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SMART CAR PARKING SYSTEM

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Abstract: This project deals with an effective way of finding empty spaces and managing the number of vehicles moving in and out in complex multi storeyed parking structures by detecting a vehicle using IR sensorsand thus providing a feedback. The fully automated smart car parking system is rudimental and does not requireheavy lines of code nor expensive equipment. It is a simple circuit built for the exact need of purpose. This automated system is used to find the vacancy in parking spaces available and navigate the driver to reach the desired space using visuals and in an effective manner, thus reducing search time .This system is required for malls, multistorey parking structures, IT hubs and parking facilities. This makes sure the requirement of labour is insubstantial.

Keywords*: Automated, smart car parking system, IR sensor***.**

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I INTRODUCTION

In the present scenario around us we see excess vehicles and the ineffectiveness to manage them in the correct order. As the population increases day by day the rate of utilization also increases and coping up with the numbers becomes a task.

An omnipresent problem around the world is finding a parking space to park your vehicle. This task looks simple on side roads and interior lanes but the actual problem arises when parking in malls, multistorey parking structures, IT hubs and parking facilities where several hundred cars are parked and it becomes arduous to find a spot. The general approach to finding a parking space is to go around and drive aimlessly until a free space is found. Finding a parking space could be the easiest task or could be the most tedious one when it involves wide acres of distributed space across one level or multiple levels. The time and fuel are consumed unnecessarily because the destination is unknown. The easiest way of approach is to provide a destination specific driving within the parking structure

IoT based car parking- In this project, we will learn how to make an IOT based Car Parking Slots monitoring system using Arduino, Nodemcu esp8266 wifi module, and Blynk application. With the help of the Nodemcu esp8266 wifi module and Blynk application, the parking slots can be monitored from anywhere around the world. In this project, we will also learn how to use the tabs and led widgets in the Blynk application**.**

The Parking Area is divided into two Parkings

1. Parking 1

2. Parking 2

Each Parking has 3 Slots and every slot has one infrared sensor. So we have a total of 6 infrared sensors. Each sensor is used to detect the presence of Car in the Slot. These infrared sensors are connected with the Arduino. So when a car is parked in the slot, the Arduino sends a command to the Nodemcu

esp8266 wifi module, then Nodemcu then sends the command to the Blynk application

II PROBLEM STATEMENT

To develop a system which can ease out the effect that are needed in parking areas in urban environment by finding a proper slot and allowing it to the specific user for the purpose of parking and removing the needless task for roaming around searching for the same**.**

III OBJECTIVE AND SCOPE OF PROJECT

This project aims to introduce smart parking system which totally differs from the normal parking system.This project is introduced to make parking process efficient .It can be widely used in stadium,,theatres,multi national companies and colleges.

IV PROPOSED MODEL

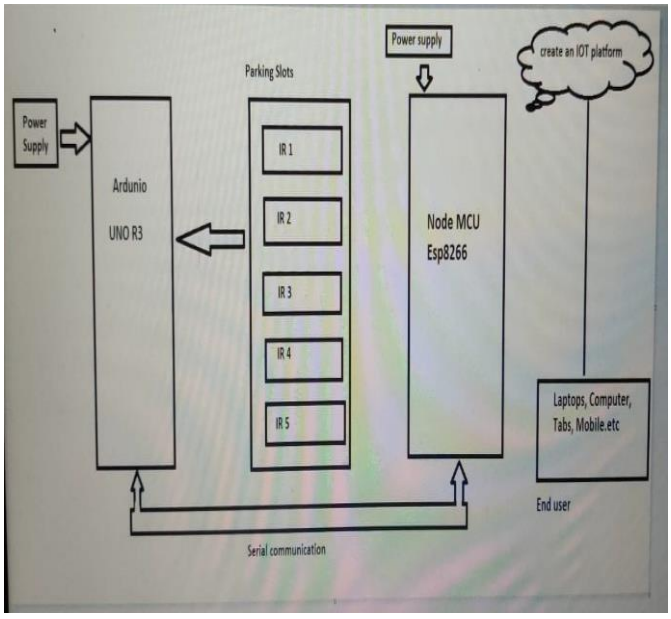
In this project we are using IR sensors for the for the purpose of object detection to assign parking. slots to various vehicles. When the object which is nothing but the vehicle comes in front of IR sensor, a connection is made to Arduino uno R3, where all the IR sensors present in parking system are connected to. This particular arduino has the purpose of connecting multiple IR sensors, where the sensors represent individual parking slots. We have taken a serial communication of Arduino with node mcu ESP 8266. Node mcu ESP 8266 is an wifi module. Our project becomes IOT based with the use of this wifi module. This wifi module takes input from arduino uno and sends a signal to blynk app, where we can see the availability of parking slots.

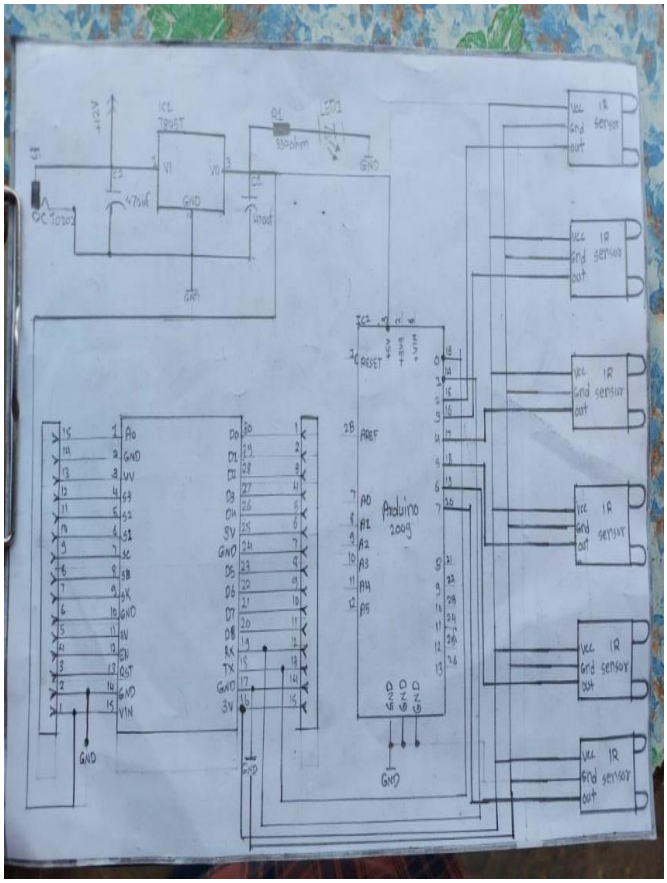
V LITERATURE SURVEY

Sr.	Title	Author name	Technolog yused
1.	AN IOT based smart parking system	Y.Abdu lWahab	Using IOT Technology
2.	Evaluation of smart parking system	1.tayo fabusuyi 2. Rober hemisphire	Using Arduino
3.	Reservation based smart parking system	Wembo	Using IOT Technology

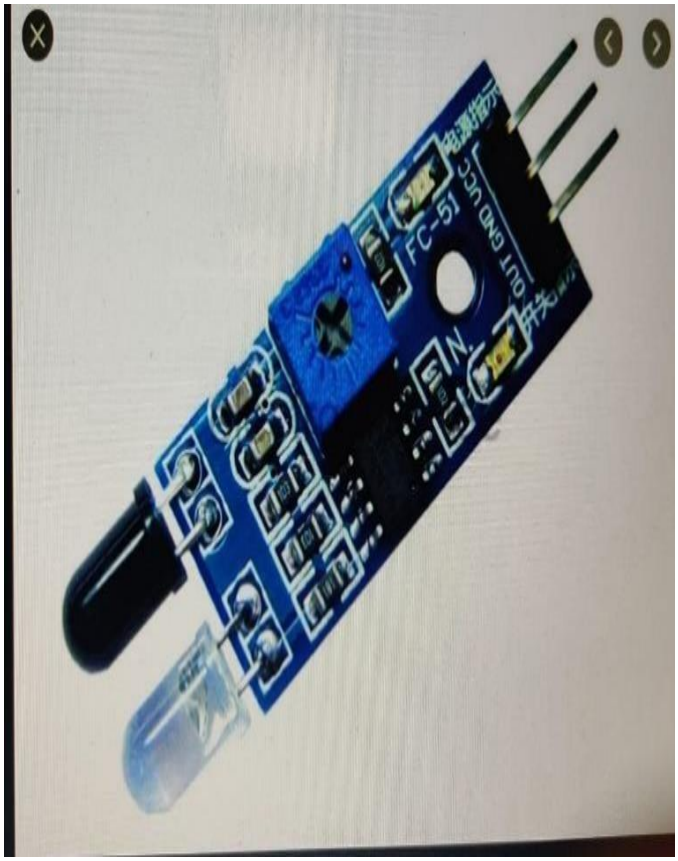
TABLE 1 TABLE LITERATURE SURVEY

VI BLOCK DIAGRAM AND CIRCUIT DIAGRAM





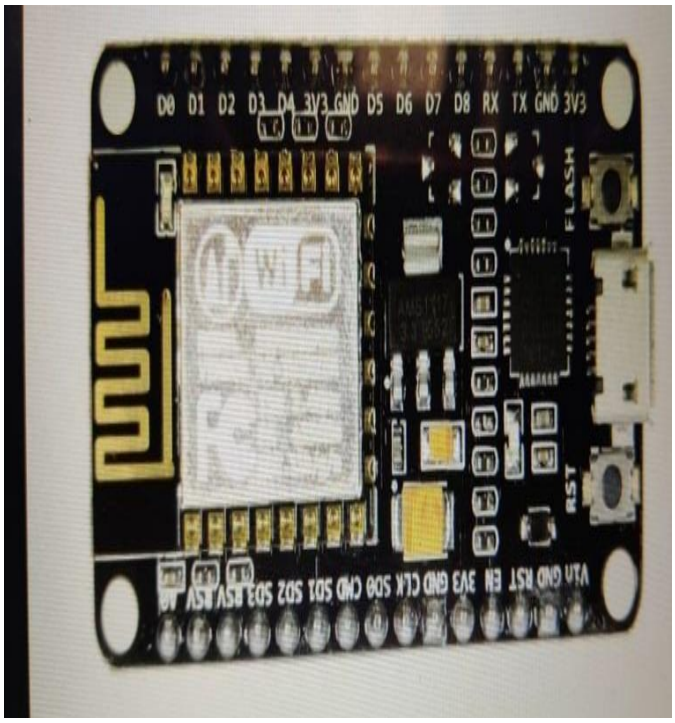
IR Sensor module



This is the IR sensor which I will be using for the carsdetection. As you can see the three male headers are clearly

labeled with the VCC, GND, and OUT. The VCC pin is connected with the Arduino's 5 volts. The ground is connected with the Arduion's ground. While the OUT pin is connected with Arduino's IO pins. which I will explain in the circuit diagram. While the black and white LEDs are the IR LEDs "one is the Tx while the other one is the Rx".

The Nodemcu ESP8266 WIFI Module



This is the Nodemcu ESP8266 wifi module, with the help of this module we can monitor the car parking slots from anywhere around the world. As you can seeclearly all the pins are clearly labeled. Never power up the Nodemcu esp8266 wifi module using the Arduino's

5 volts. If you power up this module using the Arduino's 5 volts then this wifi module we will keep resetting. To solve this problem you can design a separate power supply of this module using the LM7805 voltage regulator.

Blynk Application of IoT based carparking:

For the android or apple cell phone application designing you will need to download the Blynk application from the App Store. After you download the Blynk application then you will need to register yourself for free using Facebook or any other email id. The cell phone application making is explained in thevideo. The video is available at the end of this Article.

VII CONCLUSION

Through the implementation of smart car parking system it is possible to decrease car parking issues in the urban area. It can also reduce the extra load of government bodies on the parking management in the crowded area.

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BIOGRAPHY

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