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"Smart Parking Management System" (Based on IOT Modules)

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Abstract: the key inspiration of proposed system is to decrease traffic crowding in streets, high-rise constructions due to absence of car parking lots. The system shows the adjoining unfilled slot if existing considering user position. Proposed system objects to get resourceful use of car parking. It identifies unoccupied spaces in allotted region. Then it allocates unoccupied space to desired one. Proposed system as defined overhead facilitates zero error, unfailing, protected with reckless supervision scheme.

Keywords: Car Parking, Traffic, Arduino, Microcontroller.

1. INTRODUCTION

System described above Smart Parking can be used to accomplish altogether car park facilities to a user. It current situation of economy growth is observed, cars are available at low prices in the bazaar. Any middle-class resident can buy car. Though, the penalties of substantial rush-hour traffic queues, contamination, fewer obtainability of streets for driving vehicle. Most important problem is parking of these vehicles. Even if space is available its more monotonous and time consuming to find the available lots for parking and also it is not environment friendly. Therefore, this system is giving solution at parking entrance only by finding out unoccupied space nearby and helping users to find it at ease.

Literature Review

Searching for parking wastes significant amounts of time and effort and leads to substantial financial costs. This is particularly the case for people who are always pressured to be on time. Smart cities employ all kinds of modern technologies to manage and enhance resources effectively. Urban parking facilities are one of the essential assets that must be managed. We developed a smart parking management system (SPMS) as a modern solution to manage

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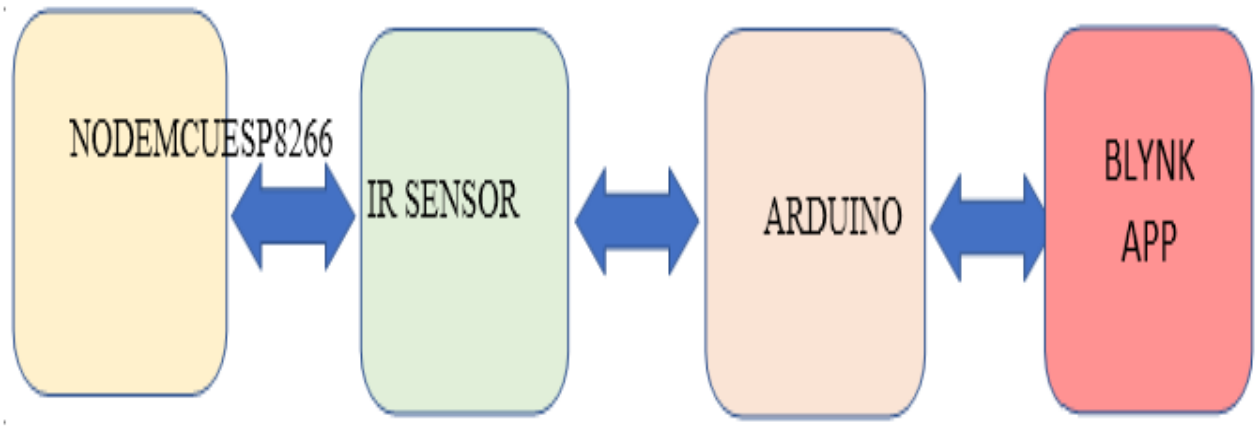
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parking and save users time, effort and cost. In the context of today's modern life, it has become necessary to improve search methods for available parking and minimize the congestion that occurs at the parking entrance. Searching or booking available parking online earlier is a better substitute than searching at a parking lot where there is a possibility of not being able to find parking. Smart parking management system was developed to:
Manage parking and solve problems efficiently using technology.
Apply technical solutions to improve the smart cities concept.

Component Requirement:
Hardware Requirement:
- Arduino UNO
- NodeMCU eps8266 wifi Module
- Obstacle IR Infrared Sensors
- Zero PCB Board
- Component Pin Holder Sockets
- Power Supply
- Connecting Wires
- Cardboard Sheet

Software Requirement:
- Arduino IDE
- Blink IoT IDE

Block Diagram
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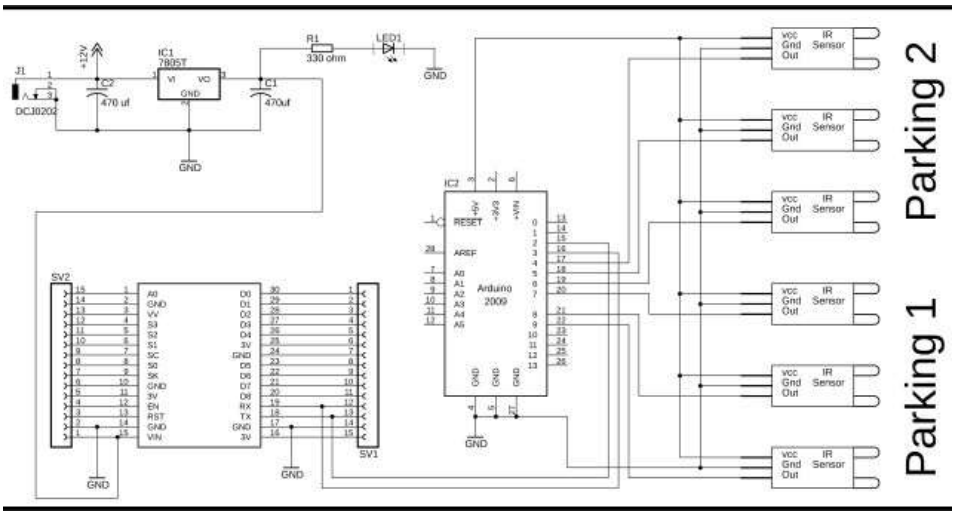


Block Diagram

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Circuit Diagram:



Block Diagram

Description:

- 6 IR devices are linked with Arduino Uno (Four to Nine Pin)
- Arduino's 5v is connected with VCC of IR.
- Ground connections are made common.
- Outputs of all IR sensors are coupled to pin number four to Nine.
- Micro-controller unit transmitter and receivers are coupled with Arduino second and third pin.
- Voltage input of the Micro-controller unit is coupled with 7805 out.

ESP8266 Wireless Fidelity

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 see clearly 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.

Arduino Uno

Arduino is a prototype platform (open-source) based on an easy-to-use hardware and software. It consists of a circuit board, which can be programed (referred to as a microcontroller) and a ready -made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.

Arduino boards are able to read analog or digital input signals from different sensors and turn it into an output such as activating a motor, turning LED on/off, connect to the cloud and many other actions.

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Obstacle ir Infrared Sensors

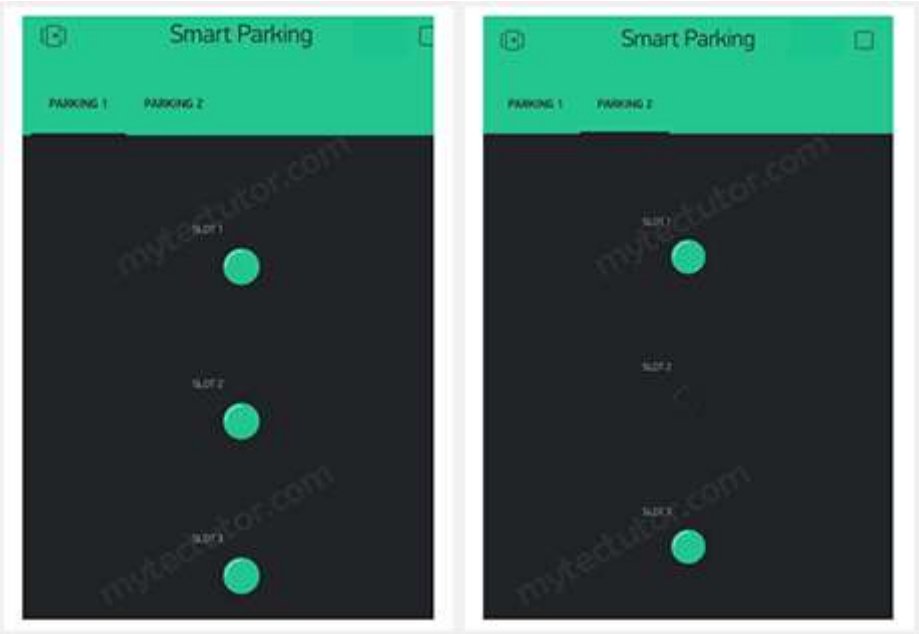
This is the IR sensor which I will be using for the cars detection. As you can see the three male headers are clearly labeled with the VCC, GND, and OUT. The VCC pin is connected with the Arduino's 5 volts. The ground is connected with the Arduion's ground. While the OUT pin is connected with Arduino's 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".

Blynk Application

This is used to remotely monitor the state of the parking lot from an Android or IOS device. The Application is designed with simple LEDs that turn ON to indicate an occupied slot and OFF for an empty slot asdemonstrated below.

2. RESULT

- The idea of Green Towns is always vision of many nations. From last many years, continuous advancements are taking place for making these realities.
- New techniques have increased hopes and possibilities for making this dream possible.
- Intelligent car parks amenities and stream of traffic supervision schemes plays vital role in making this vision true at earliest.



Results

3. CONCLUSIONS

- In this proposed scheme, problem of vehicle park is minimized by presenting Internet of things-built Cloud unified intelligent scheme.
- It facilitates factual period data concerning readiness of unoccupied space in parking lot.

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- Owners travelling from distance are made able to reserve the unoccupied space using mobile app
- System enhanced facilitates zero error, unfailing, protected with reckless supervision scheme.

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