iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VII **Month of publication:** July 2021

DOI: https://doi.org/10.22214/ijraset.2021.36247

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: 7.429
Volume 9 Issue VII July 2021- Available at www.ijraset.com

A Research on Smart Car Parking System using IOT

Ashvini Uke [1], Tejaswini Chhapekar [2], Saurabh Giradkar[3], Sneha Nimje[4], Dr. Girish D. Korde[5]
[1, 2, 3, 4]*B.E Student,* [5]*Assitant Professor Electronics and Communication, Rashtrasant Tukdoji Maharaj University, Nagpur, Maharashtra*

Abstract: ***The internet of things plays an important role of connecting numerous physical devices and automating them to create human's life easier. By exploitation sensors, actuators and numerous software package therefore we are able to connectobjects and transfer information. Today government has created priority to create cities good across the country. To create a town good, we've to try and do numerous things that may be developed exploitation net of things and good parking is one in allthem. With the event of road infrastructure, there's a big increase in variety of personal vehicles which ends in hold up, directlyeffecting the flow of traffic, and lifetime of voters. Parking becomes a big downside within the urban areas. The analysis paperproposes a wise parking system to unravel the present parking downside at reasonable value. The projected smart Parking system consists of associate on-the-scene preparation of associate IOT module that's custom-made monitor and signalizes thestate of convenience of each single automobile car parking zone. A mobile page is to boot providing permits associate user to see the availability of automobile car parking zone and book a parking slot consequently. Towards the tip, the complete projected system shows the operative of the system in kind of a use case that proves the correctness of the projected model.***
Keywords: Wi-Fi module, IOT Based Technique

I. INTRODUCTION

Now a days, main downside in malls, perform halls and etc., is parking. It'sthanks to the shortage of decent parking zone. Now a days the vehicles in a very family area unit larger than the pinnacle count of the members of the family, and thanks to thisthe vehicles are increased within the country, that results in the parking state of affairs which is sadly falling short to the presentneeds in the country. Thanks to this parking is troublesome and it additionally increases the time required to park the vehicle withincrease in the fuel consumption of the vehicle. And through the operating days the businesses and offices face the matter of the parking in urban areas. Currently a day's vehicles area unit most affordable to the low financial gain cluster families additionally and therefore the vehicles particularly the cars area unit taking ton of area. Due to the increase in vehicles the parking zone is additionally not decent in this full city.

Whether or not at a searching malls, stations and field, issues with parking could be a massive issue. Most of the time folks pay their time on looking parking, to park their vehicles. Thus, ton of congestion happens within the traffic which results in a tedious job to seekout the parking zone to park their vehicle. The foremost traffic happens solely owing to vehicle congestion within the urban area unites so folks are delay in searching the car parkabnormally to park their vehicles. And another} issue is additionally added to the currentis pollution, which effects the whole atmosphere thanks to this increase in vehicles. Internet of factor (iot) has the flexibility to transfer knowledge through network while not involving human interactions. Iot allows user to use cheap wireless technology and additionally helps the user to transfer the info into the cloud. Iot helps the user to maintaintransparency. The thoughtof iot started with the identity of things for connecting numerous devices. These devices will be controlled or monitored through computers over web. Iot contains 2 distinguished words ―Internet‖ and ―Things‖, wherever web could be a huge network for connecting servers with devices. Internet allows the information to be sent, receive or maybe communicate with the devices. The parking downside causes pollution and traffic congestion. In today's state of affairs, parking zone is hard to go looking in a very day to day life for the folks. According to the recent survey, there'll be a speedy increase within the vehicle's population of over one.6 billion around 2035.

Thus, sensible parking system is that the key answer to reduce the waste stage of the fuel. The answer for the problems that's being raised. The sensible parking will be a solution to minimize user's time and potency additionally as the overall price of the fuel burnt in search of the parking space. In this, the info is collected from the device and through analyzing and process, the output is obtained.

©IJRASET: All Rights are Reserved

II. REVIEW OF LITERATURE

1) Yuvaraja. M, Monika. M, ―IOT BASED VEHICLE PARKING PLACE DETECTION USING ARDUINO‖, International Journal of Engineering Sciences &Research Technology (ISSN: 2277-9655) May 2017. This Paper tells that Vehicle parking place is one in every of the foremost downside in day-to-day life and it's indirectly ends upin the tie up. This paper presents the IOT based mostly parking place detection with the mobile app.

The user will ready to check the closest parking place convenience and reserve the parking slot using mobile application. The mobile application can act as an interface between the top user and also the system. Infrared sensing element is placed at the parking slot together with the Arduino. Infrared sensing element is employed to find whether or not the slot is occupied or empty and it's updated to the cloud using the GSM. Arduinois employed to trace the amount of vehicles position within the car park.

2) Dr Y Raghavender Rao, ―Automatic Smart Parking System using Internet of Things (IOT)‖, International Journal of Engineering Technology Science and Research (IJETSR), Volume 4, Issue 5 May – 2017. This paper tells that net of Things (IOT) plays an important role in connecting the encompassing environmental things to the networkand created simple to access those uninterest things from any remote location. It’s inevitable for the individuals to update with the growing technology. And customarily individuals face issues on parking vehicles in parking slots during a town.

During this study we have a tendency to Smart Parking System (SPS) that permits the user to seek out the closest parking lot and provides availableness of parking slots therein several parking lots. And it chiefly concentrate on reducing the time to find the parking heaps andadditionally it avoids the spare movement through stuffed parking heaps during a parking lot. So it reduces the fuel consumption that successively reduces carbon footprints in an environment.

3) Syed Zainuddin, Mohammed Shah Naseeruddin, Asim Mohiuddin, M. Satish Yadav, ―SMART PARKING SYSTEM USING IOT‖, International Research Journal of Engineering and Technology (IRJET), Volume: 06 Issue: 03 | Mar 2019. Smart Parking may be a parking strategy that mixes technology and human innovation in an endeavor to use as few resources as possible such as fuel, time and space to reach quicker, easier and denser parking of vehicles for the bulk of your time they continue to be idle. The good Parking system consists of Associate in having on-the-scene readying of Associate in having IoT module that's accustomed monitor and signalize the state of handiness of every single car parking zone that permits the user to search out the closest car park and offers handiness of parking slots in various car park.

These systems use effective sensors within the parking areas and by following data from numerous sources and conjointly deployed active processing units.

Here our projected plan isenforced exploitation Django net framework and making an online application therefore the drivers or finish users might get their parking data via Wi-Fi or web. It primarily focuses on reducing the time find the parking tons and conjointly it avoids theunneeded travel through stuffed parking tons in a very car park. Thus, it reduces the fuel consumption that successively reducescarbon footprints in an environment.

4) Anusha, Arshitha M S, Anushri, Geetanjali Bishtannavar, Ms. Megha D Hegde,―Review Paper on Smart Parking System‖, International Journal of Engineering Research & Technology (IJERT) , ISSN: 2278-0181 (2019). The project entitled THE SMART PARKING SYSTEM presents associate IOT based mostly good parking system that provides associate best answer for the parking downside in metropolitan cities.

Because of fast increase in vehicle density particularly throughout the height hours of the day its troublesome task for the users to seek out the parking zone to park their vehicles. This study proposes a sensible parking system supported Arduino elements and mobile application.

The planned good parking system consists of associate onsite preparation of associate slot module that’s accustomed monitor and signalizes the state of convenienceof every single parking zone. A mobile application is additionally providing permits associate user to envision the supply of parking zone and book a parking slot consequently. Good parking will increase the economy by reducing fuel consumption andpollution in urban cities.

©IJRASET: All Rights are Reserved

III. BLOCK DIAGRAM

The above figure shows the block diagram proposed system.

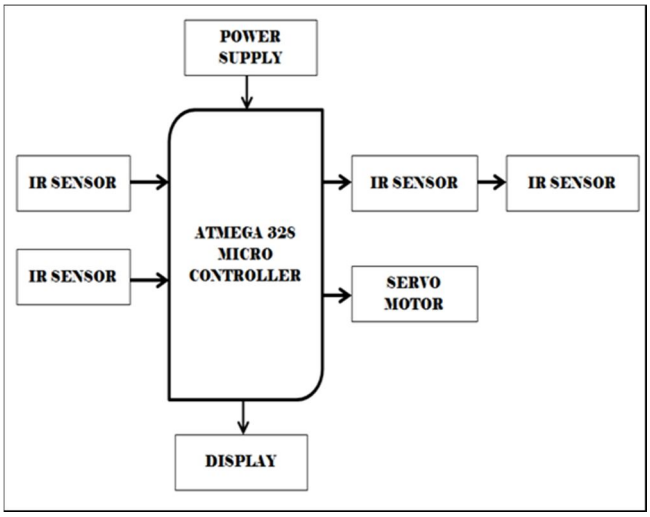


Figure 1: Block Diagram of Smart Car Parking System using IOT

The system consists of a microcontroller unit for the controlling process which hasinterfaced with an IR sensor, Power supply, Display, and Servo motor Infrared detector is employed to observe the parking slot and confirm whether or not the parking slot is vacant or not. The Infrared sensor is connected to Microcontroller. This Sensor is connected with a 5v supply. In Microcontroller the HTML page server is feed. So, the sensing data is sending or display on that page on mobile. The server act as an interface between the system and the end-user. The purpose of the server is to provide information about the parking spaceavailability and the user will book the slot accordingly. The ServoMotor is used to open and close the gate while the car is passingout or in. All section is interfaced with a microcontroller. The overall data is seen on display.

IV. ADVANTAGES

A. Providing better control for consumers, businesses, and law enforcementrepresentatives
B. Real-time monitoring of parking space
C. Optimizing space and time in a tight and busy urban environment
D. Foresee the flow of vehicles by analyzing parking routines in malls, businessstores, airports

V. APPLICATION

A. Parking demand management and space optimization
B. Personalized parking guidance
C. Parking reservation systems
D. Dynamic parking prices and policy optimization
E. Detection of parking zones, fees, and overstays violations.

VI. RESULT

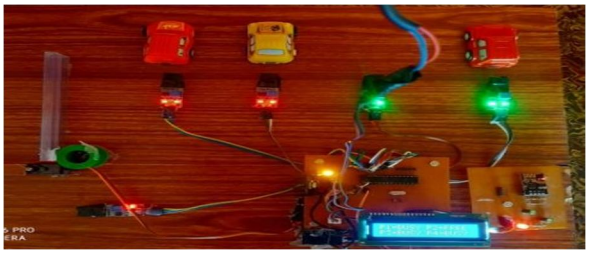


Figure 2: Result View of Smart Car Parking System Using IOT

©IJRASET: All Rights are Reserved

Above figure shows the overview of our project in which we are using four loads to show our output. There are four car parking slots which will show availability of car parking slots on web page. Microcontroller unit for the controlling process which has interfaced with an IR sensor, Power supply, Display, and Servo motor Infrared detector is employed to observe the parking slot and confirm whether or not the parking slot is vacant or not. So, the sensing data is sending or display on that page on mobile. It is well managed to access and map the status of parking slots from any remote location through web app. Thus, it reduces the time of finding the parking slots in any parking area andalso it eliminates unnecessary travelling of vehicles across the filled parking slots in acity.

VII. CONCLUSION

This project focuses on implementation of car parking place detection using Internet of Things technology. By using IR sensor, the parking place vacancy is detected and it is updated to the user using the mobile HTML Page. By using this HTML page, the parking area can be easily identified so the traffic is reduced and also carbon emission is also reduced. This project is low cost, low power consumption, more accurate and well suited for real time implementation.

VIII. FUTURE SCOPE

With the rise of the urban population, the necessity for living and infrastructure area is above ever before. On the opposite hand, the growing variety of automobile homeowners it is calculable there will be over 2 billion cars on the road by 2035 — creates a high demand for parking areas. Parking management systems facilitate fulfills driver's wants while not compromising on living and recreation area. In line with a sensible parking institute survey, forty second of respondents voted in favor of the requirement of parking systems. The nice news is, due to an automobile parking space device system, connected platforms, and different iot applications, drivers will determine wherever the closest parking spot is found, if it's occupied. Within the future, period of time parking maps can probably be commonplace. As to the innovations that are already enforced within the field, here are the highest good parking applications that have already been or are set to be free within the close to future.

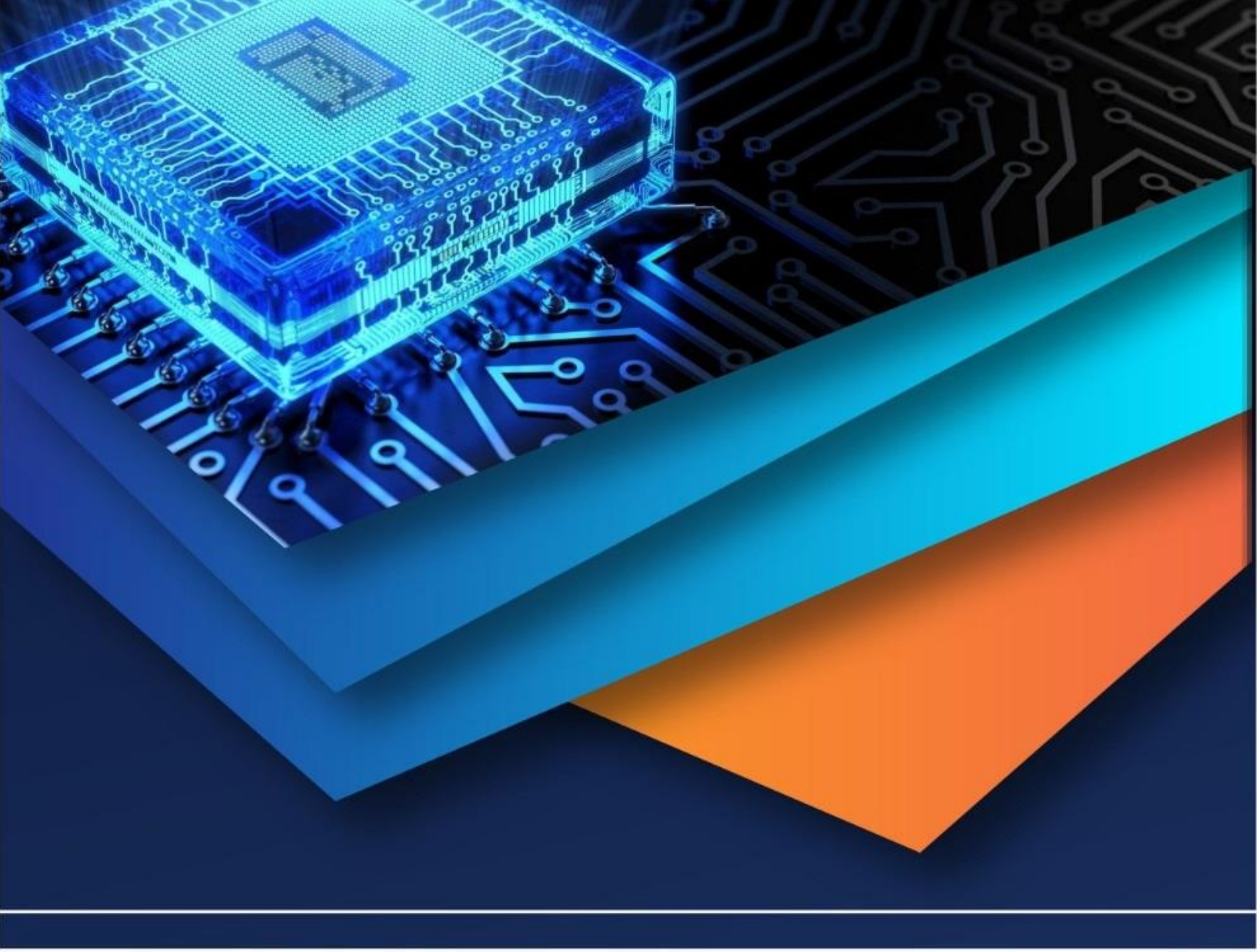
REFERENCES

[1] Yuvaraju. M, Monika. M , "IOT BASED VEHICLE PARKING PLACEDETECTION USING ARDUINO", International JournalOf Engineering Sciences & Research Technology(ISSN: 2277-9655) May 2017
[2] Dr Y Raghavender Rao, "Automatic Smart Parking System using Internet of Things (IOT)", International Journal of Engineering Technology Science and Research(IJETSR), Volume 4, Issue 5 May – 2017
[3] Syed Zainuddin, Mohammed Shah Naseeruddin, Asim Mohiuddin, M.Satish Yadav, "SMART PARKING SYSTEM USING IOT", International Research Journal of Engineering and Technology (IRJET), Volume: 06 Issue: 03 | Mar 2019.
[4] Anusha, Arshitha M S, Anushri, Geetanjali Bishtannavar, Ms. Megha D Hegde,"Review Paper on Smart Parking System",International Journal of Engineering Research & Technology (IJERT) , ISSN: 2278-0181 (2019).

©IJRASET: All Rights are Reserved

[5] ElakyaR,Juhi Seth, Pola Ashritha, R Namith, "Smart Parking System using IoT", International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 – 8958, Volume-9 Issue-1, October 2019
https://www.elprocus.com/lcd-16x2-pin-configuration-and-its-working/

©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)