

PARKING SLOT AVAILABILITY CHECK OVER IOT

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ABSTRACT

As the Internet of Things (IoT) continues to expand, the idea of "smart cities" is becoming more popular. Internet of Things (IoT) researchers are making steady progress towards their goal of improving the efficiency and dependability of city infrastructure. The Internet of Things is helping to alleviate a lot of issues, including traffic and road safety. Finding a parking spot in a city may be a real challenge for drivers these days. A smart parking system that can locate available spots in a specific parking garage is the focus of this research. Also, you won't have to waste time driving through crowded parking lots. Internet of Things (IoT) enabled Wi-Fi smart parking system. An Internet of Things (IoT) module is a part of this smart parking system that keeps tabs on the availability of every available parking spot. In order to connect to the internet, we used an Arduino Uno, which can be implanted via the Wi-Fi module. This technology facilitates real-time data transmission. It is possible for this smart parking system to determine whether a parking spot is full or empty thanks to digital infrared sensors. The data acquired by this sensor is sent to the microcontroller. The central database will be updated with the status of parking spots when the data is processed. In order for the system to cover all the parking places, it is necessary to install the IR sensors in the correct areas. A unique identifier is assigned to each parking spot on the network.

INTRODUCTION

Recent research in metropolitan cities alongside increase in population there's large scale of vehicles on roads. Hence this results in annoying issue for the drivers to park their vehicles because it is extremely difficult to seek out a parking slot quickly. The drivers usually waste

time and energy for parking their vehicles and eventually finding an area on streets through luck. In worst case, people fail to seek out any parking lot especially during peak hours and festive seasons. And introduces the usage of android application using Smartphone for the interaction between the smart parking system and therefore the user. Moving towards smart city application, smart parking may be an exemplar for a standard citizen of how the Internet-of-Things (IoT) are going to be effectively and efficiently utilized in our daily living environments to supply different services to different users. Any citizen may use his Smartphone and a computer having internet to access the smart city application from anywhere within the world to seek out a free parking spot within the city and obtain to understand the which parking spot remains available. This emphasis on efficient car parking management through remote parking spot localization and fast car retrieval. Currently, Car parking system is predicated on reservation basis, technique features a drawback in terms of your time and space. This system is often used into multi-parking management which may be to manage both outdoor and indoor parking lot and single-parking management which usually targets indoor parking slot.

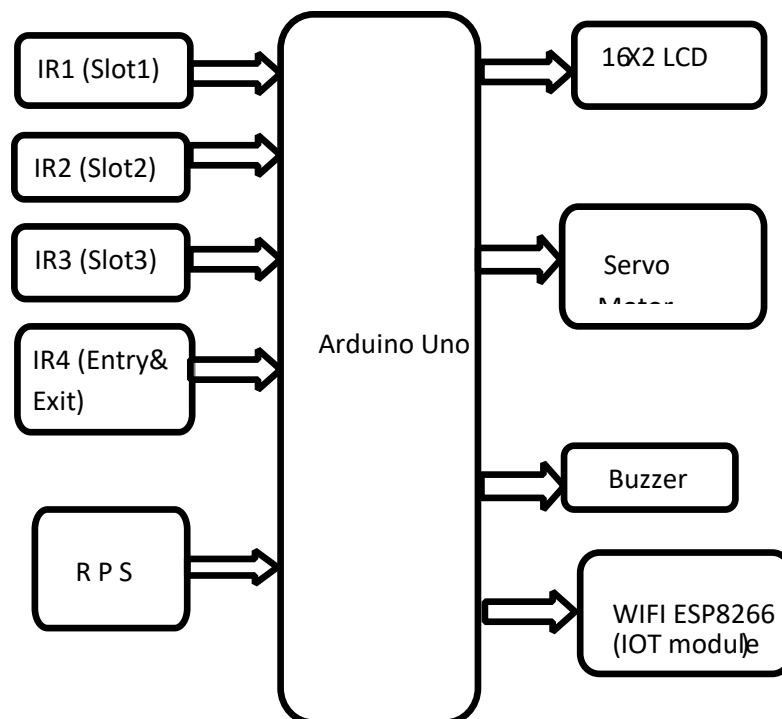


Figure.1 Block Diagram

LITERATURE SURVEY

1.A Smart Parking System using Deep extreme learning and the IOT

Tekouabou focused on a smart parking system using Deep extreme learning and the Internet of Things. In order to locate unoccupied parking spaces, they have employed the neural network technique, which is similar to performing random distortion among the crucial computation delays the tool utilization. Three layers were employed in the model, with the data collecting layer serving as the initial input layer.

2. CPF Parking System Based on IOT

A Car Parking Framework (CPF) based on IoT has been proposed. The framework combines an automatic car parking management system with the integration of networked sensors and actuators along with Radio Frequency Identification (RFID). The CPF provides vehicle guidance, payment facilities, parking lot retrieval, and security. The system uses a hybrid communication method instead of regular nodal communication. Due to that, the system has a low energy consumption rate with low implementation costs.

3. GSM a Secured Parking Reservation System

Using Global System for Mobile(GSM), Rahayu and Mustapa proposed a secured parking reservation system. The system is comprised of a security reservation module and a parking space monitoring module. The security reservation module handles the reservation of specific parking lot. The user needs to send a Short Message Service (SMS) with provides specific instructions to reserve the parking lot. The parking Global System for Mobile lot monitoring module provides the user with a layout animation of parking space occupancy status, enabling the user to choose a parking lot for reservation. The system generates a password, which is required during enter and exit points.

4. A WSN based Smart Parking System

Orrie et al proposed a (WSN) Wireless Sensor Networks based Smart Parking System. The system utilizes a hybrid self-organization algorithm for WSN technology. The system has been designed to be more energy efficient during wireless communication. As a result, it enhances the life expectancy of WSN nodes and overall WSN. This sort of SPS aids the users by guiding them to the nearest parking lot and the facility to reserve it. The system utilizes both web and smartphone applications to provide SPS facilities to the users.

5. SPS based on image processing to detect unoccupied parking spaces

Al-Kharusi presented an SPS based on image processing to detect unoccupied parking spaces. The system uses cameras as sensors to detect parking lot occupancy. The system uses (RF) Radio frequency communication to send the camera's data to the system's central processing unit. In RF communication with a range of around 1000 feet (300 m) has been achieved using a high gain omnidirectional antenna of 12 dB.

PROPOSED SYSTEM

Here three IR sensors placed at parking slots to identify vehicle parked or not. One more IR sensor placed for entry path and exit path. When car enters from entry side Arduino checks for vehicle parking status. If anyone slot empty then entry gate will be open. If no slot empty then entry gate will not open. While Leaving from slot gate will be open by triggering exit IR sensor. Slots parking status will be displayed on LCD continuously. WIFI (ESP8266/IOT) module sends parking information to IOT server. User can see data in IOT server from anywhere. Here we use Bylnk IOT to know the Slots information and bylnk also used for code process.

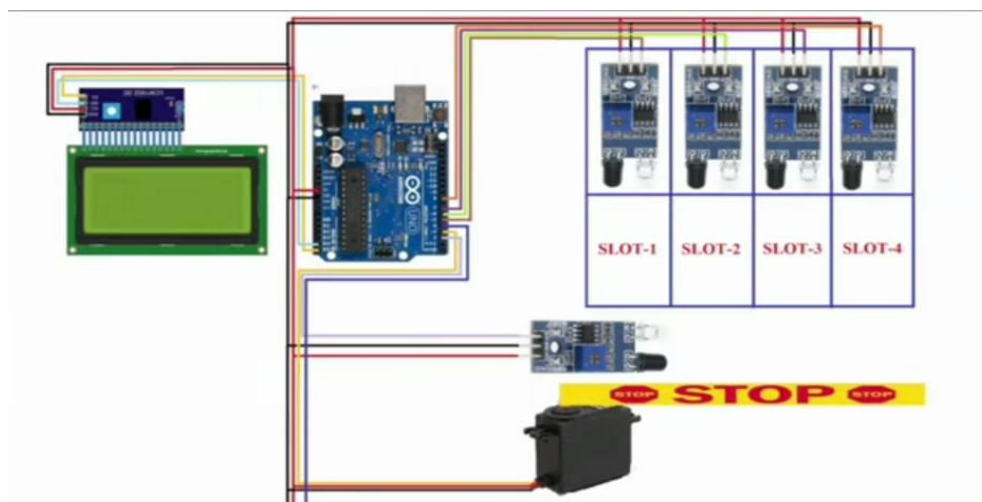


Figure.2 Schematic Diagram

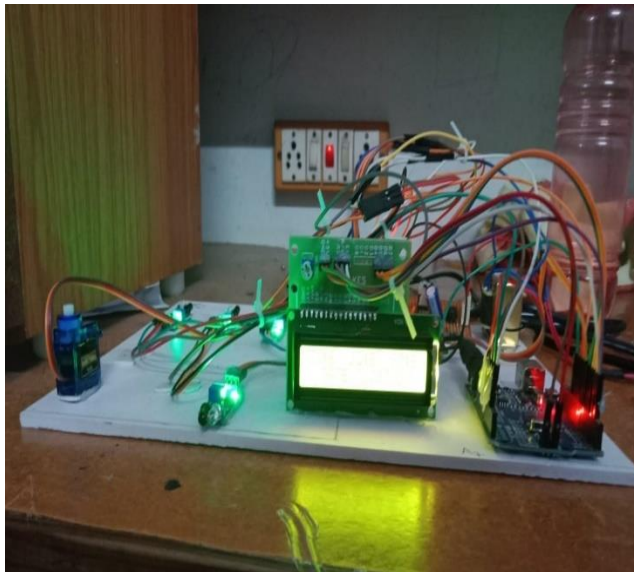
RESULTS

Figure.3 Circuit Design of Parking Slot

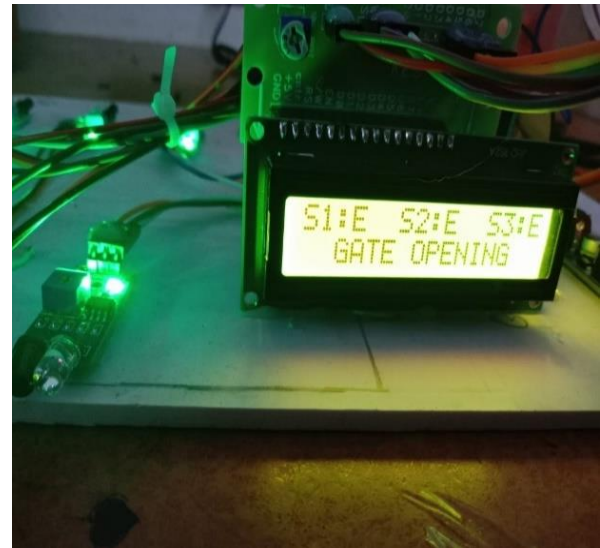


Figure.4 Slots are empty

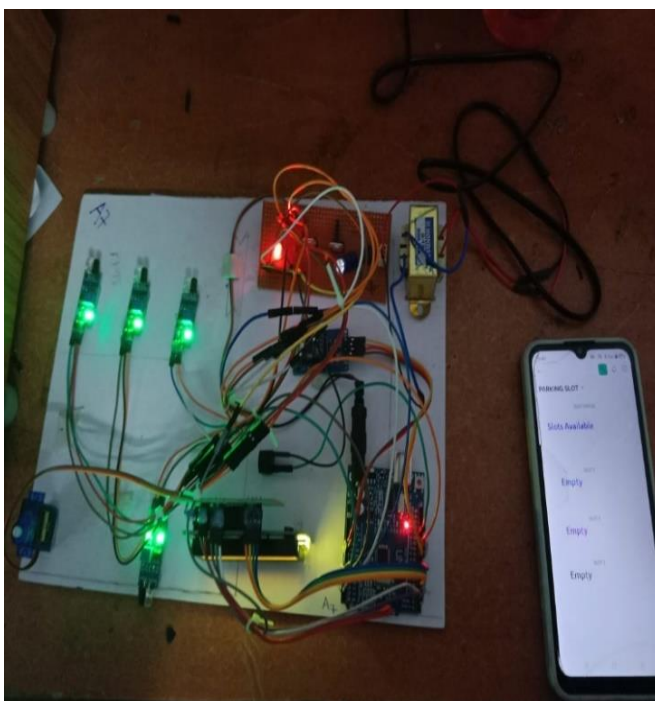


Figure.5 checking with Blynk app

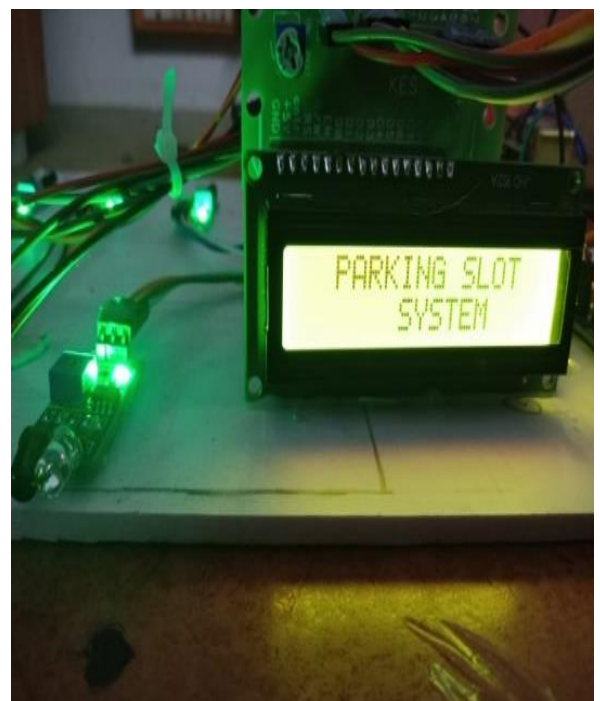


Figure.6 Parking Slot System



Figure.7 Blynk output

CONCLUSION

To sum up, parking management systems provide simple and effective answers to the problems plaguing modern parking garages. With the use of technology, they improve parking, making it more convenient, safer, and more environmentally friendly. We may all benefit from time and money savings by improving parking techniques. Both parking lot owners and users may benefit greatly from parking management systems. Parking is easy and hassle-free for customers, and owners save time and effort. Making parking easier, reducing pollution, and extending the life of our urban places are all possible thanks to these methods of operation.

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