SMART CAR PARKING

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ABSTRACT

Efficient and smart way to automate the management of the parking system that allocates an efficient parking space using internet of things technology. The IoT provides a wireless access to the system and the user can keep a track of the availability of the parking area. The common problem that is mostly found in urban area is the insufficient car parking. This problem is the result of the continuing increasing number of vehicle and road congestion problem that is being faced. The car parking management is insufficient, so the users waste their time and fuel trying to look for the available parking. The parking area management is more efficient as it minimizes the limitation of traditional system which the users have to access Android application, which is unable to automatically alert when the parking slot status has changed. The aim of this project is to resolve these issues. Thus, the waiting time for the user in search of parking space is minimized. We are using sensors for checking the available space using the information is processed in Arduino and lastly user can get the parking details in their smart phones through GPS to decide on their required slot.

Keyword: *IoT, Android Application, IR-Sensors.*

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1. INTRODUCTION

Smart car parking system is an integrated system to organize cars in public area. In today's life people don't depend on public vehicles. They use their own vehicles to travel. So, traffic increases. When people travel through a city the most difficult problem is to park the vehicle. It causes not only a waste of time and fuel for drivers looking for parking but it also leads to additional waste of time and fuel for other drivers as a result of traffic congestion.

Based on the review of previous research studies relevant to the parking slot systems or parking slot management currently used in other countries, it was indicated that most still apply the conventional management system in which the staff record data and handle the parking slot. The problem is that it can't identify the number of cars accessing the area and the exact location of available parking spaces. As a result, people waste their time to find the available space. According to the recent survey, there will be a rapid increase in the vehicle's population from 841 million cars in 2008 to over 1.6 billion around 2035. Around one million barrels of world's oil is being burnt every day. Thus, smart parking system is the key solution to reduce the wastage of the fuel. The solution for the problems that is being raised. The smart parking can be a solution to minimize user's time and efficiency as well as the overall cost of the fuel burnt in search of the parking space. In this, the data is collected from the sensor and through analysing and processing, the output is obtained.

The primary stage is sensing the parking slot using the sensors; the second stage is detected information is processed in Arduino; the third stage is user can get the parking details in their smart phones through GPS to decide on their required slot. This data gets transmitted in the devices which extracts the relevant information and sends it to the Arduino device which gives the command instruction for the data to the particular devices simultaneously. Arduino sends the signal to the servo motor along with GSM module which further gives instructions and notification to the user.

PROBLEM STATEMENT

Due to the large number of vehicles in the urban areas there is a problem in finding the spot for parking the car, they

will waste their time in searching the slot for parking. To overcome this problem, we are going to implement Smart car parking.

OBJECTIVES

- The main objective of our project is to monitor parking slotfroandroand IoT.
- Admin will control the whole system using Android applications.
- To develop a user-friendly smart car parking systemreduces man power.
- To help users to find parking slots easily and quickly through an app.
- To reduce traffic mess caused by an unplanned parking system.

LITERATURE SURVE

1.Mr. Basuvaraju S R "Automatic Smart Parking System using the Internet of Things (IoT)" in International Journal of Scientific and Research Publications.

This design atomic smart parking system which is simple economic provided effective solution. It is well managed to access and map the status of parking slots. Thus, it reduces the risk of finding parking slots.

2.D.J. Bonde, R.S. Shinde, K.S. Gaikwad A.S. Kudari, A.U. Bhokre, "Automated Car Parking System commanded by Android application", Proc.Int. Conf. Comput. Commun. Inform. (ICCCI), PP. In this paper, the implementation of an automated car parking systemcommanded by android application is successfully discussed. The components used for the implementation of the systemprovide efficient output at various stages of implementation.

3.Abhirup Khanna, R. A. (2016). IoT based Smart Parking System. International Conference on Internet of Things and Applications (IOTA) (p.5). Pune: IEEE.

This addresses the issues of parking and present an IoT based Cloud integrated smart parking system. The system that we propose provides real time information regarding availability of parking slots. User could book a slot using mobile application.

4.Hina C. Parmar, Nisha N. Shirvi The proposed system reduces drive frustration and traffic by providing nearest parking area and available slot. As smart parking system increases the service levels in operation, there is a lot of scope for innovations and implementation through data standardization and management, mobile phone integration, hardware and software integration. Basically, smart car parking system save time, money, space and help to simplify the often-tedious task of parking.

METHODOLOGY

The primary stage is sensing the parking slot using the sensors; the second stage is detected information is processed in Arduino; the third stage is user can get the parking details in their smart phones through GPS to decide on their required slot. This data gets transmitted in the devices which extracts the relevant information and sends it to the Arduino device which gives the command instruction for the data to the particular devices simultaneously. Arduino sends the signal to the servo motor along with GSM module which further gives instructions and notification to the user.

Client Side

- The application will be built on Android Studio.
- HTML, CSS, XML will be used for front end design.
- MySQL used for backend.
- Raspbian OS for UI.

Server Side

- PHP will be used to provide connectivity between the Android application and the Database (Firebase).
- JSON will be used to transmit data from server to application.
- Firebase is used for data storage.
- Python server.

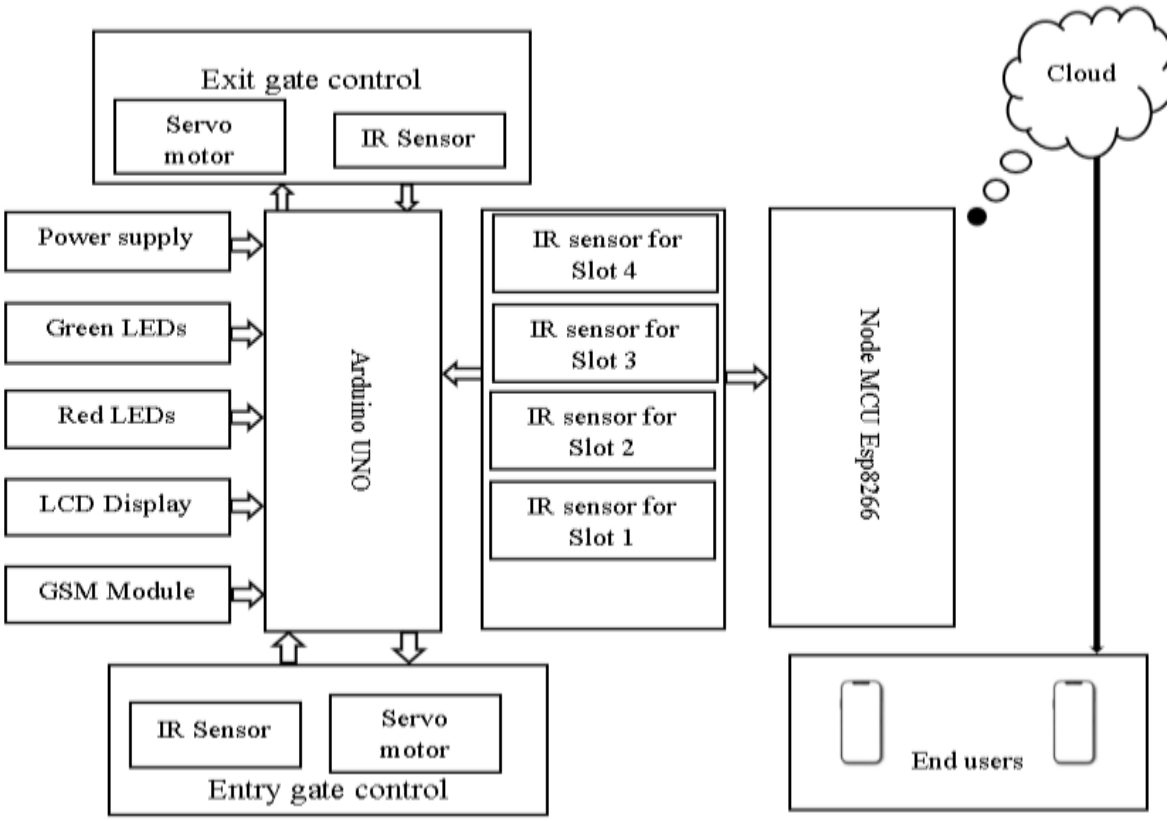

Fig 1: Block diagram

The above block diagram shows, that the servo motor at the exit and entry gate and also IR sensor for detections of vehicles. The power supply, green LED'S red LED'S A for checking the availability of slots, LCD display the number of slots occupied and empty slot on the entrance of the parking slot, GSM module all these are connected to Arduino UNO. Sensors are also connected to Arduino UNO and also to the Node MCU Esp8266 which is developing board specially targeted for IoT based Application. All the information are stored in Cloud. Lastly the end user will see the results in the Phone.

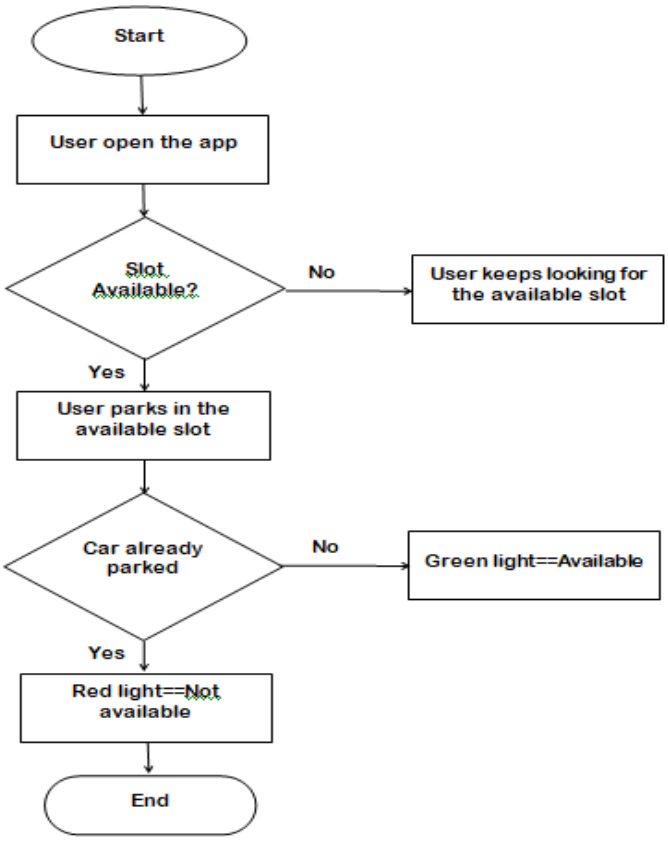

Fig 2: Work flow

- This project in order to depict the working of our system at every stage from checking the availability of parking space to actually park a car in a vacant parking slot.
- Once the user books the slot with the date and time, he will use that area for the set period of time.
- We are implementing Android application, IoT and Raspberry pi in the parking areas.

Fig 3 :Login page of app

The user have to create a accout and can login .

Fig 4: Main page

After login you will see the scanner,slots checking,feedback and about info in Main page.

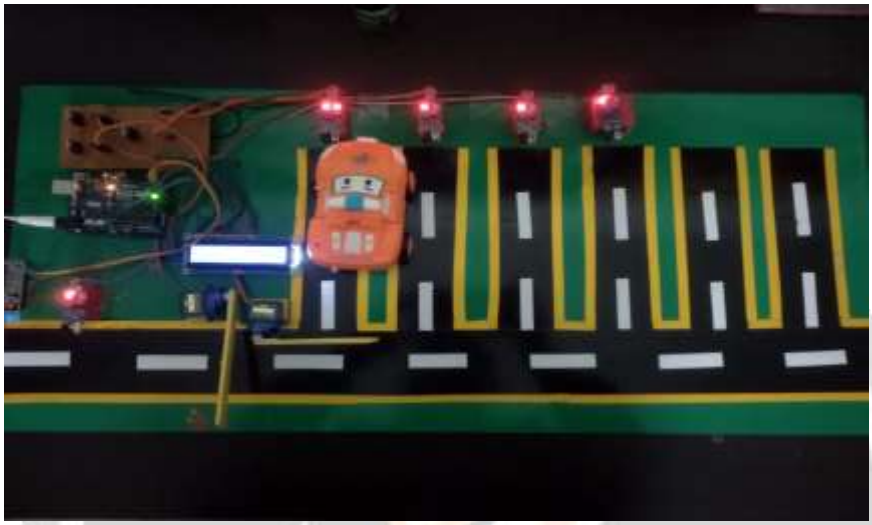

Fig 5: Model

This is the final outlook of our project.

CONCLUSION

The system that we will propose, provides real time information regarding availability of parking slots in a parking area. The system that we will propose, provides real time information. Regarding availability of parking slots in a parking area. This helps to improve the parking facilities of a city and thereby aiming to enhance the quality life.

REFERENCES

[1] Mr. Basuvaraju S R "Automatic Smart Parking System using the Internet of Things (IoT)" in International Journal of Scientific.
[2] Abhirup Khanna, R. A. (2016). IoT basedConference on Internet of Things and Applications (IOTA) (p.5). Pune: IEEE.
[3] Wael Alsafery, B.A. (2018). Smart Car Parking System Solution for the Internet of Things in Smart Cities. IEEE, 5.
[4] D.J. Bonde, R.S.Shinde, K.S.Gaikwad A.S.Kedari, A.U.Bhokre, "AutomatedCar Parking System commanded by Android application", Proc.Int. Conf. Comput. Commun. Inform. (ICCCI), PP.
[5] R. Renuka and S Dhanalakhmi, "Android-Based smart Parking system using Allocation and Reservations," ARPN Journal of Engineering and Applied Science.