elevation, which in future may subject to devastating earthquakes. In case, it is necessary to identify the performance of the structures to withstand against disaster primarily due to earthquake. Irregularities are not avoidable in construction of buildings; however, the behavior of structures with these irregularities during earthquake needs to be studied. Adequate precautions can be taken. A detailed study of structural behavior of the buildings with irregularities is essential for design and behavior in earthquake. Several related studies have focused on evaluating the response of regular structures. However, there is a lack of understanding of the seismic response of irregular structures. Therefore, a comprehensive evaluation of the effect of vertical and horizontal irregularities on the seismic demand of building structures is greatly needed. [10]. A large portion of India is susceptible to damaging levels of seismic hazards. Hence, it is necessary to take into account the seismic load for the design of structures. In buildings the lateral loads due to earthquake are a matter of concern. These lateral forces can produce critical stresses in the structure, induce undesirable vibrations or cause excessive lateral sway of the structure. Sway or drift is the magnitude of the lateral displacement at the top of the building relative to its base. The structure should withstand moderate level of earthquake ground motion without structural damage, but possibly with some structural as well as non-structural damage. The results are studied for response spectrum method. [1]. In recent earthquake so many reinforced concrete structures are damaged, it indicates the assessment of the seismic behavior of structures is how important. So everyone must have to design a satisfactory level of safety is a concern. The main objectives of this study are the seismic performance of RC frame building. Also conduct static analysis and dynamic analysis methods based on IS codes. A structural frame modeled as residential building frames. The storey displacements, base shear, and storey drift in the response spectrum analysis are compared. [3]. ETABS is the present-day leading software in the market. Many design companies use this software for their project analysis and design purpose. So, this research work mainly deals with the comparative analysis of the results obtained from the analysis of a multi-storied building structure when analyzed using ETABS software. [7].

2.1 Summary

Extinct earthquakes events demonstrate that, buildings with irregularity are vulnerable to earthquake damages. However, each of these choices of shapes and structure has significant bearing on the performance of building during strong earthquake. So the

Fatigue Resistance of Recycled Steel Fibers (Discarded Vehicle Tyre Steel Fibers) Concrete Pavement

M. V. Mohod and K. N. Kadam

Abstract Concrete pavements are exposed to repetitive (cyclic traffic) loads throughout its lifespan resulting in the instigation of cracks. Propagation of cracks implies to permanent damage of rigid pavement owing to fatigue damage. From inception, cause of the creation of cracks in the rigid pavement is less resistance of the rigid pavement against bending, tension, and cracking. Market available (Industrial) steel fibers are incorporated in plain concrete to enhance its post-cracking flexural behavior and fatigue performance. Even though industrially manufactured steel fibers help concrete pavements by restricting cracks, these are not preferred due to the higher cost of material. An alternative to using recycled steel fibers recovered from discarded vehicle tyres is a cheaper fiber solution with notable environmental benefits. Research work aligned to the adaptability of recycled steel fibers has been reported, but there is the lack of studies on exploring fatigue performance of recycled steel fibers reinforced concrete pavement with reference to IRC 58:2015 guidelines. Experimental findings recommend the use of 'Hybrid fibers' a mix of waste tyre steel fiber and industrial steel fiber in a definite proportion which enhances mechanical properties of concrete. Temperature study and fatigue analysis warranty the use of hybrid fibers in pavement construction as it provides cost-effective, environment-friendly solutions.

Keywords Concrete pavement · Temperature gradinet · Cumulative fatigue damage · Recycled steel fibres · Discarded vehicle tyre steel fibres · IRC 58:2015

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Comparative Study on Precast Stair Case – A Review

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ABSTRACT: In India most of construction is work by conventional method (cast in situ). So a country goes to fast, time effective and achieving advance technique type of construction. Precast is one the source which gives the construction time fast, with proper stability, economy, durability etc. Precast staircase is constructed in factory with required quality, quantity, easily mix, and curing achieved with good desired strength. After the precast staircase constructed it should be go for erection in site. Different type of precast staircase should be design in factories. So various literatures as studied and a review of those all has been given in this paper. Also the advantages of precast staircase are also discussed here.

KEYWORDS: Precast Staircase, Construction, Time, Labour, Conventional method.

I. INTRODUCTION

At present precast concrete buildings are the advanced construction techniques available over worldwide. Precast construction technology is a system of casting concrete in a reusable mould or "form" which is then treated in a controlled environment, conveyed to the construction site and lifted to the place. This technology is suitable for construction of high rise buildings resisting seismic and wind induced lateral loads along with gravity loads. Different types of precast elements are cast in a controlled factory condition. The factory is developed at or near the site which provides an economical solution in terms of storage and transportation.

Staircase is an important component of a building providing access to different floors and roof of the building. It consists of a flight of steps (stairs) and one or more intermediate landing slabs between the floor levels. Different types of staircases can be made by arranging stairs and landing slabs. Types of precast staircase should design in factories like steps ladder, flight, landing etc. As the structural elements in precast building will only form a stable structural system after the joints are connected, structural considerations for stability and safety are necessary at all stages. A designed staircase should be comfortable for users and should provide proportionality, regularity, rhythm and order. When designing staircases, it is necessary to correctly design the dimensions of the staircase area, construction system of the staircase, dimensions of stairs, stair shapes, etc.

(a) Production in Factories (b) Transported to Site (c) Assembled at Site

II. LITERATURE REVIEW

Lakhi M. Chavan& Prof. D.B.Desai (2017): The work in this paper is focusing on time – cost comparison between precast and conventional method. Conventional method requires large amounts of time and labour at project site. The case study is discus on the project Maharashtra state police housing and welfare corp.ltd.at site

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SEISMIC ANALYSIS OF PRECAST CONCRETE STRUCTURE

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ABSTRACT:

This paper represents the study of seismic analysis of precast concrete structure of G+5 building using floating column and without using floating column using ETAB software.

Hence for the present study Response spectrum analysis (RSA) is considered for the comparative study of four models of six storey (G+5) RC frame building using ETAB. To carry out these analyses a typical building model with four different cases as,

Model 1: Without Floating Column Structure

Model 2: Floating Column at Longer side edge of Structure

Model 3: Floating Column at Shorter side edge of Structure

Model 4: Floating Column at Intermediate point of Structure

KEYWORD: ETABS, Response spectrum analysis.

I. INTRODUCTION

Precast concrete systems enable fast and effective completion of many different types of buildings and other structures. These are also being extensively used for residential (low and high rise) and commercial constructions because of their various favourable attributes, Effective design and construction is achieved through the use of suitable connections to cater for all service, environmental and ultimate load conditions. The structural systems are composed of precast concrete elements that are joined together in a mechanical way, for example using bolts, welds, reinforcing steel, and grout and concrete in the joints. Precast concrete structures offer a wide range of benefits and advantages to the designer to meet requirements. Its most important benefit will be speed with which it can be designed, cast, delivered and erected. This can ensure that projects stay on schedule and meet tight deadlines. Seismic resistant design for substation building should provide a level of safety for the workers in and around the substation in the event of Earthquake. Hence we take 4 different model to analysis

II. LITERATURE REVIEW

Gopinathan and subramanian (2013)- Analysed the g+5 storeyed frame subjecting to lateral loading with strong connections by specially designed bolts and l angles gives that precast structure reaches nearly the ultimate load of control frame and variation is small.

Chaitanya Kumar and Lute Venkat (2013)- Analyzed G+11 storey residential building with precast reinforced concrete load bearing walls. The structural system consists of load bearing walls and one-way slabs for gravity and lateral loads have been taken for analysis using ETABS.

Habibullah 2007 – He has worked on physical object based analysis and design modeling of shear wall system using ETABS . It has been concluded that grouping of area objects into piers is very powerful mechanism to automatically obtain design moment sand shear across wall section from a finite element analysis.

III. GEOMETRY AND NATURE OF THE SUBSTATION BUILDING

Building consists G+5 which is 10 m in short direction and 17 m in long direction, so from preliminary design the sizes of various structural members were estimated as follows Brick masonry wall Thickness: Brick masonry wall is provided with 230 mm thickness for all storey of different cases these walls are not modeled in software

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Effects of fly ash on the properties of self-compacting concrete

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CHAPTER 1
INTRODUCTION

1.1 GENERAL

Worldwide, Concrete is one of the most popular construction material, because its raw material can be easily available at different places around the world. These facts have not only led to many inventions in the field of concrete, but have also led to many studies in order to improve its quality, reducing the cost of implementation and make the concrete friendly with the environment. The problem with accepted compaction of concrete and durability are the main subjects under consideration. To achieve both of this skilled labor and advances equipment are required. currently, It seems to be the lack of the numbers of skilled workers for the construction industry are main reasons for a decrease in the quality of construction work. One solution for the achievement of durable concrete structures is the using of self-compacting concrete, which can be compacted into every corner of a formwork, completely by means of its own weight and without the need for vibrating compaction. This means that it can be gained sustainable concrete structures and acceptable compaction by using the minimum number of workers and equipment. Moreover, the use of SCC is also implemented to provide economic, social and environmental benefits over conventional vibrated concrete construction.

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Comparative Study of Predicating the Learning Disability in children using Machine Learning and Data Mining Techniques

Ms. Yogita S. Alone , Dr. G. R. Bamnote

Abstract

A learning setback is not an issue with intellect or motivation Children with learning handicaps are not pitiful or stupid. The goal of the research work is to develop a machine-based learning method to predict people's accurate study impairment, and to calculate effectively in accordance with information obtained from the clinical data, the percentage of learning disability present in children. Learning disorder is a description of a child who has normal learning disabilities, usually due to an unknown factor or factors. The unknown factor is the condition which affects the ability of the brain to receive and process data. The level of intelligence is not indicative of learning disorder. Teachers and parents will be involved in the intervention in order to enable the individual to complete various tasks successfully. There are no indications or profile that can

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Analysis of different backup and restore mechanisms: A cross-platform perspective

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Abstract: Backup and restore mechanisms have been around since the dawn of computing devices. From Floppies, to Cloud backups, the backup and restore industry has seen a lot of changes in the past few decades. Securing these backups, and keeping them ready when needed is a rudimentary task which is performed by companies operating at any scale. In order to create effective backups, techniques like data deduplication, data compression, etc. have been proposed. While to secure these backups, techniques like end-to-end encryption, blockchain-based encryption, etc. are proposed by researchers. For creating an effective backup and restore solution, researchers and system designers must take into consideration backup security and backup efficiency as the main parameters. Some systems perform well in terms of improving backup efficiency, while others perform better in terms of backup security, while some systems provide cross platform capabilities. It is difficult for researchers to select the best solutions suited for their application, thus in this text some of the recent backup and restore solutions are proposed. This is followed by an analysis of these techniques in terms of security, cross-platform ability and backup efficiency levels. Thus, this text will assist researchers and system designers to develop comprehensive backup and restore solutions for any kind of device.

Keywords: Backup, restore, security, cross-platform, efficiency

Extracting Knowledge in Large Synthetic Datasets Using Educational Data Mining and Machine Learning Models

Jaikumar M. Patil & Sunil R. Gupta

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Abstract

Educational Data Mining (EDM) and Learning Analytics (LA) investigation has emerged as an attractive domain of study. The valuable unfolding experience from institutional databases for several determinations such as prophesying learners achievement rate, enforcement, coordination and improving the teaching–learning manner. The principal intention of learning

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Credit Card Fraud Detection Using Collaborative Filtering Datamining Techniques

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ABSTRACT: Due to the rise and rapid growth of E-Commerce, use of credit cards for online purchases has dramatically increased and it caused an explosion in the credit card fraud. As credit card becomes the most popular mode of payment for both online as well as regular purchase, cases of fraud associated with it are also rising. In real life, fraudulent transactions are scattered with genuine transactions and simple pattern matching techniques are not often sufficient to detect these frauds accurately. Implementation of efficient fraud detection systems has thus become imperative for all credit card issuing banks to minimize their losses. Data mining is becoming increasingly common in both the private as well as public sectors. The Credit Card Fraud Detection Problem includes modeling past credit card transactions learning the behaviour of user to find out the fraud. Data mining involves the use of data analysis tools to find out formerly unknown, believable patterns and relationships in large data sets. This is then used to recognize whether a new transaction is fraudulent or not. Our objective here is to detect 100% of the fraudulent transactions while minimizing the incorrect fraud classifications. In this process, we have focused on analysing and pre-processing the data sets. Here we are using AES algorithm for the encryption of data and Luhn algorithm for detecting the card type in order to simplify the data mining process. In this process our main motive is to track the fraudster and prevent the use of the theft credit cards from the further use by blocking the fraudster on an E-commerce website. By using the above techniques, we can minimize a hefty number of credit card frauds on an e-commerce website with the feasibility of finding the current location of the fraudster

KEYWORDS: fraudulent transactions,AES algorithm, Luhn algorithm.

I. INTRODUCTION

In these modern times the mode of payment types are changed into the online transactions. There are many types of payment options for online transaction but due to rise and rapid growth in E-Commerce, use of Credit cards for online transactions has drastically increased. As Credit card is easy and substituted for cash and also one of the convenient methods of payment it has become the most popular mode of payment for both online as well as for regular purchase and this has caused an explosion in the Credit card fraud [2].

Credit card fraud is nothing but usage or removal of other person's funds without any authentication. In real life, fraudulent transactions are scattered with genuine transactions and simple pattern matching techniques are not often sufficient to detect these fraud accurately. Implementation of efficient fraud detection system has thus become imperative for all credit card issuing banks to minimize their losses. Detecting unauthorized credit card transactions is an extremely complex problem as features are seldom useful if taken individually.

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A Review on Plant Disease Detection

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ABSTRACT

Plants are very essential as they are the basis of energy supply to mankind. Plant diseases can affect the leaf between sowing and harvesting to enormous loss on the production of crop and economical value of market. Therefore, leaf disease detection plays a very vital role in agricultural field. It requires huge manpower, more processing time and extensive knowledge about plant diseases. Theme though do logy which combines IoT and image processing runs pre-processing and feature extraction techniques by considering different features such as color, texture, size and performs classification using deep learning model that develops to help identification of plant leaf disease.

Keywords: Plant Diseases, support vector machine, disease detecting techniques

INTRODUCTION

In Agriculture field, rate of plant disease and organic deficiency results in large harm and loss to farmers Traditionally, all the diseases and harms will be recognized with visual inspection by experienced people use features like color, texture and shape to analyze that leads to expensive cost and less efficiency. Usage of Internet of Things in agriculture includes agricultural monitoring and control, controlled environment agriculture, open field agriculture, livestock applications, food supply chain tracking. Smart farming using Internet of Things growths agriculture in different ways like large data collected by smart sensors, provides better control over the internal processes. Usage of Internet of Things in agriculture produces cost management, waste reduction, process automation and improved product quality and volumes. Accuracy of agriculture is depending on image-based recognition [1].

Agriculture is a pillar of our country. Farmers have good selection of crops for his or her farm. The crops cultivation for maximum profit and standard manufacture is usually scientific. This might be developed by the help of technical assist. The supervision that continually recurring crops needs supreme power especially for the disease management that may have a result on factors of production significantly to make an economic profit. This effect can be eased with the aid for agricultural development. Most of the primary symptoms are microscopic, so the identification of diseases restricted by

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Study and Review of Arrithmiya Detection and Classification Using Machine Learning

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Abstract— **Due to its simplicity and low cost, analyzing an electrocardiogram (ECG) is the most common technique for detecting cardiac arrhythmia. The massive amount of ECG data collected every day, in home and hospital, may preclude data review by human operators/technicians. Therefore, several methods are proposed for either fully automatic arrhythmia detection or event selection for further verification by human experts. In the last decades, several works were developed to produce automatic ECG-based heartbeat classification methods. In this work, we survey the current state-of-the-art methods of ECG-based automated abnormalities heartbeat classification. There are number of challenges in detection of arrhythmias in heart beat dataset. Although many researchers have suggested various approaches to resolve them, still there are requirements for invention and improvements.**

Keywords—data mining, arrhythmia, ECG

I. INTRODUCTION

At the top of the right chamber of the human heart, an electrical signal is generated from the Sino Atrial node which stimulates the heartbeat [1]. The heart may experience abnormal increase or decrease in its beat rate which is known as arrhythmia [2]. In order to detect this type of abnormality, an electrocardiogram (ECG) device that measures the variations in the electrical signals of heart is used. As reported by the American Heart Association (AHA)"Each year about 295,000 emergency medical services-treated outof-hospital cardiac arrests occur in the United States" [2]. Thus, having an automated system that is able to diagnose heart beats and offer an early detection of arrhythmia would greatly help in preventing cardiac arrests, thus saving people who might face such abnormalities. Also, it can help cardiologists in monitoring the heart beat rates and deciding on the specific types of arrhythmia.

An arrhythmia is abnormal heart beat, the primary and basic classification is two type bradycardia and tachycardia, when heart rate is less than 60 BPM its bracycardia and if heart rate is more than 100 BPM it is tachycardia. And both have different effect on the human being like bradycardia causes a drowsiness, fanting, sleepiness and rare chances of cardiac arrest, but Tachycardic affect the pumping capability of the heart and generate the symptoms chest pain, Problem in breathing and cause of heart attack. A heart beat can be represented in terms of QRS, T and P wave as shown in figure 1.For the arrhythmia detection beat morphology (Normal and abnormal pattern) of different waves of ECG signals will be considered. So perform wavelet decomposition operation, in this process down sampled the signal for reduction in detailed feature of ECG signals, fourth level decomposition is used and choose a pattern similar to the original pattern. Locate value of ECG signal from second order decomposition and get the R peaks and some more feature can be extracted based on location of R, T, S waves and their respective amplitude.

Figure 1: ECG Signal

The advancement of bio-signal analysis become an important investigative field for solutions to a specific problem. Since several decades, the study of ECG is amongst the most research interest in bio-signals. The ECG analysis became a common tool for the diagnosis of cardiac disorders of low-cost and a non-invasive in nature. The condition of heart can be reflected in the shape of ECG waveform and variability in heart rate. The proper analysis of ECG can provide the useful information regarding various cardiac diseases. Clinical observation of ECG signal is a time taking and very tedious process. The manual analysis may miss some vital information, hence computer-aided diagnosis is very helpful in classifying cardiac diseases. Various techniques have been reported in literature regarding heartbeat detection and classification of ECG signals. The time or frequency domain features from ECG waveforms are useful in beats detection of different classes. Due to large variation in

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Classification of Cardiac Arrhythmiyas Using ECG Signal Analysis and Machine Learning

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***Abstract*—Classification of electrocardiogram (ECG) signals plays an important role in clinical diagnosis of heart disease. This paper proposes the design of an efficient system for classification of the CU ventricular tachyarrhythmia, Arrythmia Disease, polysomnographic database and supraventricular arrhythmia. In this paper, two different feature extraction methods are proposed for classification of ECG beats: (i) image based features including statistical features of the ECG image and (ii) QRST wave detection and features of QRST waves. Extracted features are classified using SVM. The performance is evaluated for several ECG signals from recordings of the MIT-BIH arrhythmia database. In this work, the performances of four different supervised machine learning classifiers are compared using four classes of arrhythmia ECG beat recommended by AAMI (Association for the Advancement of Medical Instrumentation) standards. The highest performances of the proposed arrhythmia classification technique using SVM is 95.19% using 70% training data. . The experimental results demonstrate that the proposed classification technique show better performances compared to other existing techniques.**

Keywords*—arrhythmia classification, ECG signal, SVM, QRST wave detection

I. INTRODUCTION

According to World Health Organization (WHO) an estimated 17.3 million people died from heart disease in 2008 and this number of death will increase to reach 23.3 million by 2030. Hence heart diseases become very concerned disease. By adopting a new method for early detection of heart health, it becomes possible to reduce the number of death and prolong the length and quality of life.

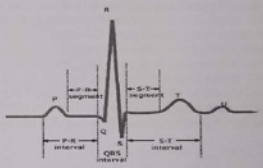

Figure 1: ECG signal

The normal Electrocardiogram (ECG) signal is as shown in figure 1. ECG reflects the electrical activity of heart caused by heart contraction and reflection and has been widely used for analysis of heart behavior. ECG signal composed of four standard components known as P wave, QRS complex, and T wave followed by small U wave which sometimes invisible. Any abnormality with respect to such component indicates a heart arrhythmia. RR interval is the duration between two successive normal ECG beat, measures the heart rate of the person.

Heart Rate = [60 / RR interval] beats per min.

Normal heart rate is 60-100 beats per min. The variation in heart rate from the normal rate indicates the abnormal behavior of heart which is symptom of heart arrhythmia.

Various approaches are proposed in earlier to perform automatic arrhythmia detection based on the characteristics of ECG signal. Since the automatic detection is a computer aided task, provision of most significant features of ECG is very important by which the accurate diagnosis is possible. The earlier approaches focused on various aspects like some focused on preprocessing, some on feature extraction and some on learning techniques. The aim of this paper is to develop computerized diagnosis method for detection and classification of heart arrhythmia by examining the ECG signal. The ECG signal analysis is very simple, reproducible and inexpensive method. The study concerns four types of arrhythmias databases from MIT-BIH data namely: Standard

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Modeling For Multicore System Simulator for Computer Architecture

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ABSTRACT

This research discusses the various issues regarding the accurate and fast and automated system architecture which gives specific information about the various parameters and there effects on the simulation of the structure for the efficient processing of the system modeling. As there is a great demand of the simulation of the system architecture this research gives the better idea for the simulation and various components involved and how the process is followed superior quality of design and development components regarding the efficient utilization of the multicore processor. This research also discusses the various components like basic structure for simulation and for the efficient operation of the system using the various components and parameters which are closely related to each other. The detail analysis of these parameters is also done which are so intensely attached to each other that they may affect each other.

Keywords - Multi-core x86 CPU simulator; Emulator; Full- System simulator; Heterogeneous Multi-core systems; Processor Modeling.

I. INTRODUCTION

Now a days there is a great demand of the high end, fast and versatile devices which involves the high end processor and which also leads to different kinds of applications such as hard real time and soft real time. Any processor system before being implemented practically needs much iteration of up-gradations through simulation. The hard real time processors are those in which the deadline for the task assigned has to be completed within the specific and accurate timing constraints. Hence there is a great requirement for the high end processor and the cost of such processor design is very high. As it involves the number of critical issues which includes the design, development and implementation of such high end processors.

Hence before the actually implementing the hardware in to the hard core processor the various parameters regarding the processor must be studied and analyzed for the proper operation of the system and the overall functionality of the system architecture must be understood for the accurate functionality. Thus there is a great demand of such design which will fulfill all the design requirements which are in continuous demand for the application like military applications.

Another important aspect in the design and development of such system architecture involves the proper memory management. As all the data or information on which the processor is going to

Smart Fuel Level Indicator System

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Abstract:- In the recent times, we constantly hear about petrol bunk frauds. In countries like India with a lot of vehicles, the consumption of fuel from fuel stations is in very large quantity. Most of the times, consumers are not satisfied with quantity of the fuel given at fuel stations ,because the consumers are provided with less quantity and are cheated. Most of the petrol bunks today have manipulated the pumps such that it displays the amount as entered by the provider but the quantity of fuel that is filled in the customer's fuel tank is much lesser than the displayed value i.e, the pumps are tampered for the benefit of the petrol bunks owner. This results in large profits for the petrol bunks owners but at the same time the customers are cheated. All the vehicles in India consist of analog fuel meters hence it does not show the exact amount of fuel currently in the vehicle and also it is not possible to check the quantity of fuel that is filled in the petrol bunk. So, in Today's world, if the fuel indicator in automobiles is also made digital it will help us to know the exact amount of fuel that is available in the fuel tank. The main objective of our project is to present a proper solution for indicating the exact availability of fuel in the tank digitally. Smart fuel level meter is a micro-controller board which will calibrate the exact amount of fuel flowing into the fuel tank with the help of an ultrasonic sensor. In this project, we mainly focus on creating a digital display that shows exact amount of fuel contained in the vehicles tank.

Various other features like the distance that can be travelled to the corresponding fuel in the fuel tank in kilometers, speed of the vehicle in kilometer per hour, mileage in kilometer per liter is added with this arrangement which will explain the clear performance of the vehicle to the corresponding fuel. This project mainly concentrates on the indication of fuel level in two-wheeler tanks.

I. INTRODUCTION

With the increase of population and usage of vehicle all over the world, fuel necessity has become a huge problem. Moreover in today's world fuel saving has become an important factor. In the digitized world, if the fuel indicator in the vehicles are also made digital it will help to identify the exact amount of fuel that is available in the fuel tank. The above fact is considered for our project and we have found a proper solution for indicating the exact availability of fuel in the fuel tank digitally. Here, we are indicating the amount of fuel in the fuel tank in liters. This value fuel in liters will be in numeric form i.e, in the form of digits (ex: 1.2, 1.3 and 1.4).

This project in the main concentrates about the indication of fuel level in two- wheeler tanks. Various other features like the distance that can be travelled by the vehicle to the corresponding fuel, is added with this arrangement which will help to explain the clear performance of the vehicle to the corresponding fuel in fuel tanks.Mainly this project helps to avoid a lot of problems like fuel bunks at fuel stations, fuel theft and also prevents us from getting into circumstances where we have to push our vehicles due to assumptions of the level of fuel in fuel tanks. Nowadays the fuel indicator system for the two wheeler are made digital but they do not display the exact amount of fuel in the tank i.e. it shows the amount of fuel in terms of bars and not in numbers or digits. So this problem is taken into consideration for our project work of developing the digital (numeric) fuel indicator system for two wheeler which shows exact amount of fuel in terms of Liters(L).

In this project we initially surveyed the existing fuel level indicator systems and fuel tanks of different bikes and scooters. During this survey we examined that the shape of the fuel tanks is different for different vehicles. But due to irregular shape of the tanks there were lot of complexities that rose up for the installation of an electronics kit and level sensors which are used for calibration of fuel amount in the tank. Hence we have taken all the problems into

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Monitoring Body Temperature and SpO2(oxygen level) Using IOT

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Abstract--**The Internet of Things (IoT) gradually evolving as the subsequent phase of the evolution of the Internet, it becomes crucial to recognize the various potential domains for application of IoT, and the research challenges that are associated with these applications. From smart cities, to health care, smart agriculture, logistics and retail, to even smart living and smart environments IoT is expected to infiltrate into virtually all aspects of daily life. Even though the current IoT enabling technologies have greatly improved in the recent years, there are still numerous problems that require attention. Since the IoT concept ensues from heterogeneous technologies, many research challenges are bound to arise. The fact that IoT is so expansive and affects practically all areas of our lives, makes it a significant research topic for studies in various related fields such as information technology and computer science. Thus, IoT is paving the way for new dimensions of research to be carried out. This paper describes the design of the effective remote patient monitoring system which measures oxygen level and body temperature of a patient i.e. Monitoring Body Temperature and SpO2(oxygen level) Using IoT.**

Keywords- **Internet of Things, Healthcare, Sensors.**

A. Introduction

Health is always a major concern in every growth the human race is advancing in terms of technology. Like recently corona virus attack that has devastated China's economy to some extent. It is an example how health care has become more important. In areas where the epidemic has spread, it is always a best idea to monitor these patients using remote health monitoring technology. So Internet of Things (IoT) based health monitoring system is the current solution for it. Remote Patient Care/Monitoring arrangement empowers routine clinical outpatient monitoring settings (e.g. at home), which increases access to human services offices at bring down expenses [4]. The original purpose of this project is the design and implementation of a smart patient health tracking system that uses Sensors to track patient health and uses internet to inform doctors and their loved ones in case of any issues.

Remote Patient Monitoring saves time of both patient and doctor, thus increasing efficiency and reliability of health services. Oxygen level and body temperature are the main signs that are routinely measured by physicians after the arrival of a patient. For a human adult of age 18 or older have a normal oxygen level is 95 and above then functioning of heart can be said to functional. If the oxygen level is lower than the normal heart rate, it is an indication of a condition known as bradycardia. Like Oxygen level, normal body temperature also vary and vary from person to person and changes throughout the day. The body temperature is lowest in the early morning and highest in the early evening. The normal range for body temperature is 97 to 100 degrees Fahrenheit or 36.1 to 37.8 degrees Celsius. Temperature can be measured by using different types of sensors. The sensor displays the data in the LCD as well as sends it to the receiving end for displaying at the remote place [5]. This paper describes the design of an effective remote patient monitoring system which measures oxygen level and body temperature of a patient and sends the data to a remote end where the data will be displayed and physician or doctor will be able to examine him/her. This device will be much needed during emergency period in pandemic like SARS or for saving time of both patients and doctors.

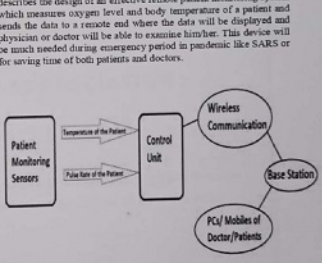

Fig. 1: Proposed System

B. Proposed Work

The core objective of this project is the design and implementation of a smart patient health tracking system. Fig.1 shows the overview of the proposed system. The sensors are embedded on the system to sense the temperature and heartbeat of the patient when the patient came in the range of system. Temperature can be measured by using different types of sensors like thermocouples, thermistors, resistance temperature detectors (RTD), and integrated circuit (IC) sensors. The SpO2(oxygen level) and heartbeats can be measured by using the SpO2(oxygen level) and heartbeat measuring sensors. These sensors are connected to a control unit i.e. IoT Module, which calculates the values of all the required sensors. These calculated values are then transmitted through a IoT cloud to the base station. From the base station the values are then accessed by the doctor at any other location [4]. Thus, based on the temperature and oxygen level and heart beat values the

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Review on Density based Automatic Traffic Light Control System

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ABSTRACT: *In this project, we are designing a density based automatic traffic light control system where the timing of signal is changed by sensing the traffic density at any roads. Traffic congestion is a major problem in most cities across a world. It is caused by delay in signal, improper timing of traffic controlling because of this reason it is time to shift more manual mode to an automated system with decision making capabilities. In present condition, traffic controlling system is fixed time based which may become inefficient if one road is operational than the others. Therefore optimizing traffic control, we have made a prototype model for an intelligent traffic control system using IR sensors & Arduino. Sometimes higher traffic density at one side of road require high green time as compared to allotted time. The infrared sensors which are placed on either sides of the road at particular distance will detect the presence of the vehicles and send the information to the microcontroller where it will decide how long a flank will be open or when to change over the signal lights. In next sections, we have expand the procedure of this system.*

Keywords- IR Sensor, Arduino Nano, Traffic light system, LED's

1. INTRODUCTION

In today's high speed life, we have to face many problems one of which is traffic congestion, Traffic congestion becomes a serious issue in our day to day activities. Traffic congestion will be also much more widely increasing. The idea of controlling traffic light efficiently in real time has attracted many researchers. Productivity of individual and society goes down as lots of time is wasted in the traffic signal. High capacity of vehicles, the insufficient infrastructure and the implausible distribution of the signaling system are main reasons for this chaotic traffic congestions.

As engine remain on in most cases this will increase in pollution level. Petrol and diesel consumed in large volume, without any outcome. Therefore, to reduce this problem to significant level new schemes need to be implemented by making dynamic traffic control system using sensors.

2. LITERATURE SURVEY

In 2012, Shruti K R and Vinoda K Proposed Priority based traffic controller using wireless sensor network' In this paper, the author implements adaptive traffic control system based on Wireless Sensor Network(WSN). In this system time manipulation used for controlling traffic light. This system control traffic over multiple intersections. The author optimizes the traffic using wireless sensor network this system reduce traffic jams problem cause by traffic light to extent. In this system, they monitor traffic density, they will keep the Road Side Unit(RSU) beyond the road and depends upon the count from the Road Side Unit(RSU). Road Side Unit compares traffic density on all roads and give maximum green time to the road on the priority basis, the road with next priority level will follow the first priority level[2]. In 2011, Road Traffic congestion monitoring and measurement using Active RFID and GSM technology' In this paper, Author implement an intelligent traffic congestion monitoring & measurement system to monitor and measure the road traffic congestions using probe vehicle and provide an easy platform to analyze the traffic movement and congestion pattern. It uses one active RFID tag, one wireless router and one wireless coordinator to be installed at road side, around 200mt apart, for calculating average trip to cross two roads. These system will use wireless devices to collect signals from active RFID tags attached to the probe vehicle. Travel time of probe vehicle traces when it passes roadside devices[3].

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A Survey of Crop Nutrients Deficiency Detection using Machine Learning

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Abstract —*Agriculture is the main source of Indian economy which includes cultivation of crops and produces the food [1]. While producing a crop, nutrients play a very important role in it. Nowadays, the yielding of crops is decreasing day by day. This is due to nutrient deficiency. Farmers face the problems of nutrient deficiency and appropriate fertilizers for the producing good crops. Earlier, it was impossible for the farmers to detect the deficiency of nutrients in crops. Due to deficiency of nutrients in plants, the plants get damaged and may die [1]. But in this 21st century, the world of technology, there are various techniques available to detect its deficiency and make good cultivation of crops. Various algorithms are also used to detect nutrient deficiency in different plant such as Kappa coefficient (0.96) in SIFT algorithm to detect deficiency in coffee plant [8]. To differentiate complex background, deep sparse extreme learning machines is used. Multiple methods are used to determine nutrient deficiency as it shows better performance for nutrient recognition [9]. In the era of digital agriculture, digital images and machine learning is used combine to solve the problems [5]. Nutrients play a very vital role in producing good crops. Plant deficiency affection is seen generally on the leaves [7]. Neural network makes it easy to detect nutrient deficiency by predicting accurately [6]. In this paper, we study about those various methods which can detect the deficiency of nutrients in crops using machine learning. These methods will help to improve the productivity and make better cultivation of crops. These methods will reduce the problems of labor and farmers and can live a better life than before. Machine learning includes image processing as well.*

Keywords- *machine learning, crops, detection, fertilizers, deficiency, nutrient, agriculture.*

I. INTRODUCTION

India has 12th position in GDP making in agriculture globally and 7.68% of land under cultivation [7].Infection of crop had a great impact on both humans and animals [1]. It reduces the cultivation and quality of crops. Disease identification and diagnosis is very important to test whether the crop better quality or not. Some has used image processing technique to identify plant diseases as it is hard to detect them with naked eyes [1]. Utilization of Inception-ResNet v2 is used to predict, train and recognize nutrient through capture images. For tomato plant, Calcium and Potassium is used for development [6]. In order to save the crop from disease, early stage detection is very much important. In today's world of developing, technologies play a very important role in each and every sector of innovation. Nitrogen is very important for the plants to grow as it has important function in photosynthesis process. Due to development in computer vision, crops are tested using image-based analysis. We can even separately determine nitrogen content in crops using images mostly depend on Agriculture [10]. Farmers are facing multiple problems in cultivation of crops. They are unable to understand the problem in crops [2]. They are using traditional methods to identify the problems taking more time and giving less result. Early detection is very much important for the crops to monitor the insects using chemical pesticides. The early detection and identification of disease is not possible for the farmers and may cause serious disease to the crops. In this case, farmers use chemical pesticides to kill the insects or disease to save their crops [4]. The deficiency is identified in laboratory which mostly goes wrong due to changing environment. Nutrients deficiency means very acid or alkaline conditions; dryness and water logging can all make it difficult for plants to take up soil nutrient which causes some symptoms to plants. The nutrients deficiencies may appear in their leaves, stem, flowers, fruits and many other parts. Machine learning made it possible to study the nutrient deficiency using any part of plants/crops [3]. It is very important to have thirteen nutrients for efficient growth of plants i.e. Nitrogen, Phosphorous, Potassium, Magnesium, Sulphur, Molybdenum, Zinc, Boron, Copper, Calcium, Iron, Chloride, Manganese. They acquire these nutrients from the soil. If there is deficiency of nutrients, this affects the growth and quality of the plants/crops. These nutrients are divided into two types as micro-nutrients and macro-nutrients. The micro-nutrients are the elements which are essential for plants growth only in very small quantities which include Molybdenum, Zinc, Boron, Chloride, Copper, Manganese and Iron and macro-nutrients include Nitrogen, Phosphorous, Potassium, Sulphur, Calcium, and Magnesium[2]. These nutrients will help the farmers to have good and healthy cultivation of crops. But if there is deficiency of these nutrients then it may lead to stunted growth, browning and death of the crops.

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A Survey on Applications of Machine Learning in Agriculture

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Abstract - *The population is increasing daily with fast speed and most of the people depend on agriculture for their livelihood. Although agriculture provides a huge contribution in the Indian Economy. In spite of significant advances in the service sector, agriculture remains the foremost supplier of employment and source of revenue in Asian countries. The process of modernization of agriculture reduces the laborious work and motivates the farmers for doing smart farming. Artificial Intelligence plays a vital role in the smart farming concept. Artificial Intelligence is a trending topic for the advancement of the agriculture field. Machine Learning is one of the subareas of Artificial Intelligence. Machine Learning would ensure the increase of crop quality and quantity by using supervised and unsupervised techniques. Some of the application areas of machine learning are given i.e. automated irrigation systems, agricultural drones for field analysis, crop monitoring systems, precision agriculture, animal identification and health monitoring, etc. This paper gives an overview of crop disease identification, weed detection, yield prediction, soil management.*

***Key Words*: Artificial Intelligence, Machine Learning, crop disease identification, weed detection, yield prediction, soil management.**

1. INTRODUCTION

India is the 7th largest country in the world and more than 50% population depends on agriculture and allied activities. As India has diversified region different varieties of crops are cultivated. So the agrarian economy plays a vital role in the Indian economy. Because of frequently changing climate farmers are facing many problems related to crop quality and quantity. Thus sufficient yield has not been produced. Due to the rapidly increasing of population, agricultural land is converting to urbanized and commercial area which reduces land availability for crop production. Now it's a necessity of society to cultivate qualitative and quantitative cop in the limited field area.

Nowadays the modernization of agriculture is on the priority list of the government. Modernization of agriculture is a process of transforming agriculture from traditional labor-based agriculture to technology-based agriculture [1]. This process makes a profit for farmers as well as the Indian economy. The Ministry of Human Resource Development has launched a program called Unnat Bharat Abhiyan which is inspired by the vision of transformational change in rural development processes. The mission of Unnat Bharat Abhiyan is to enable higher educational institutions to work with the people of rural India in identifying development challenges and evolving appropriate solutions for accelerating sustainable growth [2].

A new concept of Smart Farming is a hot topic worldwide. Smart farming is a farming management concept using modern technology to increase the quantity and quality of agricultural products [3]. In this concept, artificial intelligence, automation and robotics, sensing technologies, agricultural drones, IoT applications, positioning technologies are widely used. Artificial Intelligence is an area of computer science that accentuates the formation of intelligent machines that work and behave like humans. AI has many subfields such as Machine Learning, Neural Networks, Robotics, Expert System, Natural Language Processing, etc.

Machine Learning is an application of artificial intelligence that provides systems the ability to automatically learn and take the decision from experience without being explicitly programmed. Nowadays, Machine Learning is playing a vital role in the improvement of agriculture. ML techniques are categorized in supervised, unsupervised and reinforcement. The daily life farmer's problems from seed sowing to harvesting of crops can be resolved by using machine learning algorithms.

The rest of this paper is organized as follows. The various application areas of machine learning are presented in section 2. In this paper crop monitoring system is focused which gives an overview of crop disease identification, weed detection, yield prediction and soil management. The conclusion of this paper is provided in section 3.

2. APPLICATIONS OF MACHINE LEARNING

Machine Learning is the future key to precise farming. The various algorithms of machine learning are effectively helping in agricultural problems. The use of machine learning in agriculture a hot topic for researchers from all over the world. Here, some of the application areas of machine learning are given i.e. automated irrigation systems, agricultural drones for field analysis, crop monitoring systems, precision agriculture, animal identification and health monitoring, etc. The crop monitoring system includes crop disease identification, weed detection, yield prediction, soil management.

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ADAPTIVE COMPUTER STRATEGIES IN GAME PLAYING USING ARTIFICIAL INTELLIGENCE

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Abstract-

Computer games are an progressively more popular application for Artificial Intelligence (AI) research, and on the contrary AI is an increasingly accepted trade point for commercial games. while games are usually related by entertainment, there are many "serious" applications of gaming, together with military, corporate, and advertising applications. There are also supposed "humane" gaming applications for medical training, educational games, and games that reflect social awareness or believer for a cause. Game AI is the attempt of going away from scripted communications, though complex, into the arena of accurately interactive systems that are approachable, adaptive, and intelligent. Such systems discover about the player(s) during game play, adapt their personal behaviors away from the pre-programmed set provided by the game author, and interactively expand and provide a comfortable experience to the player(s). (AI) is the capability of a digital computer or computer-controlled robot to perform tasks generally connected with intelligent beings.

Keywords— games, artificial intelligence, A* algorithm, FPS and RTS types.

INTRODUCTION

The application of AI in game propose now days is appropriate more better by implementing the incredible difficulty of advanced AI engines which has been industrialize by the efforts and explore of programming crowds. There are several types of computer programs that use AI. Market simulators, logic systems, and economic planners are several of the different fields of computer software that rely closely on elements of artificial intelligence. These elements consist of situation calculus, tree searching, problem solving, and decision-making. But one type of software programming has been gradually borrowing more and more from the field of AI is video gaming. The most general forms of Game AI in present computers are those that decide on animations for Non Playing character's (NPCs) and allocate the NPCs to navigate through the virtual environment without failure. Video games are no longer just a distraction from work or a thirty minute escape from realism. They are appropriate an artistic form of appearance for the programmers and developers and a serious hobby and activity for the players. This research focuses on the improvement of reasoning and learning techniques in the context of current state-of-the- art computer games. These techniques can distribute non-AI experts to define behaviors for characters that can then be adapted to different situations and individual players, there by reducing the improvement effort essential to address all contingencies in a complex game. Specifically, we are concerned in adaptive games, Adaptive games can Advance the player experience, while an adaptive game can adjust to each individual player to improved fit his or her playing style and goals. Reduce the advance effort, while if a game is capable to adapt itself, the developers necessitate less effort trying to foresee all feasible situations. The expression is commonly applied to the project of just beginning systems capable with the intellectual processes characteristic of humans, such as the capability to reason, determine meaning, simplify, or discover from past experience. A computer game is an electronic game that involves human interaction with a user interface to produce visual feedback on a video device. In video games, artificial intelligence is used to create intelligent behaviours mainly in non-player characters (NPCs), often simulating human-like intelligence. At its most basic level, artificial intelligence consists of emulating the performance of other players or the entities they characterize. The real purpose of AI in games is that the performance is simulated.

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Usage of Block Chaining Technology in Financial Transactions its Security

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Abstract: *The Blockchain is a decentralized record used to safely trade computerized cash, perform arrangements and exchanges. Every individual from the system approaches the most recent duplicate of encoded record so they can approve another exchange. Blockchain record is an assortment of all Bitcoin exchanges executed before. Essentially, it's a conveyed database which keeps up a consistently developing carefully designed information structure which holds groups of individual exchanges. The finished squares include a direct and sequential request. Each square contains a timestamp and data interface which focuses on a past square. Bitcoin is a distributed authorization less system which permits each client to interface with the system and send new exchanges to check and make new squares. Satoshi Nakamoto portrayed the structure of Bitcoin advanced money in his examination paper presented on cryptography listserv in 2008. Nakamoto's recommendation has tackled the long pending issue of cryptographers and established the framework stone for advanced cash. The idea, attributes, need of Blockchain and how Bitcoin functions. It endeavors to feature the job of Blockchain in molding the eventual fate of banking, monetary organizations and appropriation of the Internet of Things (IoT).*

Keywords: Blockchain; Bitcoin; Cryptographers; Assortment; Timestamp.

I. INTRODUCTION

The expense of digital wrongdoing costs quadrupled from 2013 to 2015 anyway an enormous segment of cybercrime goes undetected. Gartner report says cost of digital wrongdoing is required to reach $2 trillion by 2019. IBM's CEO, Ginni Rometty said that cybercrime is the biggest danger to each organization on the planet at IBM Security Summit. Around two years back Standard Chartered lost around $200 million of every extortion at China's Qingdao port.[1],[2] Banking and budgetary establishments are utilizing Blockchain based innovation to diminish chance and forestall digital misrepresentation. For instance, NASDAQ has reported its arrangement to dispatch Blockchain based advanced record innovation which will assist with boosting their value the executives abilities. Standard Chartered is banding together with DBS Group to build up an electronic receipt record utilizing a Blockchain.

Blockchain can assume pivotal jobs in the Internet of Things (IoT) and improvement of savvy frameworks since we can follow the historical backdrop of individual gadgets by following a record of information traded. It can empower keen gadgets to act like a free operator which can self-sufficiently play out a few exchanges. [2]

II. INTRODUCTION ON BLOCKCHAIN

Blockchain is an exchange database which contains data for pretty much all the exchanges at any point executed previously and deals with Bitcoin convention. It makes a computerized record of exchanges and permits all the members on the system to alter the record in a made sure way which is shared over the circulated system of the PCs. For rolling out any improvements to the current square of information, all the hubs present in the system run calculations to assess, check and match the exchange data with Blockchain history. On the off chance that a larger part of the hubs concur for the exchange, at that point it is endorsed and another square gets added to the current chain. [3]

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A Survey of Machine Learning Techniques for Identifying and Classifying Malwares

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Abstract: ***A serious threat on the internet today is a malware. As the malware propagate they change their code. Nowdays attacker creates polymorphic and metamorphic malwares. The traditional signature based detection techniques are inefficient against modern day's malware threats. The various malware families have different behavior pattern reflecting their origin and purposes. These patterns can be used to detect and classify unknown malwares into their families using machine learning technique. This survey paper provides an overview of various techniques for detecting and classifying malwares into their respective families.***

Keywords: ***Malware, Machine learning, Classification.***

I. INTRODUCTION

A malware is a computer program with the purpose of causing harm to the operating system. Basic purpose of malware is to fulfill the harmful intent of an attacker by gathering personal information about a user or host system, thus hampering availability, integrity and privacy of user's data. There is a wide a range of malwares like Worm, Virus, Trojan horse, Rootkit, Backdoor, Botnet, Spyware, Adware etc.

Known software threats can be detected by modern antivirus software effectively but is inefficient in detecting novel malware. A study by AusCERT found that 80 percent of new malware was not detected by latest antivirus software. [1] Detection, mitigation and classification of malware is a major problem in internet today. The malwares are continuously growing in volume, variety and velocity.

A. LIMITATIONS OF TRADITIONAL ANTIVIRUS

Traditional signature based antivirus system is reactive in nature. In order to detect a malware in earlier days malware analyst used to manually generate a signature or a hash, and creates a database of a those signatures. During every new scan antivirus system scans the database and if there is a match detects the malware. But because of polymorphic nature of malwares; this signature based detection technique is not able to identify various security threats. In order to create a more reliable and robust system we need to develop an alternative to the traditional signature based detection system.

To overcome the drawback of signature based system, malware analysis techniques are being followed, which can be either static or dynamic. These malware analysis techniques help the analyst to understand risk associated with malicious code.

In static analysis malicious software's are analyzed without being executed. Before doing static analysis it is necessary to unpack and decrypt executables. The detection pattern used can be Byte Sequence, N Grams, Syntactic Library Call, Control Flow Graph, String Signature etc.

Secured Routing System for Low Energy Networks

Anup W. Burange and V. M. Deshmukh

Abstract The Internet of things (IoT) is the network of different devices like sensors, actuators, and other different objects which have the capability to communicate without the need for human involvement. IoT mainly includes the devices which has low power and lossy networks (LLNs). These devices have limited resources like memory, energy, processing power, and bandwidth. These features leads the system in challenging environment which may end up in unstable state if proper security measures are not applied. IETF designed a protocol for routing mechanism of these devices known as routing protocol for low power and lossy networks (RPL). RPL is vulnerable to number of routing attacks and does not support mobility of nodes. This paper includes the study of different kind of threats possible on RPL. The proposed method for attack detection by using trust-based intrusion detection system considers trust value of participating nodes.

Keywords Trust · 6LBR · Sink node

1 Introduction

Internet of things (IoT) ia a vast network of worldwide recognizable physical objects or devices which are linked mostly to the Internet and represent themselves in virtual or digital world. It has capability to be revolution in Internet technology. Because of dynamic nature of working background, Internet of things is challenged by significant security threats which extends to other connected systems of it. IoT is combination of different types of sensors nodes or devices with different kind of functionality

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Experimental Investigation of SiO2 Coating on the Performance of Solar Panel

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Abstract:
Sun is source of enormous and infinite source of renewable energy. This energy is continuously available at free of cost. Use of this clean energy for the purpose like Power generation, water desalination, drying is need of hour. Solar energy can be effectively used for the generation of electricity either by photovoltaic or concentrated solar power in last few decades. The main challenge with this is the heavy loss of heat during this conversion. Researchers have made efforts to reduce this loss so as to increase efficiency of solar panels.

In this paper, the effect of SiO2(Sol-gel method) coating on the performance of multicrystaline Solar panel has been examined. Multiple Solar Panels with different coatings at same orientation, inclination, location has been tested for analyzing improvement in performance. For the analysis of performance of Solar Panel, hourly readings of Voltage and Current have been taken with the help of Multimeter.Hourly trends in energy generation, efficiency has been analysed.

Keywords:*Solar panel, photovoltaic, Silicon, SiO_2, Nanoparticles.*

I. Introduction

In the recent years, effective and efficient harnessing of solar energy played a crucial role in providing environment-friendly energy for domestic, industrial, agricultural and other needs of mankind. Solar energy is more relevant for developing countries whose energy requirements are increasing rapidly as a result of large scale industrialization and growing population. Solar photovoltaic field is getting high priority in countries like USA, Italy, Japan, England, France, and India. There is a considerable interest, effort and funding in this field. Solar cells have been standard wellspring of intensity for space vehicles and satellites for most recent 40 years and this is as yet one of the significant utilizations of sun based cells. Their utilization of providing power for earthbound applications will be inescapable when the issue of monetary accessibility of sunlight based cells is explained. The difficulties of delivering solid and aggressively monetary electrical force for earthly applications prompted exceptional research exercises in practically all creating nations during recent decades. There are a few semiconductor materials which can be changed over into sun based cells yet just Silicon, Cadmium sulfide, gallium Arsenide have indicated empowering results.

Single crystal Silicon cells have high refractive index. Significant portion of a solar radiation is reflected from the surface of the photovoltaic converter cell and, as a result, this does not contribute to the carrier pair generation process. This results in efficiency reduction of these cells. Hence it becomes really important to search about antireflective coatings and the search for the materials for their production.The coatings antireflect the light of a visible spectrum are applied on the protective glasses or directly onto the front surface of the solar cells[1]. Different techniques have been used to deposit SiO2 films, including sputtering, sol-gel, chemical vapor

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Productivity Improvement through MRP in a Manufacturing Industry-A

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Abstract *- Material requirements planning (MRP) is a production planning, scheduling, and inventory control system used to manage manufacturing processes. Most MRP systems are software based, but it is possible to conduct MRP by hand as well. An MRP system is intended to simultaneously meet three objectives: Ensure raw materials are available for production and products are available for delivery to customers. Maintain the lowest possible material and product levels in store Plan manufacturing activities, delivery schedules and purchasing activities. Material requirements planning is very important in production process. MRP, Equator and S&OP is launched to address the issues faced and to improve the productivity. It aims at revamping the missing link between supply side (Company A) and the demand side(customers). It is to design and implement the business processes to support Closed Loop Planning which help resolve complaints about inflexibility arbitrary and capricious vendor. This creates competitive environment to become cheaper, faster, more reliable and more flexible.*

Key Words: Material requirements planning, planning, scheduling, inventory control, cheaper, faster, more reliable, flexible.

1. INTRODUCTION

Material requirements planning (MRP) is a system for calculating the materials and components needed to manufacture a product. It consists of three primary steps: taking inventory of the materials and components on hand, identifying which additional ones are needed and then scheduling their production or purchase. In the manufacturing industry, technological complexity is ever increasing. Products come out a few months ago would be outdated nowadays and be replaced by another newcomer. This process repeals itself indefinitely, but every time, the product life cycle shortens. With the advance of the knowledge. Technology is also easily and quickly replicated. What one achieves right now would be matched and even be surpassed later. Complacency should not appear even for a short while, in this industry. It is in this breath-holding background that I intend to explore how a typical manufacturer and supplier serves this industry &maintains its competence, or even outperforms other suppliers. Company A is a global manufacturing corporation, with head located in US. Which specializes in designing, producing and selling a Wide variety of electronic components for the mega electronic equipment producers. A Research corporation has done a survey which found that customer from Corporation A were extremely dissatisfied. In fact, they have suffered two allocation events which they have adopted A's products into their design but received limited cargo. Some even received nothing and were forced to redesign their products to adapt other vendors' parts. A major customer once complained: Corporation A is the most inflexible, arbitrary and capricious vendor among my supplier list. Other vendors become cheaper, faster, more reliable and more flexible.

1.1 RESULTS OF THE SURVEY

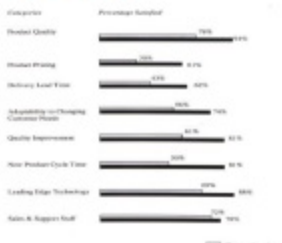

Figure 1.1 Survey Results on the performance index of Corporation A compared with the best performed company in the semiconductor industry.

Results of the survey is generalized in Figure, in comparison with the leader in this field.

1.2 SUPPLY CHAIN OPTIMIZATION

The few key components for supply chain which impact productivity. Material requirements planning (MRP) is a planning and control system for inventory, production, and scheduling. MRP converts the master schedule of production into a detailed schedule, so that you can purchase raw materials and components. Used mostly in the manufacturing and fabrication industries, this system is a push type of inventory control, meaning that organizations use forecasting to determine the customer demand for products. The manufacturing company will forecast the amount and type of products they will purchase, along with the quantity of materials to produce them. They then push the products to the consumers. This contrasts with a pull system, where the customer first places an order. The main disadvantage of a push system is its vulnerability when sales vary. In this scenario, the forecasts become inaccurate, which for manufacturing, cause either a shortage of inventory or an excess of inventory that requires storage.

EXPERIMENT ON SOLAR AIR HEATERS OFCOMPOSTING MACHINE

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ABSTRACT:-This article provides a method for determining Solar Air Heaters Efficiency based on comparing their thermal and hydrodynamic properties with the thermal and hydrodynamic features of solar flat-platform air heaters. Calculations made with air heater designs have proven that this method can createcompelling designs for solar air heaters. It provides an experiment with a solar collector also with anabsorber plate.By placing artificially created dryness upon this base and below an absorber surface of the thermal performance,The heat transfer coefficient between the absorber plate and the air can be significantly enhanced.The impact of roughness and operation parameters on heat transmission was investigated in an experimental study. In similar situations, the values of the smoother duct shall determine the enhancement in heat transmission as well as the rise in heat transfer.

Keywords:-Renewable Energy, Solar Energy, flow rate, heat transfer, thermal efficiency, forced convection

INTRODUCTION:-The development of a hybrid air heater is a combination of a direct and indirect heating system with multi passes. Solar Air Heater grows in a rectangular box. A separate, thin aluminium absorber platform is also added. It increases the temperature of the base plate. A round copper tube and a Mild Steel square tube are also used. Furthermore, the nichrome heating coil is used. It is necessary to boost the maximum temperature. This should be the additional heating coil for the winter and rainy seasons. The "solar air heater" is built of aluminium sheets of high quality. The normal strength of the aluminium tensile varies between 40 MPa and 700 MPa.Hard work and alloys can boost aluminium mechanical strength."Copper, magnesium, silicon, manganese and zinc" are utilised as alloying elements. "Aluminum" doesn't break at low temperatures and keeps its flexibility."Aluminum" represents approximately one-third of the weight of steel. Thus parts can be thicker and stronger since vehicles and other uses continue to lower weight. If it is not stronger than specific steel, the pound for aluminum can be forged as strong, depending on alloy and processing procedures. There is 0,5 (cal/sec)/(cm2 C/cm) and 205 (W/mK) thermal conductivity.Aluminium does not keep things cold, but it works as an impediment to oxygen and steam and transfers heat to the frozen food when it is exposed to air. Aluminium is considered a good conductor and insulator since it returns to the heat radiation source.

a)First Modification in Solar Heater:-This Solar Collector has included a copper tube with a small diameter and a square pipe made of mild steel. It can be used as a directed heating system as well as a multi-pass heating system. The temperature of the base plate rises as a result of this. As a result, the temperature of the surrounding air is automatically raised. It will contribute to increasing the efficiency of solar collector

Design and Fabrication of Small Size Parabolic Reflector

Harshal Patil and Nishikant Kale

Abstract This study presents the design and development aspects of 3.2 m^2 small size parabolic reflector, used in domestic solar cooker for single family having four members. The study focused on design, proper material selection, and fabrication of reflector. The proposed reflector is based on Scheffler reflector. It was found that glass mirror has highest reflectivity and hence, is the best suitable material for reflector. Material for supporting frame is taken from scraps which reduces the cost of fabrication. Also, fabrication is simple and model is easy to transport from one place to another. The proposed model of the reflector is suitable for rural area applications and also doesn't require skilled labor to fabricate.

Keywords Parabolic reflector · Glass mirror · Aluminum

1 Introduction

In the current worldwide scenario, the energy demand is met by burning fossils fuel, which is limited [1]. To reduce dependency on conventional fuel, many researchers are making effort to use other sources energy—which is present in abundance like sun, wind, water, etc. These nonconventional sources of energy have the capacity to solve world energy needs. Among the various nonconventional energy sources, solar energy contributes a major portion [2].

Even though the use of solar energy in daily life has been known since 1455 BC [3], still this technology is not popular among society. The total amount of energy received by the earth from the sun, in an hour is more than the total world energy demand in one year [4].

Among the three necessary needs, one is food; this can be achieved with the help of solar energy. Human beings have a habit of eating cooked food. There are various fossil fuels like LPG, Electricity, Wood, Coal, etc., which are used for the cooking process across the world. There are various ways through which heat from the sun

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Comparative Study of Solar Cookers

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Abstract: Now days the use of solar energy becomes very crucial because of its ample availability throughout the year free of cost, and on the contrary conventional fuels are becoming precious. So it became imperative to use this energy for maximum possible occurrences. One of the challenging areas of the use of solar energy is the solar cooking. This paper presents a comparative study of various types of solar cookers commercially available. The need of heat storage systems for solar cookers, their feasibility, materials and their properties are also discussed.
Keywords:- Solar energy, solar cookers, heat storage system, renewable energy systems.

I. INTRODUCTION

Renewable energy is always a hot talk. As the energy demand is increasing day by day with increasing population, the need of renewable energy is becoming the very essential in every field. There are various sources for the renewable energy like wind energy, geothermal energy, solar energy, etc. Among all the solar energy is very popular and easily available source of renewable energy. This energy is used for various applications like generation of electric energy, home heating, drying and cooking, etc. To run these appliances one needs to extract or convert solar energy into some useful form. This is done by using either PV cells or solar collectors, which depends on the various parameters like need, economy or durability. One of the well-known uses of solar energy is cooking of food. The solar cookers are used for cooking. These solar cookers are being used since 17^{th} century. Till now, lot of solar cookers have been developed and used. But, still it needs a lot of research before selecting any one type for its use at specific region. It depends on geographical area, heat requirement, and type of food to be cooked. The solar cookers are used for community cooking also. The adaptability of solar cookers can protect environmental pollution over the use of conventional wood cooking. At the same time, it can help to increase national economy as it will reduce the use of LPG. Hence the encouragement for use of solar cooker is very essential. This can be done only when solar cookers will show better performance than conventional cooking systems. Hence the selection and designing of solar cooker as per specific requirement becomes very crucial.

II. TYPES OF SOLAR COOKER

Solar cookers are mainly classified according to its characteristics.

i. Depending upon heat supplied
a. Direct solar cooker
b. Indirect solar cookers
ii. Depending upon heat storage
a. Solar Cookers with storage
b. Solar Cookers without heat storage
iii. Depending on application
a. House hold (Small Scale) Solar cookers
b. Community Solar Cookers

2.1. Direct Solar Cookers

Direct types are those which use the sun radiations directly to cook the food. They are

i. Box type Solar Cooker
ii. Panel Cooker
iii. Parabolic Cooker.

All these cookers of each type have been proposed by researchers. And also has been tested to investigate the performance parameters for each type. These direct cookers have advantages that these are simple in design and maintenance. They are economical and easy to operate also. Mostly these are used for the house hold purpose. But its limitation is that these can be used only in day time. Its productivity and efficiency decreases with clouds. Also these cannot be used in night.

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Enhancement of Heat Shifting Rate of vehicle Radiator by Using Ethylene Glycol Water Based ZrO_2 & Al_2O_3 Nanofluid

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Abstract:
Upgrade of warmth move coefficient is a significant research regions in different field of building. Warmth move coefficient can be increments by utilizing different nanofluids which will additionally improve the presentation of warmth replacing similar to Radiator. In this paper increasingly centered around the warmth move upgrade of vehicle radiator via utilizing Nano liquid. Numerous scientists have done a great deal of research chip away at nano liquid innovation and its applications in the warmth move gadgets. This paper audits the upgrades of warmth move coefficient of coolents with EGlycol Water dependent ZrO2 Nano fluid & its correlation with Al2O3 Nano fluid. It is the new age liquid, which improves characteristics i.e, thickness, affectionate conductivity, consistency, open warmth of fundamental liquid in which nano particles included. The Reynolds number, Prandtl number with Nusselt number were innate elements of thermo material characteristics of nano fluids and these statistics are firmly impact the convective warmth move coefficient which will additionally choose the pace of warmth move. The thermophysical characteristics may change by temperature with volumetric convergence of nano fluids, for example, Density, explicit warmth, warm execution and consistency. Impacing prandlt number with Reynolds Number, temperature move coefficient of various molecule volumetric fixations arrangements are talked about in this paper.

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***Keywords**: Nano fluid, Reynolds number, Prandtl number, Nusselt number, thermal conductivity thickness, convective heat transport, heat exchanger, warmer.*

I. INTRODUCTION

Ordinary coolants are used to disperse temperature in larger element of the scheming applications. Run of the grind coolants remember matter for every one of the three states to be specific strong, fluid and gas dependent on the prerequisites of utilization and conceivable method of warmth move. Be that as it may, with the most recent mechanical headways, rising group of fresh coolants in particular (chilling material with spread small-particles) determine its uses in an assortment of building application are required to supplant ordinary coolants sooner rather than later. A run of the mill

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IMPORTANCE OF ROBOTIC TECHNOLOGY IN DIFFERENT FIELDS

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ABSTRACT

Robotics is a science and study of robots & an interdisciplinary field that integrates engineering science & engineering. Robotics may be a fascinating new field of study, & can efficiently growing one, as robots, are being employed more & more in various fields, including industry, research laboratories, and even in the house. Robots are most useful in places and situations where it's dangerous & risky for the human to figure, like nuclear power plants, diffusing bombs or working in mines. Besides, it is regularly less expensive and simpler to utilize robots as opposed to humans, especially for a certain position. This paper exhaustively confers about the classification of the robot, principle parts of the robots, and the application of robotic technology in the present world to succeed in the stage where the industries will have less human interference. Also, importance is given to understanding the essential design and methodology of the robot.

Keywords:- Robots, Industrial Robots, Medical, Robot Radioactive Environment.

I. INTRODUCTION

Although robotics as science was only developed in the twentieth century, the history of robots and human-invented automation has a considerably longer history. Indeed, the ancient Greek engineer Hero of Alexandria wrote two works, Pneumatica and Automata, which attest to the existence of hundreds of various types of "wonder" devices capable of automatic movement. Of course, the evolution of robots in recent years has been fascinating. Then what was the origin of the term "robot"? In his 1941, fiction story "Liar!" by science fiction novelist Isaac Asimov unknowingly came up with the term robotics. Science fiction authors have been fascinated by man's potential to create self-motivating machines and lifeforms. A robot is essentially a reprogrammable mechanism capable of movement in the execution of a task. Robots have unique code that distinguishes them from other machines and machine tools, such as CNC. Due to their sturdy resistance capabilities and precision function, robots have found applications in a wide range of industries. Simple automatons were created by the ancient Greeks and Romans for use as tools, toys, and in religious ceremonies. Predating modern industrial robots, the Greek God Hephaestus was said to have developed automatons to serve him in a workshop. Regrettably, none of the early automatons survive. Automatons were common in the Middle Ages in both Europe and the Middle East as elements of clocks and religious events. Al-Jazari (1136-1206), an Arab polymath, left manuscripts detailing and demonstrating his mechanical gadgets, which included a huge elephant clock that moved and sounded at the hour, a musical robot band, and a waitress automaton that served drinks. Many additional automata depicting moving animals and humanoid figures that ran on simple cam systems were built, but by the 18th century, automata had become well understood and technology had improved to the point where much more intricate pieces could be built. The first successful biomechanical automaton, a human figure playing the flute, is credited to French engineer Jacques de Vaucanson. With the arrival of the Roomba robotic cleaner in 2003, robots started working in households. By 2009, autonomous industrial vehicles were well on their way, and robotic arms were becoming mobile in the industrial area by the turn of the decade. Collaborative robots, or COBOTS, were established in 2013, and they are intended to operate with humans. AMRs, or Autonomous Mobile Robots, were working in warehouses by the following year. Omron Electronics purchased Adept Technologies in 2015, a firm with origins in Unimation, the first robot manufacturer. Throughout the rest of the decade, similar large purchases would occur. Robots have found a home in a variety of fields during the previous half-century, involving toys and entertainment, military weaponry, search and rescue aids, and a variety of other roles. Essentially, as programming and technology advance, robots will be able to perform many tasks that were previously too dangerous, monotonous, or difficult for people to complete.

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RESEARCH ON MOTION PLANNING METHOD OF MOBILE ROBOTS

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ABSTRACT

Robot motion planning is one of the core technologies of mobile robot navigation. According to the inconsistency between the insights and control precision of versatile robot in expansion to the inadequacies of inadequately interaction between behaviors in conventional movement arranging strategies, a Layer movement arranging strategy is proposed. Agreeing to the significance of the control object, the behavior is within the control quantity. At last, with the robot's movement arranging in an unknown energetic environment as the research foundation, a hierarchical movement arranging framework structure is built. Recreation explore the control structure is organized hierarchically, the yield of the upper layer behavior is used as the reference sum of the lower layer behavior and the control data streams unidirectional between the layers, and the least layer yield framework employments demonstrate the effectiveness of this strategy.

Keywords: Motion Planning, Mobile Robot, Dynamic Obstacles.

I. INTRODUCTION

Movement arranging may be a key innovation within the investigate of modular and reconfigurable robots One of the strategies, whether the arranging is sensible or not, will directly influence the robot's Sports performance. Behavior-based robotics was born within the 1940s and could be a modern level of advancement of bionics. It simulates the interaction between living beings and the environment: the activity grouping between the target, the environment and the robot is generated, and after that various activities are integrated according to the distinctive assignments, and the assignment is completed through the execution of the behavior. Commonly utilized behavior combination structures incorporate the control structure proposed by Brooks and the receptive structure proposed by RC Arikin: the control structure embraces hierarchical concealment control as a choice, and its structure is simple, and there's as it were one behavior yield per choice cycle; receptive structure. The behavior yield embraces weighted superposition and combination, and can yield a assortment of behaviors at the same time, but the superposition strategy has the imperfection that the control data cancels each other out, and it is prone to nearby extreme values. People utilize distinctive behaviors to bargain with objects of distinctive natures within the process of development, and the behaviors are processed in order according to the relationship, and ensuing behaviors are processed with reference to the results of completed behaviors. This paper simulates the human movement handle and designs a layered fusion strategy of behavior.

II. CONVENTIONAL MOTION PLANNING

The inclusive structure based on behavior decomposition was first proposed by Brooks.

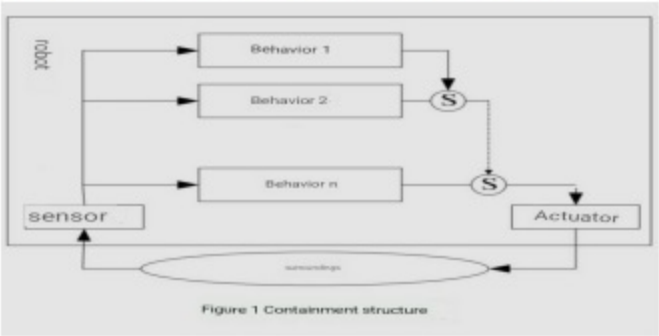

Figure 1 Containment structure

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Implementation of in Pipe Inspection Robot

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ABSTRACT: The Aim of the current study is to develop the inpipe inspection robot to eliminate Man intercession from labors intensive and perishable work surroundings; manytimes they are also used to explore inaccessible work areas which are usually not possible to handle by humans like amendment and keep up inside the pipeline. The assessment of pipe carry harmful, Perishable chemicals, fluids and most of the occasion has broom internal diameter or bends which become unapprochable to mankind. The Intricate intrinsic geometry and danger content restriction of pipes Impertration robots for investigation in order to check corrosion level and blockages of pipe. The given model is a wall press type in pipe inspection robots. The robot has to large Movementabillity in horizontal pipes in back & front motion, it found blockages by using sensors and it clears the route through milling which we can oversight in fast time with camera while the inspection is done.

KEYWORDS:Inpipe robot, Infrared sensor,wifi module, camera.

I. INTRODUCTION

The introduction of inpipe inspection robot we have to know history of various classifications of robot and pipeline ,and 2nd the Aim of our project.
Background.
Robotics:Robotics is one of the easiest & fast growing engineering fields now a days.Robots are constructed & designed to decrease the human factor from workers intensive or perishable work and also to act in inaccessible surrounding.

A. Mechanical Classifications in robot.

A pipeline exploration robot can be details classified into 2 types they are in-pipe and outpipe. We can clearly perceive that the out-pipe robots are less flexible than the inpipe robots. Also for the conditions which are to be considered in the problems or challenges noted above, an out-pipe robot would be an inappropriate choice, as the prime concentration of robot agent is to deal with underground or inwall conditions. So, our robot agent can be classified as an inpipe robot.

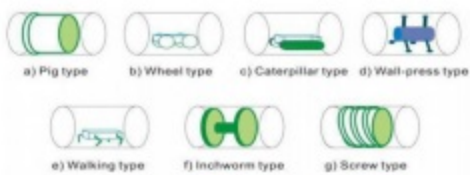

Figure 1 - Mechanical classification of robot

Pipe line robots can further be classified into various categories
A. Autonomous controlled robots: It is used in mainly heavy industrial purpose.
B. Remote controlled robots: It is mostly used in that surroundings where human being strongly restricted.
C. Manually controlled robots: It is generally used for where the goods carrying from one place to another & goods handling purposes.

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An Automated Visual Inspection System

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ABSTRACT- An automated visual inspection system is not the panacea that it is made out to be. There are many pitfalls for the unwary company wishing to implement such an. inspection system. The major advantages and disadvantages are discussed in this paper. This will increase the probability that anyone installing a visual inspection station will obtain a successful system that meets their needs.

KEYWORDS: Inspection system, Framework, Product Flow.

I. INTRODUCTION

All actual items can be effortlessly distinguished through the picture signature which they present. The picture is, nonetheless, just a portrayal of a predetermined number of the actual attributes of the article under perception and does exclude any of the non-visual qualities, like the mass, sound, or vibration, which might be available. A three-dimensional shading picture contains a significant degree of geological, chromatic, and textural data about the article, whilethe straightforward parallel picture contains impressively less. The principal issue then, at that point is to settle on the most straightforward picture which will give the ideal data.

The drive towards higher usefulness in the assembling business in South Africa and somewhere else has featured the requirement for an improvement in item assessment. Quite possibly the main components are the examination of electronic congregations. Present investigation techniques depend widely on the utilization of spring-stacked tests fitted into committed test units, and on human vision.

A programmed visual review framework can help the human reviewer yet can't supplant or copy a considerable lot of the special capacities which the person has. In this paper, the chief advantages and inadequacies of visual investigation frameworks in the industry are analyzed with explicit reference to the assessment of printed circuit sheets.

II. THE HUMAN INSPECTOR

The human investigator can't keep up -a significant degree of blunder catching for extensive stretches of time. Inside 15 minutes of the beginning of an investigation shift, the blunder catching capability of the auditor can be decreased radically. The quantity of mistakes caused will to be affected straight by the intricacy of the assignment and the quantity of segments on the printed circuit load up, the hour of day, and the specific day of the week. Experience acquired in the USA shows that an individual associated with visual examination can be relied upon to discover roughly 70 % of the complete mistakes on an intricate board.

Significant benefits of the human overseer:
a) Is just marginally influenced by the lighting of the space.
b) Has awesome deductive forces.
c) Isn't influenced by various hued parts.
d) Isn't influenced by the bewilderment of the board or parts on the board.
e) Has awesome character acknowledgment.

Significant inconveniences of the human overseer:
a) Is influenced by weakness, the season of the day, any day of the week.

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Effective Sensor in Internal Inspection Pipe Robot

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ABSTRACT: This report gives the initiation about various sensors is used in internal pipe inspection robots. The sensor is a device that finds out the modification in physical and electrical or different quantity and thereby build output and whose motive to detect the event. It collects information about the environment and the data collected with the help of this multiple sensor. The sensor is nothing but a transducer, and we generally use the sensor and it detects the event or change, in its environment and send the information to the electronic device. The speedy location of these abstractions in a small size enlightening way is the objective follow in this work.

KEYWORDS: Infrared sensor; Position measurement; acoustic applications ;

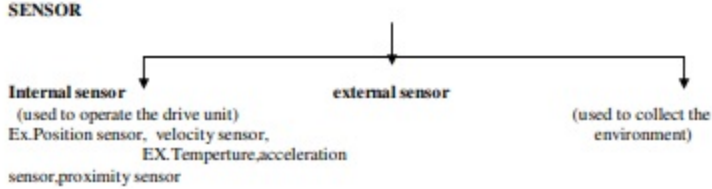
I. INTRODUCTION

The introduction Let us see like how to design and develop the senses, how to use the sensors. What are the different types of sensors used in pipe inspection robot? And how can I collect information with the help of sensors? Now, we human being, we use different type of sensors. Like, we have got the Eyes Ears, Nose skin. In fact, we use multiple sensors. Collect information of the environment and the data collected with the help of this multiple sensor. Actually, there will be some processing in our brain and with the help of this particular processing, we can collect information of this particular, the environment. Similarly, if you want to make robot intelligent, we should put a few senses and these sensors will help the robot to collect information. Now, here, let me Define the sensor is nothing but a transducer, and we generally use sensor. To take some measurement of physical parameter or physical variable and here, this sensor if you want to use as a measuring device. So definitely, there must be some calibration. And by calibration actually mean, it is actually the comparison with some known data. Now, through comparison with the known data like will be able to calibrate a particular, the measuring device or a particular, the sensor.

ROBOT SENSOR

- Robotic sensor are used to estimate a robot condition and environment .tese signal are passed to a controller to enable appropriate behavior.
- Robot sensor perform several function like identificationof object,guiding the robot without obstraction,identification of path,objectavoidanceand so on.

SENSOR



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Recent Developments in High Productivity Pipeline Welding

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ABSTRACT Installation of new pipelines is predicted to grow at a rapid rate over the next twenty years, due in part to the increase use worldwide of combined cycle power generation plant using natural gas a fuel. The need to construct large diameter pipelines over long distances has led to an increased demand to improve the productivity of pipeline girth welding.

Many novel techniques have been tried in the past to achieve productivity gains, including laser welding, flash butt welding, homopolar welding, and radial friction welding. In spite of the failure to gain wide acceptance, there is still current development aimed at achieving their eventual implementation.

Single wire mechanised gas metal arc welding (GMAW) remains the dominant pipe girth welding technique, and has been optimised in the past to produce the maximum productivity possible with this process. Continued development of GMAW with dual torch, tandem GMAW welding and novel techniques for GMAW roots is leading to further significant gains in arc welding productivity.

This paper describes a new development, the CAPS project, (Cranfield Automated Pipe- welding System), where tandem GMAW in a narrow groove has been applied to pipeline girth welding with two tandem torches in a single welding head. The CAPS system offers welding productivity three to four times higher than that possible with the conventional single wire GMAW technique, while still producing a weld which is very similar to that generated by single wire welding. The development of the system is described, as well as recent successful trials under field conditions.

The development of high power lasers has spurred a current high level of interest in the possibility of application to pipeline welding, and current research is described in which the feasibility of pipeline laser welding has been established.

Keyword: Welding, GMAW, pipeline, productivity

KEYWORDS: Text detection, Inpainting, Morphological operations, Connected component labelling.

I. INTRODUCTION

There is a strong trend for increases in natural gas consumption worldwide, which implies continued growth of gas pipeline installation. World gas use is projected to almost double over 24 years, from 90 trillion cubic feet in 2000 to 176 trillion cubic feet in 2025 . High growth over this period is projected for most areas of the world:

The growth is driven both by increasing industrialisation, and also by the increased use of natural gas as a primarily fuel in high efficiency generation of electricity from combined cycle gas turbine plant.

Many gas reserves are far from demand centres, which will result in growth of transportation of gas by LNG (liquid natural gas) carriers, but will also require sustained investment in long distance pipelines.

WORLDWIDE, IT IS REPORTED THAT 20,000 KM OF PIPELINES WERE COMPLETED IN 2003 AT A COST OF US$15 BILLION, 60% OF WHICH WEREnatural gas pipelines. Pipeline projects planned to complete in 2004and beyond totalled 41,000 km.

The materials and labour required for pipeline installation comprise the majority of costs, with 29% of the cost allocated to materials and 49% to labour for land pipelines.

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5S Method and its Implementation in Company

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Abstract - *Quality of both product and system in the organization are being felt to be the need of the hour. In organized workplaces, work performed safely and efficiently. 5S is a lean manufacturing technique for cleaning, sorting, organizing the workplace. It improved the productivity by decreasing the waste in manufacturing. 5s method target on fixate everything where it is concerned. This method help to work effortlessly and brief time taken to accomplished the work. In simple terms '5s' is Japanese technique consisting of five words namely Seiri (sorting), Seiton (set in order), Seiso (shine), Seiketsu (standardize) and Shitsuke (sustain).*

In a progressing market environment, 5s method hit the good results for required improvement. All the companies used this method to raise the performance.

This paper carried out to understand the results of 5s method implementation in industry. Implementation of 5s method in companies reduce all types of wastes at product manufacturing to reduce product cost.

Key Words: Lean manufacturing, 5s method, productivity.

1. Introduction to Lean Manufacturing

Lean manufacturing is a methodology that target on reducing waste while simultaneously maximizing productivity in manufacturing process.

5S lead as part of the Toyota Production System; it aims to raise the value of products. Product improved by finding and eliminating waste from production processes. Many tools such as 5S, kaizen, kanban and poka-yoke etc. are involved in lean manufacturing. 5s is the silent informer of the organization's attitude towards quality. Hence 5s has gained paramount importance.

2. What is 5s method?

5s is an integrated Japanese concept of "Work Place Management". Through which it maintains work place quality that makes best products.

Seiri, Seiton, Seiso, Seiketsu, Shitsuke are the five steps in Japanese language of work place management. The pioneer of Five-S concept is Mr. Takashi Osada.

Five phases include in 5s are as follow:

SEIRI – Sorting

SEISO – Sweeping

SEITON – Systemizing

SEIKETSU – Standardization

SHITSUKE – Self Discipline

Five-S is a set of techniques providing a standard approach to housekeeping within Lean Manufacturing. It originate, as did most of the element of JIT, within Toyota. A cornerstone of Five-S is that untidy, cluttered work areas are not productive. The physical implication of junk and dirt compromising quality, we all are happier in a clean environment and hence more inclined to work hard and with care and attention.

The element of Five-S are all Japanese words beginning with letter 'S'. Since adoption of JIT or Lean Manufacturing, various anglicized versions have been adopted by different writers and educators. These are listed against individual element and it can be seen that none are entirely satisfactory. The individual items within Five-S are known as the "pillars".

2.1 Seiri (Sorting)

SEIRI is the identification of the successful physical organization of the workplace. It has been variously anglicized as Sort, Systematization or simplifies those wishing to retain the S as the initial letter of each element. We identify things which are being held in the workplace when they shouldn't, or are being held in the wrong place.

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Building and Implementation of Cyber Security Strategies under Linux Environment using Cybersecurity Kill Chain

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ABSTRACT
A cyber strategy is view towards various aspects of security needed in cyber space. It itself describes protection required to address data , network , technical system and persons who work in this area. This article explains the basic building of cyber strategy and implementation techniques using attack and defense team . The research explain role of Linux and cybersecurity kill chain, to elaborate cyber strategies and implementation of all these techniques. The whole work is redirected towards understanding threats and risks , while building internal and external testing cyber strategies. Cybersecurity kill chain is a security model that organises both tracking and prevention of intrusion at various phases. The article ended up with implementation techniques which are sensible and more effective towards making hardening of security to cyber space.

Keywords
Cyber strategy, Linux, Cyber kill chain

1. INTRODUCTION
Cybersecurity has many finger view of meanings , which can be clearly and practically categories as protection to individuals , small business owners ,firms conducting online business , for shared service providers and for the government. Somewhat cybersecurity treated as moving target constantly **[1].** Cyber strategy is way to create an practical approach to build a plan to provide a security circle around cyber assets like digital data , networks , technical system and IT persons.

2. NEED OF CYBER STRATEGIES
Organisation are dealing with cyber threats generated by professionals attackers and many of them run their own states , terrorists and cybercriminal group. Many time it is observed that cyber attackers have more expertise in cyber security than average IT employees . So that they can easily bypass major tool setup by IT organisation. Result out , today organisation need leakproof strategy to update their cyber defense system. Following fig.(1) shows occurrence of malware infection have been grown up from last 10 years, which express need of cyber strategy in clear ways **[2].**

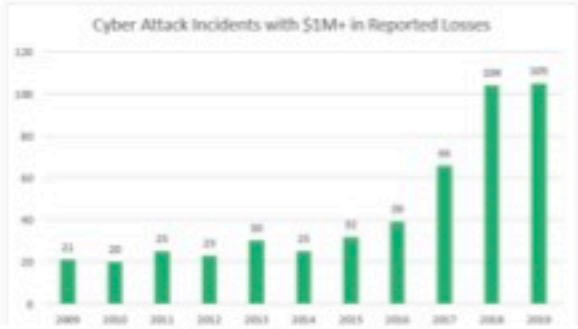

Figure 1 (Cyber Attack Statistics)

Describe below are strong reasons for implementation of cyber strategies.

A. Change in predetermination-
Predefine assumption sometime could be misleading tailored only towards objectives as compliance.

B. Organisations Standard –
Cyber strategies should be centralized for control and decision making purpose , which leads to level up standard of organisation.

C. Security tactics in brief –
High standard tactics are responsible for security of the organisations . This reflects on incidence response , threat recovery and business planning . Some times responses to attack may help stakeholder of organisation.

D. Security commitment to organisation for long period –
Cyber strategies provides security system to organisation using resources and efforts. It is good sign for investor and stakeholder of organisation.

Figure 2 (Need a cybersecurity strategy)

"Network Security Techniques against vulnerabilities and it's countermeasures inLinux environment"

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Abstract: -

Nowadays Internet has become a battlefield, where more important data transaction is taking placed. On another side bad guys try to damage, exploit or tampered, steal user data. This paper describes importance of network security techniques like discovery scanning, network port scanning, fingerprinting, DOS attack prevention and web application scanning, which are used against above mentioned vulnerabilities. The research paper also deals with various countermeasures against network threats, that can help to protect user data or confidential information from various network attacks. The motivation of this research article is to prevent unauthorized access to dedicated dataservers rather than black hat hacking. For executing all commands and scripts I preferably used linux as it offers all kind of facilities like ftp, www and mail. Particularly Kali linux, this research paper also includes concept of vulnerability scanning (vscan) and penetration testing (pentest), so finally paper will conclude on effective countermeasure to takeover on vulnerability in network security.

Keywords- Kali Linux,pentest,DOS, port scanning, fingerprinting.

I. Introduction: -

Every individual, Public, Private businesses in the world has something to worry about in cyber space such as privacy, data lost, malware, cyber terrorism and identity theft. In the simplest form, network security testing is a process to determine that any information assets or system is protected and its functionality is maintained as intended.

Misconception of vulnerability scanning, penetration testing and red team exercise

a. vulnerability scanning (Vscan) - It is a process of identifying vulnerabilities or security loopholes in a system or network. One of the misconceptions about vscan is that it will let you know all of the known vulnerability; well it is not true. Limitation with vscan are only potential vulnerability and its purely depends on the types of scanner that one utilizes.
b. Penetration testing (Pen test)- It is the process of safely exploiting vulnerabilities without much impact to the existing network or businesses. There is lower number of false positives since the testers will try and simulate the exploit. One of the misconceptions about the pentest is that it provides the full attacker view of the network and you are safe once you have done a penetration testing.
c. Red team exercise (RTE) -