



WEATHER PREDICTION WITH THE FRAMEWORK OF FOG COMPUTING

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ABSTRACT

In the modern era, the road infrastructure failed to cope up with the exponential increase of road Weather. There is a thrust to find a smarter ways to deal with such transportation system. Intelligent Weather System is at the forefront edge of this, one of the points is exact and hassle free forecasts that guarantee smooth and bother free driving and authoritative experience. In such manner, IWS being looked into for quite a few years and furthermore a field of consistent growth of works and advancement after some time, there is a wealth of writing on Weather expectation. Weather datasets generated through the application of IoT are operated upon by the existing techniques. Weather flow analysis is conducted to tackle the issues of Weather forecasting. This paper presents a systematic analysis of previous aggregate work on Weather prediction, highlight the marked changes and presents future directions for research work.

Keywords: Weather prediction, Weather Dataset, IoT, Weather flow, Weather forecasting

1. INTRODUCTION

[1]Intelligent transportation system is a technique or an application in electronic or non electronic forms for producing information through advanced sensors, computers and communication technology that improve the process of Weather forecasting. IWS is wide field aiding in the field of driver assistance, inter vehicle communication, air Weather control, road sign prediction, number plate detection, congestion control, dynamic routing etc. IWS caters to the multidimensional needs of Weather management overlapped with number plate detection and road Weather signal prediction.

[2]Most of the issues of Weather prediction are caused due to existing infrastructure however some of the issues are also caused by poor management of Weather flow and congestion control.



Figure 1: structure of the intelligent urban Weather management system

[3]IWS tackles the issue of poor management of Weather flow by the use of accurate Weather monitoring and control strategies. The distributed and shared judgment and care management has be remolded an open issue at all levels of Weather forecasting systems. For the estimation of Weather prediction it requires the information that is simple and diverse from the sensors and skills.

To work efficiently there should be a IWS software system in this environment. But this system also requires credible and timely information to ensure that software can work securely and produce results within specified time. Computer systems make the interaction between human and computational devices very natural so that users can get desired data in a transparent manner. The newly introduced gadgets like mobiles, PDAs, laptops etc. make every information available anywhere at any time.

By using IWS, interactive feedback loops and video games, we can analyze the Weather related behavior changes that may occur. IWS is associated with many applications and in long term it is viable to get feasible into larger frameworks in health care.

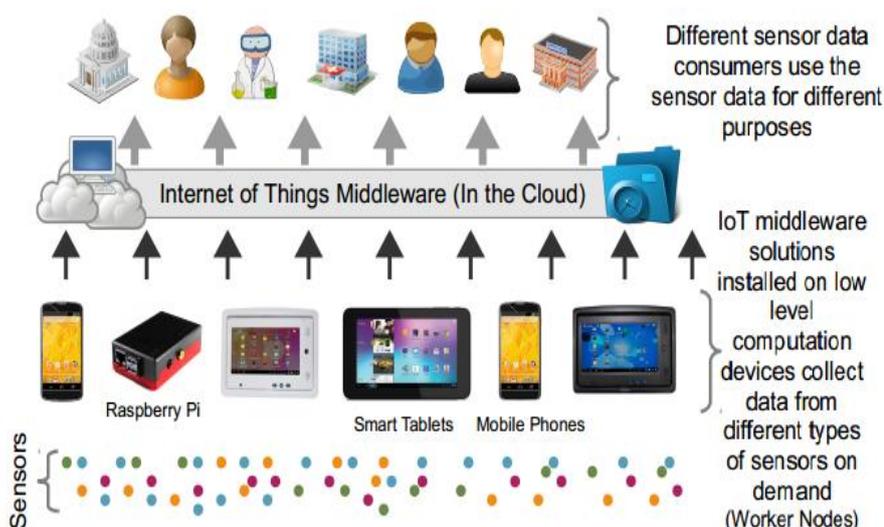


Figure 2: internet of Things(IOT)

[4]According to researchers it is suggested that use of IWS and emergence in technology is efficient enough to aware users about the current Weather and provide preventive measures. The IWS also enable user for behavior change. Distinct elements of IWS are enhancement in decision making and objective oriented. Diverting the Weather greatly depend upon the awareness of driver which will be accomplished by the use of IWS. Routing adherence is greatly impacted by this mechanism. with the help of transportation system drivers can analyze his behavior and prepare himself for taking appropriate action.

This paper is structured as, section 2 elucidating the research methodology, section 3 addressing the research questions, section 4 providing future guidelines and finally section 5 concluding the paper by presenting the results.

2. LITERATURE SURVEY

To tackle the requirements of systematic review, background analysis is conducted. The background analysis present the existing techniques that are comprehensively used to predict on road Weather.

[5]As a developing innovation, IoT empowers a machine-to-machine availability without a system framework. Hence, IoT is emphatically viewed as an innovation for correspondences in crisis situations. Particularly, a WiFi convention is under institutionalization as IEEE802.11ah for IoT-based long-run interchanges. In any case, the administration go isn't sufficient to cover a correspondence range in crisis circumstances. This paper tends to a buyer handset for long range interchanges of IoT in crisis situations. The handset depends on IEEE802.11ah WiFi convention which is under institutionalization for minimal effort and low-control administrations. In this paper, a novel engineering for the handset is proposed keeping in mind the end goal to build the administration scope of IEEE802.11ah, which is essential for the long-extend IoT correspondence of crisis messages in crisis circumstances. Test comes about demonstrate that the displayed engineering is reasonable for the long-run IoT correspondence of crisis ready messages.

[6]The European Commission and the Japanese National Institute of Information and Communication Technologies (NICT) have tried to advance cooperation between the IoT and Cloud people group and characterize a typical standard for future research. ClouT (Cloud+IoT) venture is co-supported as a component of the principal FP7 EU-Japan participation call and offers life to a productive coordinated effort between six European and seven Japanese associations. The overall target is to give improved answers for more quick witted urban communities by utilizing distributed computing to beat a portion of the present difficulties and confinements in the IoT space. Through the blend of IoT and distributed computing, keen urban communities will have the capacity to assemble new and improved administrations by utilizing the lot of information put away in the cloud and by preparing it in semi ongoing. This paper depicts ClouT Reference Architecture which was illustrated by utilizing on existing works performed by built up IoT and cloud Research Communities both in Europe and Japan. ClouT Reference Architecture builds up a shared opinion of articles, definitions and standards mapping the IoT and cloud favourable circumstances into an extraordinary setting.

[2]Precise expectation of activity stream is a fundamental segment in the majority of the Intelligent Weatheration Systems (IWS) applications. The information driven approach utilizing Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) models detailed in many examinations requests sound database for display building. Consequently, the pertinence of these models remains an inquiry in places where the information accessibility could be an issue. The present investigation tries to defeat the above issue by proposing an expectation plot utilizing Seasonal ARIMA (SARIMA) display for here and now forecast of activity stream utilizing just constrained information.

[7]Observation is a standard accumulation, investigation, and elucidation of information on ailment examples of a geographic region which helps in demonstrating episodes of significant wellbeing related indications. In creating nations like India, adequacy of a reconnaissance framework is frequently upset by

the quality and accessibility of information. Web of Things (IoT) idea empowers the likelihood of data disclosure about a labelled question or a labelled individual by perusing a web locations or database section that relates to a specific dynamic RFID with detecting capacity. In the Internet of Things based "Brilliant Disease Surveillance" the shrewd gadget, which is none other than the fundamental server situated in each doctor's facility which keeps up tolerant records, will consequently process and send the expected data to the spine organize. This spine system will thus process and offer data to the wellbeing service so the patterns are seen snappy, shrewd and simple. This will help the service to make important strides immediately as all the data is given by the savvy gadgets.

(Thomas and Mcpherson) The Internet of Things (IoT) – association of little brilliant sensors, actuators and different gadgets to the Internet – is a key idea inside the shrewd home. To ease organization, such gadgets are frequently remote and battery fuelled. A vital inquiry is the remote interface utilized. The omnipresence of Wi-Fi in homes today makes this an appealing alternative; however the moderately high power necessities of Wi-Fi struggle with the prerequisite for long battery life and low support. Lower control options, for example, Bluetooth and Zigbee, have been proposed, however these have a substantially littler introduced base. What's more, many Smart Home items are at present accessible utilizing 433MHz innovation.

(Thomas and Mcpherson)The Internet of Things (IoT) imagines billions of sensors conveyed around us and associated with the Internet, where the versatile group detecting advances are broadly used to gather information in various settings of the IoT worldview. Because of the ubiquity of Big Data advances, preparing and putting away substantial volumes of information has turned out to be less demanding than any time in recent memory. Nonetheless, expansive scale information administration errands still require huge measures of assets that can be costly paying little respect to whether they are obtained or leased (e.g. pay-as-you-go framework). Further, not every person is occupied with such expansive scale information gathering and investigation. All the more critically, not every person has the money related and computational assets to manage such vast volumes of information. Accordingly, an opportune need exists for a cloud-coordinated portable group detecting stage that is equipped for catching sensors information, on-request, in view of conditions authorized by the information buyers. In this paper, we propose a setting mindful, particularly, area and movement mindful portable detecting stage called C-MOSDEN (Context-mindful Mobile Sensor Data Engine) for the IoT space. We assessed the proposed stage utilizing three genuine situations that feature the significance of specific detecting. The computational adequacy and proficiency of the proposed stage are examined and is utilized to feature the upsides of setting mindful specific detecting.

[9]The emphasis on this paper is to construct an Android stage based versatile application for the social insurance space, which utilizes the possibility of Internet of Things (IoT) and distributed computing. We have assembled an application called 'ECG Android App' which furnishes the end client with perception of their Electro Cardiogram (ECG) waves and information logging usefulness out of sight. The logged information can be transferred to the client's private incorporated cloud or a particular therapeutic cloud, which keeps a record of all the observed information and can be recovered for investigation by the restorative faculty. In spite of the fact that building a medicinal application utilizing IoT and cloud procedures isn't absolutely new, there is an absence of exact investigations in building such a framework. This paper surveys the crucial ideas of IoT. Further, the paper shows a foundation for the social insurance space, which comprises of different advances: IOIO microcontroller, flag handling, correspondence conventions, secure and productive instruments for substantial document exchange, information base administration framework, and the brought together cloud. The paper underlines on the framework and programming engineering and outline which is basic to general IoT and cloud based medicinal applications. The framework exhibited in the paper can likewise be connected to other medicinal services areas. It finishes up with suggestions and extensibilities found for the arrangement in the human services space.

[10]The enormous information produced by the Internet of Things (IoT) are considered of high business esteem, and information mining calculations can be connected to IoT to remove concealed data from

information. In this paper, we give an efficient approach to survey information mining in learning view, procedure view, and application see, including arrangement, bunching, affiliation examination, time arrangement investigation and anomaly investigation. What's more, the most recent application cases are likewise studied. As an ever increasing number of gadgets associated with IoT, vast volume of information ought to be investigated, the most recent calculations ought to be adjusted to apply to enormous information. We looked into these calculations and talked about difficulties and open research issues. Finally a recommended enormous information mining framework is proposed.

[11] In this paper, we propose KNC calculation for consolidating KNN calculation and other three classifiers (C4.5 calculation, Naive Bayes classifier and SVM) in view of their arrangement capacities on various sorts of occasions. As indicated by marks of occurrences and their K closest neighbours, we partition examples into three sorts, S-, DS- and D-sort. The arrangement abilities of KNN calculation on S-sort examples are the best, while ones on D-sort and DS-sort are normally more awful than other three classifiers. KNC calculation utilizes KNN calculation to order S- and DS-sort occasions, and uses different classifiers to group D-sort occurrences. KNC calculation uses order ability of KNN calculation on S-sort occurrences and uses arrangement capacities of other three classifiers on D-sort cases. Test comes about on 20 UCI informational collections exhibit utility and plausibility of KNC calculation.

[3] This paper concentrated on the fundamental structure of astute urban Weather Management System Based on Cloud Computing and Internet of Things, proposed the design of clever urban Weather Management System Based on Cloud Computing and Internet of Things. The paper made a profound research on the data checking in light of web of things, computation and the smart displaying parts and information coordinating segment. Mass figuring was acknowledged by the utilization of the distributed computing stage. The framework essentially understands the smart checking and administration of urban activity and understands the reason for canny dig of urban movement.

[12] The expression "Web of-Things" is utilized as an umbrella catchphrase for covering different angles identified with the augmentation of the Internet and the Web into the physical domain, by methods for the boundless organization of spatially appropriated gadgets with implanted recognizable proof, detecting or potentially incitation capacities. Web of-Things imagines a future in which computerized and physical substances can be connected, by methods for fitting data and correspondence innovations, to empower a radical new class of utilizations and administrations. In this article, we show an overview of advances, applications and research challenges for Internet-of-Things.

[13] Tele-sonography experiences intrinsic constraints because of the need ever accessibility of specialists in cloud and information availability to the gadget. PC helped finding (CAD) utilized for programmed discovery of irregularities without manual intercession can defeat these confinements. Economically accessible ultrasound scanners confine the establishment of new virtual products and henceforth CAD calculations can't be incorporated into the current ultrasound scanners. There is a requirement for an outside figuring gadget, which can gain picture information from ultrasound scanners, perform CAD and produce result. Advanced mobile phones are currently broadly utilized as a part of customized medicinal services because of its universal figuring ability. Cell phones with installed CAD can be utilized as a registering gadget for mechanized analysis. In this paper, we have built up an Application (APP) for a cell phone to consequently analyze the kidney in the ultrasound picture. With the created APP, the cell phone can obtain pictures from any ultrasound scanner, process it and give the demonstrative outcome. Programmed variation from the norm recognition of kidney depends on Viola Jones calculation, surface element extraction took after by SVM classifier. Stones and blisters are the variations from the norm distinguished utilizing the calculation. The created APP came about with a precision of 90.91% in identifying the variations from the norm.

[14] The capacity to precisely foresee activity speed in a huge and heterogeneous street arrange has numerous valuable applications, for example, course direction and blockage shirking. On a basic level,

information driven techniques, for example, bolster vector relapse (SVR), can anticipate activity with high exactness since movement tends to show general examples after some time. Be that as it may, by and by, the forecast execution can altogether shift over the system and amid various eras. Understanding into those spatial worldly patterns can enhance the execution of canny transportation frameworks. Customary expectation blunder measures, for example, the mean total rate mistake, give data about the individual connections in the system yet don't catch worldwide patterns. We propose unsupervised learning strategies, for example, k-implies bunching, chief segment examination, and self-sorting out maps, to mine spatiotemporal execution patterns at the system level and for singular connections. We perform forecast for a huge interconnected street organize and for different expectation skylines with a SVR-based calculation. We demonstrate the viability of the proposed execution examination techniques by applying them to the expectation information of the SVR.

[15] Street activity forecast is a basic part in present day shrewd transportation frameworks. It gives the premise to movement administration organizations to produce proactive activity operation methodologies for easing blockage. Existing work on close term movement expectation (anticipating skylines in the scope of 5 minutes to 60 minutes) depends on the past and current activity conditions. Be that as it may, once the anticipating skyline is past 60 minutes, i.e., in longer-term activity forecast, these strategies don't function admirably since extra factors other than the past and current movement conditions begin to assume critical parts. To address this issue, in this paper, out of the blue, we analyze whether it is conceivable to utilize the rich data in online web-based social networking to enhance longer-term movement forecast. To this end, we initially examine the connection between's activity volume and tweet tallies with different granularities. At that point we propose an improvement system to remove movement markers in view of tweet semantics utilizing a change grid, and join them into activity forecast by means of straight relapse. Exploratory outcomes utilizing activity and Twitter information started from the San Francisco Bay region of California show the viability of our proposed structure.

[16] In past decade, the issue of activity has turned out to be serious because of industrialization particularly in huge urban areas. Consequently, the urban populace needs to contribute much profitable time amid voyaging. Dynamic movement stream and static activity flag is significant issue which brings about clog of movement. Subsequently to solve this issue, this paper goes for expectation of street movement utilizing Artificial Neural Networks which will at last control blockage and results in the smoothening of general activity. Manufactured Neural Network have energy to gain from past and anticipate the future [1]. Neurons - the foundation of the neural system which are prepared with continuous data (time-based information) in view of which it predicts future movement volume. This paper proposes the hugeness of Jordan consecutive system for forecast of future esteems, contingent on the present esteem and total past qualities and furthermore ensures expectation of movement stream with precision of around 92-98% utilizing Jordan's Sequential Network. In this manner, this paper concentrates on expectation of activity stream utilizing Jordan's neural system with greatest precision and examination on different parameters to get the same.

[17] Activity flag light can be streamlined utilizing vehicle stream insights acquired by Smart Video Surveillance Software (SVSS). This exploration concentrates on productive activity control framework by recognizing and tallying the vehicle numbers at different circumstances and areas. At present, one of the most serious issues in the principle city in any nation is the road turned parking lot amid office hour and office break hour. Infrequently it can be seen that the movement flag green light is still ON despite the fact that there is no vehicle coming. Likewise, it is additionally watched that long lines of vehicles are holding up despite the fact that the street is vacant because of activity flag light determination without legitimate examination on vehicle stream. This can be dealt with by modifying the vehicle hanging loose executing by our created SVSS. Various examination after-effects of vehicle streams are talked about in this exploration graphically keeping in mind the end goal to test the possibility of the created framework. At long last, supportive foundation show is proposed in SVSS

with a specific end goal to effectively identify target protests, for example, engine bicycle, auto, transport, and so forth.

[18] Out of the blue, ongoing high-loyalty spatiotemporal information on transportation systems of significant urban communities have turned out to be accessible. This gold mine of information can be used to find out about activity conduct at various circumstances and areas, conceivably bringing about significant reserve funds in time and fuel, the two imperative wares of 21st century. As an initial move towards the use of this information, in this paper, we contemplate this present reality information gathered from Los Angeles County transportation organize keeping in mind the end goal to consolidate the information's inherent conduct into a period arrangement mining system to improve its precision for activity forecast. Specifically, we used the spatiotemporal practices of surge hours and occasions to play out a more exact forecast of both here and now and long haul normal speed on street sections, even within the sight of rare occasions (e.g., mishaps). Our outcome demonstrates that taking recorded surge hour conduct we can enhance the precision of customary indicators by up to 67% and 78% in here and now and long haul expectations, separately. Besides, we can fuse the effect of a mishap to enhance the forecast exactness by up to 91%.

[19] These days' street arrange foundation neglecting to adapt up to the exponential increment in vehicular populace, there is a steady endeavour to discover more brilliant approaches to manage it utilizing existing framework. Wise Weather System is at the front line of this, one of the points is precise and complex movement forecasts that guarantee smooth and bother free driving and managerial experience. In such manner, IWS being looked into for a very long while and furthermore a field of consistent expansion of works and development after some time, there is a plenitude of writing on movement forecast. This paper takes after an efficient report to total past takes a shot at movement forecast, feature checked changes in patterns and give examine heading to future work.

[20] In this paper, an accumulation approach is proposed for activity stream forecast that depends on the moving normal (MA), exponential smoothing (ES), autoregressive MA (ARIMA), and neural system (NN) models. The collection approach amasses data from significant time arrangement. The source time arrangement is the movement stream volume that is gathered 24 h/day more than quite a long while. The three important time arrangement are a week by week comparability time arrangement, a day by day similitude time arrangement, and a hourly time arrangement, which can be specifically produced from the source time arrangement. The MA, ES, and ARIMA models are chosen to give forecasts of the three pertinent time arrangement. The forecasts that outcome from the diverse models are utilized as the premise of the NN in the accumulation organize. The yield of the prepared NN fills in as the last forecast. To evaluate the execution of the distinctive models, the innocent, ARIMA, nonparametric relapse, NN, and information conglomeration (DA) models are connected to the forecast of a genuine vehicle movement stream, from which information have been gathered at an information accumulation point that is situated on National Highway 107, Guangzhou, Guangdong, China. The result recommends that the DA display gets a more exact estimate than any individual model alone. The total system can offer generous advantages as far as enhancing operational gauging.

[21] Data extraction utilizing circulated sensors has been broadly used to get data learning from different locales or zones. Vehicle activity information extraction is one of the approaches to accumulate data so as to get the movement condition data. This examination means to foresee and picture the activity conditions in a specific street district. Movement information was acquired from Department of Weather UK. These information are gathered utilizing several sensors for 24 h. Therefore, the measure of information is extremely tremendous. Keeping in mind the end goal to get the conduct of the movement condition, we have to break down the colossal dataset which was gotten from the sensors. The employments of customary information mining strategies are not adequate to use, because of the procedure of learning building that should store information transitory in the

memory. The way that information is ceaselessly getting to be noticeably bigger after some time, consequently we have to discover a technique that could naturally adjust to process information as streams. We utilize technique called FIMT-DD (Fast Incremental Model Trees-Drift Detection) to break down and anticipate the substantial activity dataset. In light of the forecast framework that we have created, we likewise envision the expectation of movement stream condition inside produced sensor point in the genuine guide re-enactment.

[21]A novel indicator for activity stream gauging, to be specific spatial-worldly Bayesian system indicator, is proposed. Dissimilar to existing strategies, our approach consolidates all the spatial and transient data accessible in a transportation system to convey our movement stream determining of the present site. The Pearson connection coefficient is received to rank the information factors (movement streams) for forecast, and the best-first system is utilized to choose a subset as the reason hubs of a Bayesian system. Given the inferred cause hubs and the comparing impact hub in the spatial-worldly Bayesian system, a Gaussian Mixture Model is connected to depict the measurable connection between the info and yield. At long last, activity stream anticipating is performed under the rule of Minimum Mean Square Error (M.M.S.E.). Exploratory outcomes with the urban vehicular stream information of Beijing show the viability of our introduced spatial-transient Bayesian system indicator.

Weather management with the implication of sensors is complex and required accuracy. Techniques devised so far still requires further enhancements for increasing accuracy of prediction. Next section presents problem definition giving parameters which can be further enhanced.

3. GAPS IN LITERATURE

Analysis of literature indicates that dataset used is offline and is not derived with the application of IoT. sensor data utilization within Weather related application is the prime cause of interest. Accurate prediction related to Weather to drivers involved along with direction sensing is missing in existing literature. Advanced application framework construction for Weather prediction is the solution for the problem.

4. COMPARISON TABLE

The comparison of various techniques that can be used to predict Weather is listed as under:-

Title	Technique	Datasets	Parameters	Merit	Demerit
A Consumer Transceiver for Long-Range IoT Communications in Emergency Environments[5]	IEEE802.11 ah Wi-Fi protocol, Time Domain Least Square(TD LS)	-----	Packet Error Rate(PE R), MSE	Increased range of service	Time of execution is substantially high
The advantages of IoT and Cloud applied to Smart Cities[6]	ClouT architecture which is combination of cloud and IoT is discussed	-----	-----	Sensorisation , Actuatorisation layer along with IoT have been added in CIaaS layer to extract data out of API's	CSaaS layer is still not completely defined.

Short-term Weather flow prediction using seasonal ARIMA model with limited input data[2]	SARIMA	3-Lane roadway in Chennai, India	Flow of vehicles' accuracy through MAPE	More accurate results even with data shortage	More time for computations
Smart Disease Surveillance Based on Internet of Things (IoT) [7]	IoT in the field of health care	Central Health Ministry	Prediction accuracy	Fast prediction of patterns of disease, help to take measures on time	Inadequate data managers, low budget, lack of technical advisory group
Optimising Power Consumption of Wi-Fi inbuilt IoT Devices[22]	Reduce power consumption of Wi-Fi enabled devices	-----	Power consumption of various processors	Wi-Fi is better than other technologies in terms of range and security	No parameters enhancements are suggested
Energy-Efficient Location and Activity-Aware On-Demand Mobile Distributed Sensing Platform for Sensing as a Service in IoT Clouds[8]	C-MOSDEN platform	Context, activity and location aware module(Both real world and simulated lab -based data were focused on)	Energy, Storage, Communication	Sensors energy is conserved and increases lifetime of network	No focus on privacy preservation technique.
Internet of Things: Remote Patient Monitoring Using Web Services and Cloud Computing[9]	Android app is framed which takes data from IOIO-OTG board. Binary file is uploaded on cloud and processed using MATLAB	Bio-medical data like temperature, pulse,blood pressure etc.	Portability of binary data	Uniform service to patients, feasible, inexpensive	Overhead due to authentication of users. Micro-controller of higher configuration can be used.
Data Mining for the Internet of Things: Literature Review and Challenges[10]	Review of various data mining techniques and its	-----	3 views of data mining--> knowledge,	Big data, data mining are hot topics to discover deep.	Parameter optimization is not considered

	applications performed		technique, application view.		
Combining KNN Algorithm and Other Classifiers [11]	KNN, C4.5, SVM And Naive Bayes Classifier(KNC)	20 UCI Datasets	Accuracy for classification	Higher accuracy	Execution time not considered
Intelligent Urban Weather Management System Based on Cloud Computing and Internet of Things[3]	Three layers of IoT architecture were combined with SOA	-----	Accuracy, Effectiveness	Specific applications were realized such as intelligent Weather control, intelligent vehicle guidance, intelligent accident monitoring etc.	No real time data is involved here
Internet of things: Vision, applications and research challenges[12]	Review of IoT along with the challenges is discussed.	-----	-----	IoT applications are described ensuring its efficient use in future work	No parameter enhancement mechanism is considered
Smartphone Based Automatic Abnormality Detection of Kidney in Ultrasound Images[13]	Viola Jones algorithm, SVM, Genetic algorithm	Ultrasound images from ultrasound scanner	Prediction accuracy	Benefits rural people, can be used for emergency	Only cyst and kidney stone is considered
Spatial and Temporal Patterns in Large-Scale Weather Speed Prediction[23]	Unsupervised methods(k-means, self organising maps, principal component analysis) to find out global trends	Road network from Outram park to Changi in Singapore.	Prediction accuracy MSE	Spatial and temporal trends found which was not possible through use of SVM	Need to incorporate these found patterns into route guiding algorithms
Improving Weather Prediction with Tweet	Correlation analysis between Weather	Weather and data from Twitter>>	MAPE and RMSE	Prediction better in comparison to auto-	Spam data presence, no work on heterogeneous

Semantics[15]	measurements and number of tweets. Later optimization framework was used.	San Francisco Bay area of California		correlation model	s Weather.
Road Weather Parameters Prediction In Urban Weather Management Systems Using Neural Networks[16]	Neural Networks	-----	Accuracy	Only for short term prediction	Better prediction model is needed for long term prediction of Weather
Smart video surveillance system for vehicle Detection and Weather flow control[17]	Image Processing - >Background Subtraction using Threshold Adjusting process	Video Database	False Rejection Rate(FRR), False Acceptance Rate(FAR), Total Success Rate(TSR)	Prediction accuracy is increased by the use of video surveillance	Cameras not for night vision, situations to suspect danger not covered.
Utilizing Real-World Weatheration Data for Accurate Weather Prediction[18]	H-ARIMA+(Hybrid model of HAM and ARIMA)	Los Angeles County Weather Network	MAPE and RMSE	Short term and Long term prediction accuracy better than ARIMA, ES, NNet	Data from each sensor is studied individually. need for spatial correlations between sensors
A Comprehensive Review on Weather Prediction for Intelligent Weather System[19]	Review of techniques used in IWS is considered like NN, fuzzy, SVM, Bayesian etc	PeMS, TMC, MIDA S, Bing data, twitter Data.	RMSE, MAPE, MRE, VAPE, EC etc	Techniques are given that can be enhanced in future work for prediction accuracy	Lack of use of deep learning techniques, datasets excluded parameters such as humidity, holidays etc.
An Aggregation Approach to Short-Term Weather Flow Prediction[20]	Integration of MA, ES and ARIMA using NN	National Highway 107, Guangzhou, Guangdong	RMSE, PAE and MAPE	Accuracy is high	Situation involving multiple detectors is missing

		g, China			
Weather big data prediction and visualization using Fast Incremental Model Trees-Drift Detection (FIMT-DD)[24]	FIMT	Departme nt of transport UK	Predictio n accuracy through MAE, RMSE and SMAPE	Accuracy is high and visualization of Weather presented for better understandin g	Means square error can be further reduced.
Weather Flow Forecasting Using a Spatio-temporal Bayesian Network Predictor[25]	Bayesian Network	-----	Accuracy through MMSE	Prediction accuracy is improved since pre-processing reduces the impact of error	No real time dataset is considered

5. PROBLEM DEFINATION

The numbers of vehicles that are moved from source to destination are known as Weather flow. Weather flow information is utilized to dissect the Weather at specific event of time. This sort of information is required so as to predict future Weather in a zone. The log can be issue if fundamental move is not made. Utilizing Weather flow information future expectation can be made hence further assistive procedures can be utilized to decrease the blockage exhibit over the system. Weather flow information gotten from GB Weather sites can be useful in such circumstances. Weather in a district has shifting effect. E.g. if there should be an occurrence of gathering Weather could be high henceforth it has beneficial outcome on a district. In a course Weather has negative impact so it ought to be limited. The proposed exposition work towards on street Weather. Applications of fog computing including sensors driven information for Weather prediction is missing in existing literature.

Problem definition is listed as under

- Sensor driven information through the application of fog computing is missing
- Prediction accuracy could further be produced.
- Execution time describing time consumed in providing route related information to the user can be minimized.

6. CONCLUSION

Weather prediction using the application of fog computing is critical that can be used to monitor time critical applications such as preventing road accidents. The relevant information is required to be transferred to the source so that user who can be a driver can take appropriate action regarding route towards the destination is the prime objective of this study. Dataset derived from sensor will be used to construct real time Weather prediction framework. Accuracy will be the key parameter that could be enhanced by the application of proposed methodology.

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