

Reservation of Parking Slot with the Help of Webpage

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Abstract—In today's scenario the issue of parking in metropolitan areas has seen a sudden increment which is why our project aims to provide a solution to the same. People can easily view the complete list of available parking slots in real time on the website and can further book their desired parking slot as per their convenience. Pre booking of parking slot will help in saving a lot of time and energy. The one unique feature here is that since the booking is done through the website, any user whether Windows, Android or IOS can easily access it from anywhere. This paper purposes a reliable method to pre book the slots using Arduino, IR sensors, ULN2003, Wifi module.

Keywords: Arduino, Wifi, IR sensors.

1. INTRODUCTION

With the tremendous increase in population the problem of parking has increased a lot. Therefore, an efficient parking system would play a crucial role in saving a lot of time and energy. With the help of the webpage a user would be able to see the real time parking slots availability and he/ she can pre-book the slots according to their own convenience.

This system incorporates Wifi technology .This Technology enables to keep a track of the real time location of the parking slots that would be available so that customer could pre book the available slot according to their own convenience.

Web page would act as the interface where customers would be able to book the slots. After successful booking of the slots customers would be provided with a unique RFID. So, customers would be able to check in at according to their unique RFIDs. Due to this process a lot of time of customers would be saved. Project's heart lies in the programming of the

Arduino board. Arduino is programmed in such a way that the real time location of parking slots are easily visible to the customers Also the project could be upgraded with the payment option.

2. SURVEY OF RELATED WORK

In [1], Android application is used to book the parking areas, QR code is generated by the application, at the time of visit, and the customer needs to carry QR code.

The [2], Raspberry pi is used as the microcontroller, moreover, it is attached to pi camera which continuously figures out the real time image of parking space.

In [3], Under this temperature sensor, light detection resistors have been used as main sensors to send the data to the microcontroller.

The [4] paper uses Under this system reservation authority is placed in each parking lot. In this, reservation authority communicates with specific users individually

In [5], At the time of entry, passwords needs to be entered by user, after comparing with database validation is made , also VBA is used for visual basic application

In [6], User makes the reservation not by any application but by using GSM which is placed near the parking end

3. PROPOSED DESIGN OF THE SYSTEM

3.1 Component Required

- ARDUINO UNO (AT-Mega 328)

It is a microcontroller and an open source electronics platform which is easy to use.

- GPS Module

It is a navigation device that accurately calculates geographical location by receiving information from GPS satellites.

- IC 358

It is a dual channel opamp IC, which consumes very low power. This IC is mainly used to operate from the single supply over a wide range of voltage.

- LED

It is light emitting diode, having a p-n junction which emits the light when, in the activated region.

- LCD

It is a, electronic visual display with flat panel, or display of video type that uses the light modulating properties of crystals (liquid).

LCDs are used to display random images including images or fixed images which can be displayed or hidden. Liquid crystals do not emit light directly.

- Resistors

It is two-terminal passive electrical component which uses electrical resistance as circuit element.

- Capacitors

It is a passive device which has two terminal electrical component used to store energy electro statically in an electric field.

- IR Sensors

Infrared sensors are an electronic instrument which is used to sense certain characteristics of its surrounding by either emitting and/or detecting infrared radiation.

- Battery

It is the power house of the project.

4. PROPOSED METHOD

The working of the system is as follows:

- Here in this system, the customer has to first visit the web page .Web page would act as an interface. The request of customer would get initiated.
- IR Sensors placed at the parking slots would help in detecting whether car is parked in the slot or not.
- The controller is programmed such that it would help the costumer to get the details of the real time availability of the parking slots.
- So users would be able to see the available slots, and they can easily book the available slots.
- RFID sensors would help in generating the unique RFID codes.
- So user would be having the RFID code.
- .The particular RFID code will act as the security, as the unique code would enable only a unique slot to get opened.
- In this way, he time and energy of the user will be saved a lot.

4.1 Block diagram

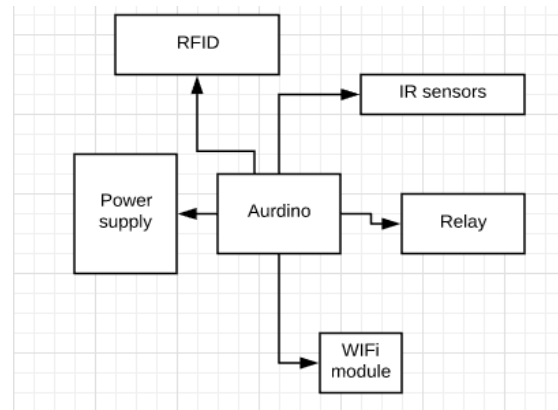


Figure 1: System of reservation of parking slot

5. FUTURE SCOPE

- We can upgrade this system by adding the payment gateway.
- We can use the technology, by which the message of confirmation of booking of slots could be sent to the customer's mobile number.

6. RESULT

Whenever a person wants to book a parking slot, he/she could easily book the lot according to their own convenience.

Unique RFID will be generated of each user.

7. CONCLUSION

Reservation of parking system would help in good management which in turn would help in saving a lot of time and energy.

This device is much more useful for the metropolitan cities where the problem of parking is increasing day by day.

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