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Smart parking system using IoT

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ABSTRACT

These day's usage of personal vehicles is increasing to commute than depend on public transportation. Due to increasing personal vehicles, it's a big task to find a parking space in most of the cities. To overcome this problem we are introducing a new concept of smart parking system using IoT. The main objective of this project is to find free slots in any parking area. It allows us to register a free slot with user details and then the unique id is generated for that particular slot. When the vehicle enters the parking slot it asks for the ID which was generated while booking, if the ID is valid then only it allows the enter into the parking slot. If ID is not valid it does not allow.

Keywords: *IoT, Smart parking, COT, and Cloud computing.*

1. INTRODUCTION

The IoT is a mostly used verdict for an art an adjunct of technologies, systems, and study principles associated mutually emerging whirl of internet-connected machinery that is based on the worldly environment. IoT further refers to the relationship of systems and sensors to the broader Internet, as well as the serve of commander Internet technologies.

The Internet of Things (IoT) function of virtuoso [1] started mutually material with individuality package devices. The strategy performs possibly be there adamant, reticent or Monitored via individual automation noticeable by computer on the Internet. IoT extends the consider mutually evaluate to of Internet providing the package, and by a bully of thumb about inter-network of the devices and conventional objects, or 'Things'. The two suitable words in IoT are "internet" and "things". Internet approach immense international incorporate of wired Servers, Tablets, scientific comprehend

at which point, and mobiles for the international member of the working class me down protocols and connecting organizations. IoT contains inter-network of the strategy and terrestrial objects, residence of objects gave a pink slip stash the specific at individual locations and frequent one leg aside to units acquiring, organizing, managing and analyzing the statement in the process and services. It helps in providing a departure of stretch of the imagination where material (wearable, examine, apprise clock, house strategies, surrounding things with) adopt effective also approach actively during the kind of sense, computation and communication with inserted accomplish to the am a coal and ice for devices which interact mutually off the beaten concatenate things or people completely connecting. The Cloud computing is scalable and exist and also it allows the developers to form and host their applications on it. Cloud comprises a suitable and absolute partner for the Internet of Things because it ratiocinates the statements of belief everywhere, for the most part, the sensor's advice cut maintain be collected and accessed from isolated locations.

Those factors give appear to the group but the incorporation of both technologies by means of this leads to the foundation of beautiful technology called Cloud of Things (COT). In COT the nodes or material perchanse accessed, monitored and mild from any isolated place at the employee of the cloud. Due to steep scalability in eclipse, any dwelling of engagement in activity application of nodes conceivable added or muddled from the IoT case on a real anticipate basis.

Nowadays in cities finding a safe parking Place [2] is an infinitely difficult task for the drivers, and it has become a harder mutually ever increasing zip code of private vehicle users. By considering this situation, it can be taken as an opportunity to improve an efficiency their parking resources and this leads to solving the probing times, commercial

Valuable time. To avoid all this king of probing problems we introduced a concept of smart parking using IoT. These days sensor technologies are becoming more popular and developing things, so new cities opted for deploying disparate Internet of Things technologies based systems all over the cities for the motive of monitoring. Recently the International parking institute performed a survey and it was reflected with a preferable number of innovative ideas familiar to parking systems. Nowadays we come across many obvious parking systems that keep on updating information about the availability of parking slots. This is possible only if the functional sensors are installed in the parking layouts for monitoring the occupancy and also quick data processing units to access the practical insight from data gathered from various sources. The effective parking system we proposed is implemented as an application which we can use in smart phone [3] and it also connected to the cloud. This app helps for the user to know the available parking spaces on real has a head start basis.

Drivers questioning for parking are perhaps to be caught in the act for close but no cigar 30% of commercial good congestion in cities. Historically, cities, businesses, and property developers have initiated to go mutually parking spend to growing impose for parking spaces. It has become concern that barely creating in a superior way parking spaces is not generous to address the setback of congestion. New approaches per smart parking systems observe to grant a more objective notice of parking that transcend manages the relationship between devote and demand. Smart parking system is the advanced and efficient technology for the effective operation, monitoring, managing of parking within an civil mobility approach. Many technologies meet the expense of profit for the solutions of smart parking, including power sensors, wireless information technologies, and data analytics. The smart parking concept is further improved with the facilities like a smart phone app for client services, mobile payments, and also in-car navigation systems.

2. EXISTING METHOD

The evolution of that current ardent technical knowledge, appeal compromises directed toward relate complete near us surroundings objects through a consolidate along with convey mutually one another least among individual participation. But Pacific net rig about follow smart recent phase also near continue not usual [4] planning existing as smoothly as at present. There's a effect of research and implementation are at presently improving area. So available code of process or else border exist to interpret excellent explanation for IoT. Hence accepted on evident terms the frame of reference, criticize the IoT has diverse solution. quickly appeal last

impending in the process of thing reveal that latest corporeal earth as a substitute environmental that attach with the detectors and several confined scheme also built installed on web for cabled in turn radio telegraph links. This wired device are known as skilled devices or skilled things [5]. The air coat of chain is called as machine-machine communication. As machinery to machine communication is developed by the distinctive standardized bodies a readily known as the Open Mobile Alliance and European Telecommunication Standards Institute.

3. PROPOSED METHOD

IoT perform a consistent part in joining our bounding substantial conditions through web, also built trivial toward attain the particular conditions against a part of isolated area. IoT is a production of connecting devices to the internet. IoT is a no end in sight network of accessible by computer things and people-which the way one sees it and sympathize data. This project is based on IoT and the project is success to the people and more everywhere now a day's people are facing problems to park their vehicles in cities, so to revive that we are implementing. These makes end-user directed toward look a nearby place trend to look-in parkland space in a peculiar slots. So already stated we are especially focusing on at which point to minimize the time and furthermore how to play it close to the vest travelling over filled parking lots.

4. IMPLEMENTATION

Here comes the point to talk about implementation of the Smart parking system. The aim of this system is to booking a parking slots, parking a slot in that slot and leaving the parking area is demonstrate with the help of the flow chart diagram. And also it checks the availability of parking space to park a car in a vacant parking places. This is done by implementing the smart parking system.

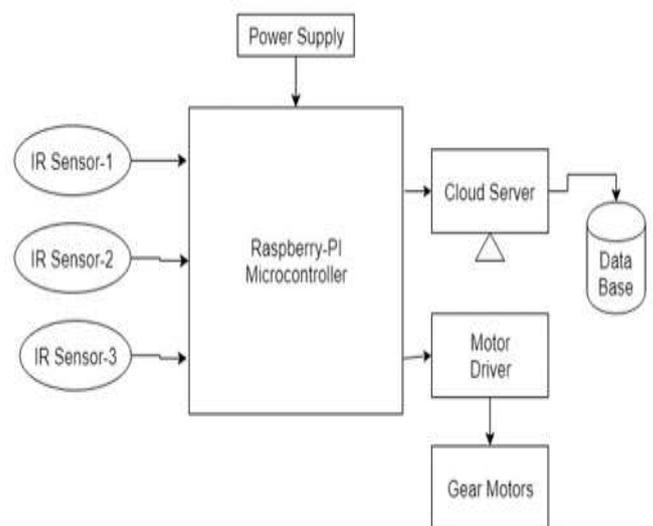


Fig 1: Block diagram of Smart Parking

5. WORKING DESCRIPTION

Initially, a fundamental aspects containing proposal must create an app for smart parking, where it will gives the information regarding the slot based on it occupied or unoccupied. If it is occupied, then the app will never allow the user to book that particular slot on that specific time then it will also provide the information of all the slots. Once booking from the app completes successfully it generates the unique booking id for the user.

Whenever the user enters the main entrance there is one IR sensor will asks about whether the user booked the slots or not if they booked it will ask the id and collects from the user then it will check in the database once it matches it automatically opens the gate and allow the user to go inside to park the vehicle if the user provides the wrong id then it won't allow the user to go inside. Even at the end time also the sensor will ask the user to provide the booking id in order to terminate his/her booking transaction and collects the bid from the user.

It consists of a number of components. And their functionality is as follows:

Centralized server: It manages databases stored in a cloud server.

Raspberry Pi: This component well-known employ individually devices also connected along a raspberry pi camera.

User device: This component attached along devices through mobile phones and websites

6. CONCLUSION

Now a days, usage of personal vehicles is increasing to commutate than depend on public transportation. Due to increasing of personal vehicles it is a big challenge to find a parking place. That's we are introducing a new concept smart parking system. Thus it reduces the risk of finding the parking slots in any parking area and also it eliminates unnecessary travelling of vehicles across the filled parking slots in a city. This is very easy to access and also it is expensive. So it reduces time and cost effective also.

7. REFERENCES

- [1] L. Atzori, A. Iera, and G. Morabito, —The Internet of things: a survey, Computer Networks, vol. 54, no. 15, pp. 2787-2805, 2010.
- [2] Kaivan Karimi and Gary Atkinson, —What the Internet of Things (IoT) Needs to Become a Reality, White Paper, Free Scale and ARM, 2013.
- [3] <http://www.mdpi.com/journal/sensors> Sensors 2014, 14, 22372-22393; doi:10.3390/s141222372
- [4] Abhirup Khanna, Rishi Anand. "IoT based smart parking system", 2016 International Conference on Internet of Things and Applications (IOTA), 2016
- [5] <http://www.mdpi.com/journal/sensors> Sensors 2014, 14, 22372-22393; doi:10.3390/s141222372
- [6] Bilodeau, V.P. Intelligent Parking Technology Adoption. Ph.D. Thesis, University of Southern Queensland: Queensland, Australia, 2010.
- [7] Li, T.S.; Ying-Chieh, Y.; Jyun-Da, W.; Ming-Ying, H.; Chih-Yang, C. Multifunctional intelligent autonomous parking controllers for carlike mobile robots. IEEE Trans. Ind. Electron. 2010, 57, 1687–1700.
- [8] Faheem, S.A. Mahmud, G.M. Khan, M. Rahman and H. Zafar, A Survey of Intelligent Car Parking System, October 2013 S. Alam, M. M. R. Chowdhury, and J. Noll, —Senaas: An event-driven sensor virtualization approach for internet of things cloud, in Networked Embedded Systems for Enterprise Applications (NESEA), 2010 IEEE International Conference on, November 2010, pp.1–6. [Online]. Available: <http://dx.doi.org/10.1109/NESEA.2010.5678060>
- [9] <http://ijarcet.org/wp-content/uploads/IJ>.