Retrofitting of Damaged Satapewadi Bridge Affected Due to Flood at Krishna River: A Case Study

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Abstract - *A Bridge is a structure providing passage over an obstacle without closing the way beneath. The required passage may be for a road, a railway, pedestrians, a canal or a pipeline. The obstacle to be crossed may be a river, a road, railway or a valley. It is one of the oldest instruments of our civilization. In pre historic times the first bridges were made by spanning the small streams with the help of fallen trees or logs of wood. In ancient India the period of Ramayana construction of bridges was well known. Even today the portion of sea where the bridge was built is popularly known as 'SetuSamudra'. As per Ramayana by C. Rajgopalachari, "Nala, the son of Viswakarma was the first bridge engineer who successfully constructed the 'Great Causeway' which 'shone across the sea like a milky way in the sky'… The Gods and rishis offered benedictions"[10]. Today, bridges are considered as symbols of economic power and leadership. As environmental conditions changes, the Frequencies of flood events are increased. It is noted that flood event causes the most damage to infrastructure compared to any other natural hazards in the world. The performance of the bridge is dependent on the strength and durability of its components. This paper presents an analysis of the case study of 2019 floods in Western Maharashtra to identify the failure mechanism of the bridge exposed to flood events. Major failure mechanism of the bridges were identified as damage to bridge decks due to urban debris, and in some areas due to continuous striking of the heavy stones with the bridges and more water pressure. Some bridges were closely analyzed and causes of the failure were studied also. Due to flood events bridge components were damaged. Quality in bridge engineering has to be achieved through innovative planning, diligent designs, intelligent directions, and timely maintenance. Since bridges cannot resist indefinitely all the natural forces and hazards including time related degradation of materials, these structures have limited service life.*

*Key Words***:** *Bridge, Flood, Retrofitting, River, Damage.*

1. INTRODUCTION

Bridges are important components of highway and railway transportation systems. Failure of bridges due to natural or manmade hazards may cause significant disruption of transportation system performance, and thus may result in major economic and social losses to the urban and rural societies. Therefore, safety and serviceability of bridges have always been great concerns to the civil engineering profession. Throughout history many bridges collapsed and damaged due to different reasons which are classified into two broad categories, namely natural factors and human factors. Natural disasters such as flood, scour, earthquake, etc. are often unavoidable and account for nearly half of all bridge failures. Due to heavy precipitation, flooding may induce phenomena such as scour, erosion, river convergence, insufficient embedment depth, stability aspect, etc. As bridges are one of the most critical parts of the transportation infrastructure, their retrofitting is of great value and concern. There are several approaches to retrofitting and repair of damaged bridge, but these approaches are based on the case and type of damage. The bridges have to be maintained in order to prevent premature failure and to extend the service life. Proper inspection and maintenance is necessary to maintain the life of the bridges. In August 2019 due to flooding deck slab of bridge uplift by high water pressure and displaced. Damages bridge components which are expansion joint, wearing coat, railing, bearing, etc.

2. RESEARCH METHODOLOGY

The methodology adopted for this study is primary data research, where the primary data was collected. Objective of research are as follow-

1) To study causes of different damages of different bridges affected due to flood through literature review.
2) To investigate behavior and causes of damages of different structural element affected due to flood in the Satapewadi Bridge.

The necessity of this research is to analyze one of the failed bridges and also to find the cause of their failure. As per literature study different causes of bridges failure due to flood are studied.

Causes of different damages of different bridges affected due to flood through literature review-
1. Water, salt, or debris damages critical parts of the structure.
2. Pressure from water or debris breaks apart the bracing system.
3. Water lifts the structure off its supports.

Forecasting Crop yield using modified weighted ensmebling technique

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I. Introduction

The paper details the research and application of various machine learning algorithms on a range of crops using factors such as temperature, rainfall, and various soil properties in about 392 districts across India. The purpose of this document is to advise farmers on what crop yields they can expect. As a result, the first stage is to create and implement a basic learner model, and then to assess performance. The ensemble technique is used in step 2 to measure the performance. Step 3: The optimized ensemble is used to calculate performance measures. All of the models are compared against each other based on various parameters. The paper is divided into four main sections. Section 1 covers datasets and data pre-processing. In Section II, the various ML techniques are discussed. Section III is devoted to a discussion of model performance using the acquired results. Finally, the findings in Section IV bring the paper to a conclusion.

II. Data set

State, District, year, season, crop, temperature, rainfall, production, N, P, K, Ph, Fc, Oc, and Zn are among the 15 features included in the dataset. Nearly 2 lakh records from 392 districts make up the collection. From 1997 to 2018, the data is available. The information was gathered from the government's website.

1. Data Preprocessing

Before feeding the dataset into the machine learning model, make sure it's correct. Datasets are subjected to the practice of eliminating erroneous, incomplete, and inaccurate data as well as substituting missing information.

An optimized stacking ensemble framework using L2 regularization for crop yield prediction

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Abstract: Machine Learning is proved to be an effective tool for reasonable predictions as compared to other techniques. Initially single ML model is used on data to get predictions however, rather than one machine learning model replacing it with group of ML Models can diminish variance, bias or both of prediction. If a appropriate features affecting the prediction values are available the result generated will be more appealing and correct. This paper delivers framework to forecast yields L2 regularization feature selection algorithm for feature subset selection. The study has considered 11 crops with 15 features of 300 districts in India. Initially base learners' model such as Linear Regression, LASSO Regression, Decision Trees, Random Forests, Extreme Gradient Boosting (XGBoost), Support Vector Machines are trained and tested for predicting yield. Stacking ensemble and Proposed optimized stacking ensemble are designed using base learners. The Proposed Optimized ensemble is giving improved results (MSE =6408, Accuracy=85%) than Normal stacking ensemble (MSE=8315, Accuracy=85%) with respect to performance metrics used

1. INTRODUCTION

The Paper outlines study and implementation of different ML algorithms on variety of crops using variables which includes temperature, rainfall and different soil parameters for tentatively 300 districts of INDIA. The objective of paper is to suggest farmer what will be the tentative yield of crop. So, in first step base learner model is designed and applied and performance is measured. In step 2 ensemble technique is applied and measured the performance. Step 3 Optimized ensemble is applied and performance metrics are calculated. Comparison of all the models depending on different parameters are carried out. The Paper is basically organized into four sections. Dataset and Data preprocessing is included in section 1. The ML methodologies and proposed stacking Ensemble technique are described in Section II. Section III is devoted for discussion of performance of models with the help of results obtained. To finish, the paper concludes with the in Section IV.

1.1 Data set

The dataset includes 15 features namely state, District, year, season, crop, temperature, rainfall, production, N, P, K, Ph, Fc, Oc, Zn. The dataset is having nearly 34,312 records. The data is from year 1997 to 2014.The data is collected from government website.

Self power generating electric bike

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ABSTRACT

Now day's bike or vehicle is very important our fast life for travelling and this is also play very important role in growth of economy but main drawback of this bike and vehicle is produce pollution in environment because of burning fuel. For this reason, increases global warming and also storage of fuel is limited. Due to that now day's need of eco-friendly technology for travelling. E-bike (electrical bicycle) this is nothing but one example of eco-friendly technology but this technology having some drawback to overcome the drawback of e-bike we have been design self-power generating electrical bike. This design overcomes all the drawback of e bike. Self-power generating electrical bike is nothing but e-bike that generate its own power supply by using some arrangement.

Keywords— *Alternator, Battery, Motor, DC Booster*

1. INTRODUCTION
Global warming is becoming major problems in the current scenario. Therefore, people try to move towards clean energy. Transportation is one of the source of pollution or global warming because bike or any type of vehicle work on fuel (petrol, diesel) it burn and produce harmful gases in air due to that pollution is increases and also this source of energy is limited therefore today's need to move towards clean source of energy for transportation that free from pollution.

The e-bike is drive with the help of electric power. In this bike energy generate by using alternator and this energy is stored in the storage battery. The stored energy can be used for running the bike. Electrical bicycle can be used for a variety of purpose.

2. PROBLEM DEFINITION
With increasing in air pollution and scarcity of fuels. An electric bike is in great demand but it is not used by the people because of lack of awareness. Thus, the purpose of this study is to consumer goes towards electric bike. Electric bike is eco-friendly with environment.

Now also we know that the electric bike required maximum 3-4 hours for 100% charging of battery. In that 100% battery (20 Ah battery), e-bike moves at least 60 to 70 km with speed of 35-40 km/hr. Hence, after every 70km we must recharge battery again. It takes also 3-4 hours for charging. Hence, we have arranged the alternator with e-bike at rear wheel which generate power supply on the rotation of wheel.

3. NEED AND OBJECTIVES
3.1 Need
The main reason to design the electric bike is to overcome the problem with the pollution and with the economy. Future E bike is the best technical application as a solution for the better world and upcoming generation. The E bike is a battery-operated vehicle that is very economical with low maintenance cost and less pollution. E bikes are an attractive alternative to both conventional bicycles and traditional automobiles, providing an environmentally friendly, fun, efficient and convenient way to travel.

Now days all the vehicle work on fuel but storage of fuel is imitated that means when the storage of fuel is totally finish that time transportation is totally stop. There for today's need is self-power generating electrical bike that bike generate owner power and work on self-power without effect on working of operation and this is not having any type of external energy it is free from pollution.

3.2 Objectives
- It is clearly seen that the electrical bike gives a clean and more economical solution to the crisis.
- To suggest improvements in existing processes for energy conversation.
- To assess the annual saving of gasoline and reduction of CO2 emission for the span of next 10 years.
- It is non pollutive which is eco-friendly with environment.

EXPLORING THE APPLICATION AND DESIGNING OF HEAT PIPE

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ACT

pipe is a passive device equipped for transfer high amounts of heating during generally small cross-sectional area, and with small
are contrasts. It is a progressively viable device used to transmit heat. The principal of heat pipe is an empty chamber by cylinder
loaded up with a vaporizable working fluid. Fabrication of heat pipes, including washing, creating the vacuum, injecting the fluid
llation have also been carried out. After obtaining the appropriate heat flux, the water-to-water heat pipe heat was designed, erected
d under high temperature (32°C to 70°C) operating conditions, using ethanol, acetone and methanol as the working fluid.
ental results for absorbed heat by the evaporator section are very close to the heat transfer rate obtained from digital temperature
. This experimental parameter includes how much amount of time is required to boost the working fluid at a maximum temperature.
is proved to be superior as working fluid.

ls: Heat pipe, ethanol, vapor, working fluid

ODUCTION

is active device that which working by phase change phenomenon when occurs in the evaporator and condenser section when the
liquid way over the adiabatic section and wick material. It comprises of three sections evaporator, wick and condenser these which
pieces of assemblage of heat pipe. Working fluid, it's significant so as to transmit the vitality that can be as heat transfer from heat
condenser or cooling part and disseminating the vitality in low obstruction of heat in this way of stream. The tendency point is
to improve and get elite. Structure of wick its speaking to the method for narrow property to know the estimations of weights that
activity instrument of heat channel and capacity of joined as far as possible, for example, entrainment ,bubbling and sonic if its
during the activity cycle. Heat administration has become a noteworthy snag in creating numerous advances.

pe is a passive heat transfer device having a high effective thermal conductivity. The heat pipe is a closed, evacuated cylindrical
th the internal walls lined with a capillary structure or wick that is filled with a working fluid as shown in Figure 1. The heat pipe
ted and then filled with the working fluid prior to being sealed; the internal pressure is set by the vapour pressure of the fluid. The
as input at the evaporator and it makes the fluid to vaporize by creating a pressure gradient in the pipe. This forces the vapour to
g the pipe to a cooler section where it condenses and giving up its latent heat of vaporization. It is then returned to the evaporator
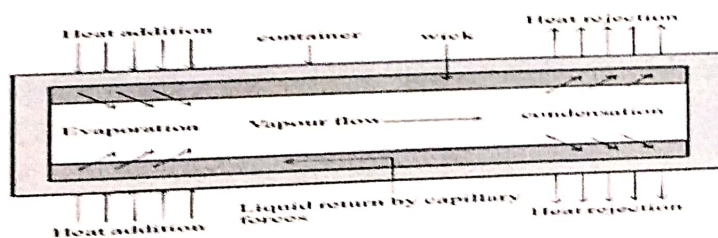capillary forces developed in the wick structure.

Figure 1: Schematic of a heat pipe

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PERFORMANCE INDICATORS OF PHOTOVOLTAIC HEAT-PUMPS

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Abstract

In the last few decades, the demand for reversible heating and cooling systems has increased significantly, together with the need to generate energy in a more efficient and sustainable way. Consequently, the concept of solar photovoltaic (PV) powered heat pumps (HP) has become very attractive in order to match the heating/cooling demand with a renewable and environmentally-friendly energy source. This paper presents a review of the different solutions for PV-HP systems that have been studied theoretically and/or experimentally tested, and of the Key Performance Indicators (KPIs) that were mainly used. An analysis of these traditional KPIs has been performed and their boundaries were identified. As a result, new KPIs (PR25, PRref,25, SPFPV-HP and SPFPV-HP,ref,25) were proposed for trying to mitigate such limitations, as well as for evaluating not only the quality of the HP and the PV system, but also the quality of their integration and the renewable character of the whole PV-HP system. This paper is aimed to be framed in the common effort of the PV-HP research community to reach a set of KPIs that allow comparing the different future works and, therefore, a set of recommendations and future research lines are also proposed.

Keywords: Performance indicator, Heat-pump, Photovoltaic/Thermal, Photovoltaic, Engineering, Electrical engineering, Energy engineering, Industrial engineering, Systems engineering.

Introduction

Since 2005, the increasing demand for heating and cooling has given rise to the growth in the market for heat pumps (HPs) worldwide, as HPs are capable of supplying this thermal demand with smaller power consumptions than any other technology. According to the European Heat Pumps Agency, this market increased by 12% in terms of units sold in 2015 (which means an installed electrical power of 2.11 GW) and by 12% in 2016 (2.37 GW). In energetic terms, the use of these recent HPs saved 11.6 TWh of final energy demand in 2015 and 13.1 TWh in 2016, as well as avoiding 2.3 Mt of $CO2$ emissions in 2015 and 2.6 Mt in 2016. This market growth is expected to be maintained in the near future, with estimations of the compound annual growth rate in the range 6.02% to 10.25% for the period 2016–2021. However, even if HP are one of the most efficient technologies for heating/cooling applications, the overall power consumption in Europe in this sector is increasing every year, so greater efforts must be dedicated to achieving the environmental objectives of the European Union for the year 2020, i.e. reducing $CO2$ emissions by 20% compared to 1990, increasing the renewable share to 20% and improving electrical efficiency to 20%. In relation to HP technologies, these efforts have focused on using renewable energy sources for powering the heating/cooling installations (for example, the Smart ReFlex project for promoting renewable heating and cooling in Europe was launched in 2015, supported within the Intelligent Energy Europe program.

Photovoltaic (PV) energy is one of the most promising renewable energy sources for powering HPs and reducing their environmental impact for several reasons. First, PV technology can be applied to big and centralized installations as well as to small and decentralized ones, and its efficiency is almost independent of the size of the system and its application. Second, the cost of PV electricity can be similar to the electricity tariff in applications which lack any energy storage system and even lower in large power systems (bids of 1.9 and 2.3 US cents/kWh were approved in China and Abu Dhabi in 2016 [Z], which makes it competitive with almost any other energy source. This is especially important for cooling applications where the thermal demand matches the PV power generation (midday sunny hours are usually the warmest), and therefore storage devices may be not necessary.

Research into PV-HP is quite recent, as the elevated prices of solar PV panels were an economic barrier until they started dropping in 2010. The first reported experimental study into PV-HP was published in 1997. It was a hybrid solar Photovoltaic/Thermal (PVT) system that combined a PV module with a thermal collector on its back surface which worked as the evaporator of the HP and

PRESERVATION OF HUMAN RESOURCE IN ENGINEERING AND TECHNOLOGY INDUSTRIAL

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ABSTRACT

The Project Engineering organizations, are essentially the Engineering Purchase contract Companies. The Process of executing Project, changes with every single Project. Furthermore the positions are less dreary. This is the manner by which it fluctuates from other Engineering enterprises, for example, Automobile's, weighty development gear fabricating and evaporator producing industries. Consequently do to this it requires extremely able experienced gifted Engineers, to Design, Plan and execute the new elements. Do to the non dreary nature of the work, of Project Engineering Industrial Units. As it isn't workable for the undertaking engineering organizations, to make an assembling office for every one of the supplies it needs, because of inconstancy of the assembling system of these hardware's. It typically relies on the ability and plan capacity of these able encountered Engineer's, to source these types of gear from the provider's at a serious cost. So the task Engineering Industrial Unit will actually want to partake the most extreme piece of the pie. It additionally relies on this accomplished labor for extension and development. This labor assists the association with preparing and foster new worker who will be the resource of the organization in future. Henceforth do to this significance; it is exceptionally vital for Project Engineering organizations, to lessen the wearing down of this accomplished representative's. To lessen the whittling down of these representatives', there is need to concentrate on chosen elements of Human Resource management that cause steady loss in these Selected Project Engineering Units in Pune.

Keywords: Engineering, Human ,resource ,management

INTRODUCTION

The worldwide economy there is a rivalry particularly in the retails area. The consumer loyalty is a significant driver for the authoritative exhibition. The significant determinant for consumer loyalty in the retail area is about the worker disposition In the retail business there can't be fulfilled clients when served by despondent managers The authoritative responsibility of representatives brings about lower weakening rates and further develops consumer loyalty (Marshall et al., 2018). One of the critical determinants of representative disposition is demeanor and leadership style of the quick chief. A portion of the leadership styles influence the workers coming about work fulfillment and hierarchical responsibility.

HUMAN RESOURCE MANAGEMENT

Human Resource Management (HRM) assumes an essential part in the entirety of association's management. The significance of Human Resource Management is to build the efficiency structure labor resources step by step and it turned into a variable in the

Optimum location and influence of tilt angle on performance of solar P...

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Optimum location and influence of tilt angle on performance of solar PV panels

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Abstract

With the growing demand of economically feasible, clean, and renewable energy, the use of solar photovoltaic (PV) systems is increasing. The PV panel performance to generate electrical energy depends on many factors among which tilt angle is also a crucial one. Among hundreds of research work performed pertinent to solar PV panels performance, this work critically reviews the role of tilt angles and particularly locating the optimum tilt angle using different methods. The past data

Development of Magneto-Rheological Fluid Suspension System for Two Wheeler

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Abstract - *Nowadays, people require high quality for everything. Vibration in today's increasingly high speed vehicles including automobiles severely affects their ride comfort and safety. Certainly, comfort in moving vehicle is people's concern so it is desired to have performance suspension system for vehicles. To improve the ride comfort, effective vibration control of suspension systems is increasing necessary. Ride quality is concerned with sensation or feel of passenger in the environment of moving vehicle. So we develop and implement a two wheeler suspension systems with MR fluid damper. In this, vertical acceleration of main mass is substantially reduced by using controlled MR damper compared to passive system.*

*Key Words***:** MR fluid, Ride comfort, safety, Suspension system, Damper.

1. INTRODUCTION

In particular, it has been found that Magneto-Rheological fluid can be quite promising for vibration reduction applications. MR dampers are semi active devices that contain magneto rheological fluids. After applications of magnetic field the fluid changes from liquid to semi solid state in few milliseconds, so result is an infinitely variable, controllable damper capable of large damping forces. MR damper offer an attractive solution to energy absorption in mechanical system and structures can be considered as 'fail-safe' devices.

Varieties of smart materials already exist, and are being researched extensively. Some everyday items are already incorporating smart materials (coffeepots, cars, glasses) and the number of applications for them is growing rapidly. Magneto rheological materials (MR fluid) are class of smart materials whose rheological properties (e.g. Viscosity) may be varied by applying a magnetic field. Under influence of magnetic field, the suspended magnetic particles interact to form a structure that resists shear deformation or flow. This change in material appears as a rapid increase in apparent viscosity or in the development of semisolid state.

1.1 What is MR fluid?

A Magneto-rheological fluid is a type of smart fluid in a carrier fluid; usually type of oil when subjected to a magnetic field, fluid greatly increases its apparent viscosity, to point of becoming viscoelastic solid. Importantly, yield stress of fluid when in its active state can be controlled very accurately by varying magnetic field intensity. The upshot is that fluids ability to transmit force can be controlled with an electromagnet which gives rise to its many possible control based applications.

2. DESIGN AND DEVELOPMENT

In system design we mainly considered following parameters:-

2.1. Properties of MR fluid

The main properties of MR fluid which influence on system applications such as Off-state viscosity, Yield stress, Durability and In-use thickening, Temperature range, Particle sedimentation etc.

2.2. Selection of MR fluid component

The change in one or more components or in their properties affects MR effect. Hence, need to study various properties of this component which will help in formulation of MR fluids to suit different industrial applications. There are basically three components in an MR fluid i.e. Liquid Carrier, Metal particles, stabilizing additives.

A Survey on Multimodal Search Engine for Interior Design

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Abstract

Today's world of Internet provides an upscale content of knowledge, a large quantity of knowledge measure obtainable within the multimedia image retrieval. To achieve the aim to indexing and retrieving images by their content still an issue under debate. By this paper, we tend to gift a unique approach using image clustering, scoring, content-based set of descriptors for the classification of images into determined semantic classes which may then be used once browsing an image dataset. We tend to additionally add three normalized native histograms, extracted from explicit key-frames to choose with a straight forward even so reasonable approach, as color descriptors. CBIR is the most recent technique for image repossession. that formulate image retrieval extra efficient inspector are pathetic towards relationship base image retrieval that is most recent approach of CBIR. to conclude, base on obtainable technology and the supplies from real-world request, a few talented future research directions are optional. Here introduce the image base invention exploration engine will build the lives of online shopper more pictorial.

1. INTRODUCTION

In addition, model having highly dimensional multimodal space used more composite training strategy and painstakingly annotate datasets. Lastly, to mansion the precise balance among the importance's of a range of modalities to the perspective of a consumer inquiry is not apparent and tough to calculate prior. Even if numerous multimodal representations planned in the framework of a examination for fashion items, they usually target on adopting new modalities as an added resource of knowledge, e.g. to elevate categorization accuracy of suitable and non- suitable garments.

For noticing the beyond-mention shortcoming from currently offered exploration generators, we recommend a newest continuous technique using NN(Neural Network) structural design by forming the combined multiple-modes of catalog things. Multimodal exploration engine has a capacity to work together equally for visional and text based techniques, agrees to the added perceptive exploration queries, while provided that high correctness than the rival approach.

During the last days, among the associate of internet, It's been massive quantity as concern to records reside lying in the system. As a result for quickly fetching exploration generators which get back credentials and pictures is very high need. This document tried to construct available a complete analysis as well as describe a variety of difficulties in picture fetching technique. Here at hand an analysis of admired picture fetching system with their advantages and disadvantages. CBIR is the most up-to-date practice for picture fetching. Organize a plan of picture fetching added useful examiner are stirring towards union dependent picture fetching that's latest mode of Content-Based Image Retrieval. Lastly, based upon available techniques, they require amid existent usage, a few hopeful impending do analysis guidelines has been recommended [1].

An IR process is a mainframe proposal used for search, retrieve & browsing image as of a massive catalog of digital-images. This section of investigate very dynamic exploration from time when1970s. The inspiration of a figure catalog is to stock up and recover a figure or image-

Review on Anti Accident Braking System

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Authors : Pavan Patil ; M.A.Mullani; Vishal Patil

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Abstract:

This paper describes a new smart braking system for four wheeler vehicles like cars, jeeps etc. Road accidents are common place in todays scenario. Now a days no. of accidents are increased as compared to past. Accidents causes worse damage, serious injury and even death. Accidents prevention has been one of the leading areas for research. Mainly focus on prevention of accidents due to nervousness, loss of control, drunken driving, rash driving etc. Manual methods of applying brakes is always dangerous as it leads to accidents. Moreover, road accidents are relatively higher than the all India average.

Keywords:

Anti Accident Braking System

Download Article

An Experimental Survey On a Geographical Phase Design for Connected Vehicle Networks

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Abstract: **Armed with sensors and gadgets, autos can be associated with a VANET to the assortment of information and sharing for various purposes, for security, amusement, and route. As remote sensors are fitted into vehicles and different quantities of passageways are fitted into urban areas, a lot of information caught and used to help drivers, explorers, and so forth. In any case, the information usage makes more difficulties on the telecom and directing conventions which is now an issue in the vehicular condition. Right now, it is required to propose a topographical stage structure that groups vehicles as indicated by their geographic areas. Our point is to propose GSA-based directing convention GSA-SR (which utilizes receptive steering). The recreations of grouped vehicle arrange in street situations (Highway) with the goal that stage configuration based conventions can execute moderately more significant standards than existing conventions in regards to throughput, conveyance rate, start to finish postponement and convention overhead.**

Keywords: **Vehicle networks.**

1. Introduction

Associated vehicle systems are vehicular ad-hoc network (VANET) which can bolster a client of valuable applications. These incorporate educating drivers about the traffic to assist them with bypassing traffic clog and be cautioned of potential street risks [1-5]. It additionally incorporates amusement, gaming, and spilling recordings [6]. This procedure incorporates exercises like to gather, share and use information through the vehicle to vehicle (V2V) correspondences. As sensors are fitted into vehicles, unquestionably more information can be gathered and used to help more astute applications. Be that as it may, the information gathering and use makes all the more testing on systems administration conventions which is as of now a limitation in the VANET condition [7-10].

The high versatility condition is normal for vehicular ad-hoc networks and one of the primary difficulties for broadcasting and routing protocols [11,12,18]. It makes the system topology change quickly and neighbour relations among hubs (vehicles) become incredibly shaky. The hub density can be amazingly high during the busy time frame, prompting an expanded plausibility of channel Collision.

In this paper, our aim is to propose a geographical phase design which divides roads into segments to cluster vehicles.

Each segment represents a cluster. The clustering of vehicles can help handle the high-thickness issue. Also, given at any rate one vehicle is driving in a fragment, the section can persistently carry on as a transitional bunch to continue correspondences. This implies the availability among vehicle groups should be more steady than that among singular vehicles. This tends to a high portability issue.

2. Existing System

As a significant cultural issue, traffic clog has gotten extensive consideration. 2018 urban mobility review expressed that traffic clog causes 4.2 billion hours of additional movement consistently in the U.S. which almost represents 2.9 billion additional gallons of fuel. In spite of the fact that many existing route gadgets have functionalities to give an ideal start to finish way, blockage issues have not been completely settled [1]. Numerous customary systems despite everything face a great deal of specialized difficulties, as Google Maps include existing systems for a singular way wanting to keep away from traffic blockage. In spite of the fact that these offered types of assistance are expensive, they can't make a fast reaction to a crisis circumstance brought about by any mishap or episode. The primary explanation behind this defect is the absence of continuous traffic data. Along these lines, to improve the exhibition of way arranging, it is important to contemplate how to proficiently gather and use continuous traffic data for traffic clog shirking and way arranging [2], [3].

VANETs provide enhanced communication capabilities to collect real-time traffic-related information for financially savvy and continuous traffic data conveyance [5]. Both vehicles to vehicle (V2V) and vehicle-to-roadside (V2R) communications are supported in VANETs to efficiently collect traffic updates from/to vehicles and roadside units. As a result, collected real-time traffic information can be utilized for freeway traffic flow management, path planning, and vehicle localization [4]. However, most of the works assume that the incorporated techniques have a small delivery delay for the real-time collection of traffic information.

3. Literature review

Geographical phase design utilizes geological street

SCHEDULED MAINTENANCE

Maintenance work is planned for Thursday 31st August 2023 from 11:00 to 12:00 (BST).

During this time the performance of our website may be affected - searches may run slowly and some pages may be temporarily unavailable. If this happens, please try refreshing your web browser or try waiting two to three minutes before trying again. We apologise for any inconvenience caused and thank you for your patience.

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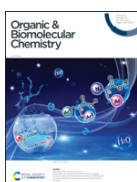
Rust-derived Fe$_2$O$_3$ nanoparticles as a green catalyst for the one-pot synthesis of hydrazinyl thiazole derivatives †

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Abstract

In the present work, novel one-pot multicomponent reactions of tosylates, aryl aldehydes and thiosemicarbazide are reported for the synthesis of hydrazinyl thiazoles, using Fe$_2$O$_3$ NPs derived from rusted iron as a catalyst. The Fe$_2$O$_3$ NPs were characterized using XRD, SEM, VSM, HR-TEM, EDX and FT-IR techniques. The structures of all of the synthesized hydrazinyl thiazole derivatives were confirmed by ^{1}H NMR, ^{13}C NMR, FT-IR and mass spectrometry. The magnetic Fe$_2$O$_3$ NPs were easily recovered from