iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** V **Month of publication:** May 2018

DOI: http://doi.org/10.22214/ijraset.2018.5011

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

Smart Parking System

Alamgir Mohammad[1], Arbaz Khan[2], Rafique Mulla[3], Rohan Puranic[4], Mr. Mahesh Malwade[5]
[1, 2, 3, 4]*Students, Department of Computer Engineering, MESCOE, Pune University, India.*
[5]*Assistant Professor, Department of Computer Engineering, MESCOE, Pune University, India.*

Abstract: ***Lately the idea of savvy urban areas has increased extraordinary prevalence. Because of the development of Internet of things keen city now is by all accounts achievable. Predictable endeavours are being made in the arena of IOT keeping in notice the end goal to augment the profitability and dependability of urban foundation. Issues, for example, activity clog, restricted auto stopping offices and street wellbeing are being tended to by IOT. This paper shows an IOT based cloud incorporated keen stopping framework. The planned Smart Parking system comprises of an on location organization of an IOT based module which is utilized to signalize and screen the condition of availability of each single parking spot. A versatile application is likewise given that enables an end client to check the availability of parking spot and book a stopping opening as needs be. The paper similarly represents an abnormal state standpoint of the framework design. Towards the end, the paper inspects the working of the framework in type of an utilization case that demonstrates the rightness of the proposed display. This cost will be utilized to offer an answer of finding an accessible parking spot upon a demand by the client and an answer of recommending another auto stop if the present auto stop is full. The reenactment comes about demonstrate that the calculation enhances the possibility of fruitful stopping and limits the client holding up time. We additionally effectively actualized the proposed framework in reality.***

Keywords: IOT, Mobile App, AVR Microcontroller, Sensors, My – SQL, Eclipse.

I. INTRODUCTION

The stopping issue in huge urban communities, particularly the urban communities, has turned out to be one of the key reasons for the city activity blockage, driver dissatisfaction and air contamination. So specialists are as of late swing to applying advancements for administration of stopping region by outlining and usage of a model arrangement of shrewd stopping that enables vehicle drivers to successfully locate the free stopping places. Later on the interest for the canny stopping administration will increment in light of the fact that the fast development in the car enterprises. A successful answer for this administration can be given by numerous new innovations. Sense stopping, enabling drivers to get to stopping data through their PDAs. Numerous urban areas have been propelling their shrewd stopping ventures and applications, yet still not very many drivers can truly profit by them. That is on account of this innovation still must be enhanced from various perspectives: the robustness of sensor devices, the stability and timeliness of sensor networks, the quality and agility of urban service. The stopping checking framework is low utilization, simple to execute, and reasonable. It is useful for an auto stopping zone and it can be executed without influencing its operation schedule. The advantage of Smart Urban Parking System Detection is for drivers who don't know where to stop their autos and with restricted time to search for the accessible parking space; in the long run, the framework is relied upon to diminish the city movement. What's more, with individuals driving around less more gas will be spared so it will be a superior domain and climate. This examination leads into an effective, modest, continuous and keen framework.

II. MOTIVATION OF PROJECT

In a parking lot, a smart parking system can ensure that cars are safely and properly parked without human interference, and the time which they use to be parked in the lot can be recorded accurately, and billed accordingly.

III. LITERATURE REVIEW

[1] In the great majority of cities it is difficult and hardly expensive to create more parking spaces for vehicles since they have almost reached its full occupancy. Combining this problem with an inefficient use of parking spaces leads to congestions due to aggregation of parking seekers and regular drivers. Recent advances in low-cost, low-power embedded systems bring the opportunity to develop new applications to solve these problems. In particular, Smart Cities greatly enrich their sustainability by introducing new resource management applications that rely in those constrained devices a significant part of the functionality of the system. The proposed Smart Parking solution consists mainly in the on-site deployment of an IoT solution to monitor and signalize the state of availability of each single parking space, as well as using context information generated by the city and its citizens to provide accurate responses to driver's demands. Furthermore, this system improves the management of parking resources by public

©IJRASET: All Rights are Reserved

authorities, for instance handling groups of parking spaces facilitating the whole city traffic management. The integration of this deployment into an existing live test-bed implies an easy task requiring just the data collection through the available means of the parking spaces availability. At the present time there exist living test-beds which can be used to integrate these new functionalities for experimentation on IoT data level, to gain a better knowledge and understanding of the M2M world, reducing costs, resources, pollution and time.

[2] The growth in low-cost, low-power sensing and communication technologies is creating a pervasive network infrastructure called the Internet of Things (IoT), which enables a wide range of physical objects and environments to be monitored in fine spatial and temporal detail. The detailed, dynamic data that can be collected from these devices provide the basis for new business and government applications in areas such as public safety, transport logistics and environmental management. There has been growing interest in the IoT for realising smart cities, in order to maximise the productivity and reliability of urban infrastructure, such as minimising road congestion and making better use of the limited car parking facilities. In this work, we consider two smart car parking scenarios based on real-time car parking information that has been collected and disseminated by the City of San Francisco, USA and the City of Melbourne, Australia. We present a prediction mechanism for the parking occupancy rate using three feature sets with selected parameters to illustrate the utility of these features. Furthermore, we analyse the relative strengths of different machine learning methods in using these features for prediction.

[3] Concerning the phenomenon that common parking service could not satisfy the increasing demand of the private vehicle owners, an intelligent parking guidance system based on Zig Bee network and geomagnetic sensors was designed. Real-time vehicle position and related traffic information were collected by geomagnetic sensors around parking lots and updated to center server via Zig Bee network. On the other hand, out-door Liquid Crystal Display screens controlled by center server can display information of available parking places. In this paper, guidance strategy was divided into four levels, which could provide clear and effective information to drivers. The experimental results prove that the distance detection accuracy of geomagnetic sensors was within 0.4m, and the lowest package loss rate of the wireless network in the range of 150m is 0%. This system can provide solution for better parking service in intelligent cities.

[4] Cloud computing and Internet of Things (IoT), two very different technologies, are both already part of our life. Their massive adoption and use is expected to increase further, making them important components of the Future Internet. A novel paradigm where Cloud and IoT are merged together is foreseen as disruptive and an enabler of a large number of application scenarios. In this paper we focus our attention on the integration of Cloud and IoT, which we call the CloudIoT paradigm. Many works in literature have surveyed Cloud and IoT separately: their main properties, features, underlying technologies, and open issues. However, to the best of our knowledge, these works lack a detailed analysis of the CloudIoT paradigm. To bridge this gap, in this paper we review the literature about the integration of Cloud and IoT. We start analyzing and discussing the need for integrating them, the challenges deriving from such integration, and how these issues have been tackled in literature. We then describe application scenarios that have been presented in literature, as well as platforms -- both commercial and open source -- and projects implementing the CloudIoT paradigm. Finally, we identify open issues, main challenges and future directions in this promising field.

IV. PROBLEM STATEMENT

Drivers, upon entering a parking lot, need certain additional amenities, which make it a better experience for both the driver, and the parking lot management. In this, when a driver enters a parking lot, he or she has to register with the management promptly, through an android app, and be guided to the most conveniently located vacant parking spot. After this has been achieved, the management then can accurately bill her using a digitized system consisting of sensors, and computers which shall record and generate the amount for payment. The driver's vehicle will be released only through the payment to the management via an e-wallet application.

V. CONCLUSIONS

Help of a mobile-based app that helps you in locating a free parking slot and then guiding you all the way to the empty slot found, also eliminating the conventional physical currency payment.

Improve parking management capabilities – The ability to collect real-time information about parking availability will enable parking lot operators to better assess the demand for parking and to implement strategies aiming to increase the utilization of parking lots with spare capacity and redistribute the demand for parking at over utilized lots towards lesser used facilities.

Enhance the convenience of parking at transit stations – Increase the convenience and reliability of using transit by offering advanced parking availability information, parking space reservation options, and electronic payment methods that may be compatible with other payment systems.

©IJRASET: All Rights are Reserved

REFERENCES

[1] Rico, J., Sancho, J., Cendon, B., & Camus, M. (2013, March). Parking easier by using context information of a smart city: Enabling fast search and management of parking resources. In Advanced Information Networking and Applications Workshops (WAINA), 2013 27th International Conference on (pp. 1380-1385). IEEE.

[2] Zheng, Y., Rajasegarar, S., & Leckie, C. (2015, April). Parking availability prediction for sensor-enabled car parks in smart cities. In Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), 2015 IEEE Tenth International Conference on (pp. 1-6).IEEE.

[3] Zhou, F., & Li, Q. (2014, November). Parking Guidance System Based on ZigBee and Geomagnetic Sensor Technology. In Distributed Computing and Applications to Business, Engineering and Science (DCABES), 2014 13th International Symposium on (pp. 268-271). IEEE.

[4] Botta, A., de Donato, W., Persico, V., & Pescapé, A. (2014, August). On the Integration of Cloud Computing and Internet of Things. In Future Internet of Things and Cloud (FiCloud), 2014 International Conference on (pp. 23-30). IEEE.

[5] Ji, Z., Ganchev, I., O'droma, M., & Zhang, X. (2014, August). A cloud- based intelligent car parking services for smart cities. In General Assembly and Scientific Symposium (URSI GASS), 2014 XXXIth URSI (pp. 1-4). IEEE.

[6] International Parking Institute, "2012 Emerging Trends in Parking".

[7] Ballon, P., Glidden, J., Kranas, P., Menychtas, A., Ruston, S., & Van Der Graaf, S. (2011, October). Is there a Need for a Cloud Platform for European Smart Cities?. In eChallenges e-2011 Conference Proceedings, IIMC International Information Management Corporation.

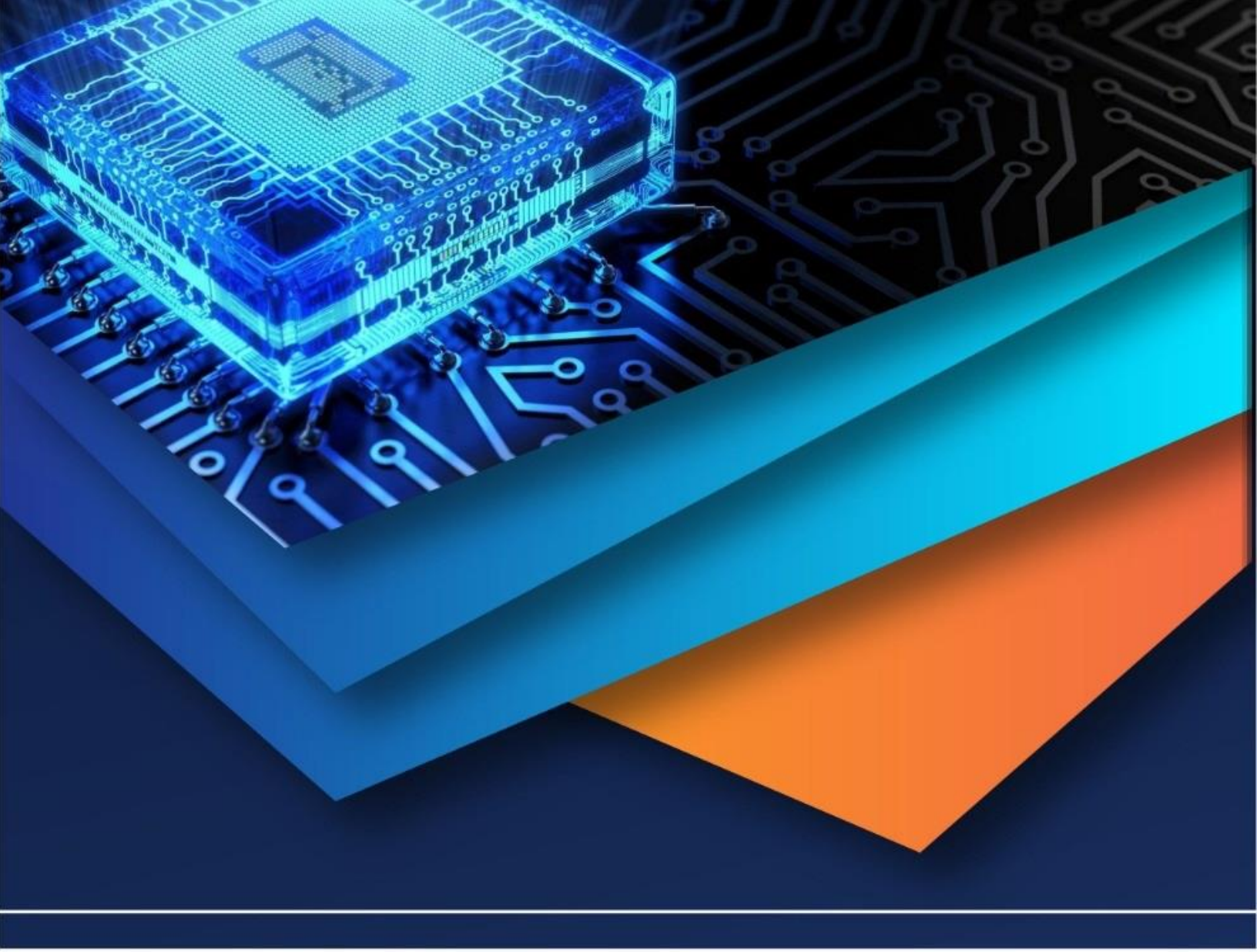
[8] FastPark System website, http://www.fastprk.com.

[9] Chen, S. Y., Lai, C. F., Huang, Y. M., & Jeng, Y. L. (2013, July). Intelligent home-appliance recognition over IoT cloud network. In Wireless Communications and Mobile Computing Conference (IWCMC), 2013 9th International (pp. 639-643). IEEE.

[10] Dash, S. K., Mohapatra, S., & Pattnaik, P. K. (2010). A survey on applications of wireless sensor network using cloud computing. International Journal of Computer science & Engineering Technologies (E-ISSN: 2044-6004), 1(4), 50-55.

[11] Fox, G. C., Kamburugamuve, S., & Hartman, R. D. (2012, May). Architecture and measured characteristics of a cloud based internet of things. InCollaboration Technologies and Systems (CTS), 2012 International Conference on (pp. 6-12). IEEE.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)