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Android Based Smart Parking Indicator in Kondhwa Region

Vishakha Devade[1], Darshan Gaikwad[2], Rushikesh mane[3], Mangesh Chavan[4], Prof. Pravin Manatkar[5]
[1, 2, 3, 4]*Student of KJEI'S,* [5]*Assistant Professor Civil Engineering Department Trinity Academy of Engineering, Pune, Maharashtra, India,*

Abstract: ***For many divers, it can be difficult to find an empty parking space in a big car that is parked. Therefore, having a technology solution that can give information on parking space occupancy is useful. The following provides a description of a new monitor system. It gives users of cars that are parked occupancy information and aids in positioning the automobile in the most effective manner. Permitted and unauthorized vehicle detection is one of the features. detection of an unauthorized car parking in a prohibited area, followed by an SMS alerting the appropriate authorities to take action and the imposition of a fine on the offending vehicle user. Before leaving, a parking fee is also deducted from each car parked in the parking lot.***
Keywords: Smart Parking Indicator, Sensors, Android, New Technology.

I. INTRODUCTION

Currently, the majority of the existing parking system is manually operated, which is somewhat inefficient. A lot of time is lost looking for parking spots in urban areas where the number of vehicles is higher than the number of parking places. Therefore, an online parking booking system is suggested as a way for consumers to reserve parking spaces online.

The goal of this project is to make parking easier using a web application. In this, we primarily focus on the building's available parking spaces.

The user is able to block the slot by locating the vacant space. The administration will be able to access information about the user from this application, such as their car number, license number, and mobile number. After choosing an open spot in the parking slot, the user is able to pay the required fee and confirm his or her reservation.

Numerous parking management systems already exist that rely solely on sensors to offer services to consumers. In the current system, the empty slot can only be found via electrical equipment and an indication technique. Only the free slot can be found; we cannot reserve the slot in advance.

The goal of this project is to make parking easier using a web application. In this, we mainly focused on the building's parking spaces, which users can block before accessing the area. The web application is intended to be used by clients. It only has options that are simple to utilize.

Sensors can be used to locate and deliver information on available parking places in order to efficiently address the parking problem. Wireless parking system is one of the sensor-based parking system implementations. This system would use sensors in each parking space to provide information on the condition of each parking location, but the cost of installing sensors in each parking space could end up being prohibitive due to the cost of installing sensors rising as the number of parking spaces or areas increases.

II. LITERATURE REVIEW

A. An IoT Based Smart Parking system

Published Date: - April 2020

According to earlier relevant research, the system is developed using a variety of techniques. To enable a better improvement of the suggested system in this project, knowledge of the systems that have been built is absolutely essential. Some research place greater emphasis on image processing than sensor-based systems.

The driver's license plate is photographed using image processing, and the information is then entered into a database. This prevents illegal car access and Cortana theft.

Before utilizing the Android application, the user must register.

This application contains the driver's fundamental data, which will be saved for later use. After registering, the motorist must choose the server will promptly process the data it receives regarding the parking location and give the user's information back.

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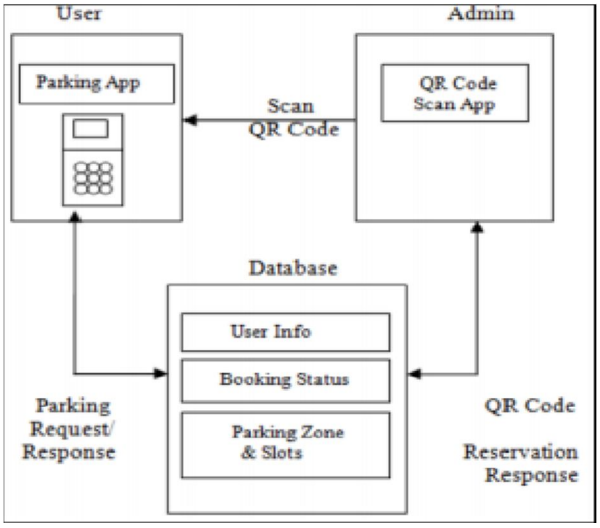


Fig.1. IoT Based Smart Parking system

B. Smart Vehicle Parking Monitoring System using RFID.

Published Date: - July 2019

Based on an analysis of the parking management system, Hisamitsu Kurogo suggests a parking system for improving transportation efficiency and streamlining traffic management. To help drivers escape traffic jams, a system that can identify current traffic congestion points and anticipate where future traffic condensation would occur was proposed. The same interpretation effort is done by Google Maps in the present. This featured an animated check-in and check-out-based parking system that used RFID and an RFID reader. The creation of sensor nodes at parking lots to monitor and update the state of parking spaces is the fundamental goal of the numerous wireless sensors network-based parking system prototypes that are also being suggested.

It was suggested to develop a more sophisticated version of the vehicle Adhoc network to provide drivers with real-time navigational information, theft prevention measures, and parking space predictions. The parking system also used Bluetooth, WIFI, and a webcam in the parking lot to send information regarding ability via SMS.

C. IoT- Based Car's Parking Monitoring System

Published Date: - Jan 2018

As information technology develops, the Internet of Things (IoT) is currently becoming more and more popular. The goal of Jyothi is to enable communication across various devices, including smart houses, cars, phones, and household appliances, by connecting them all. With the help of its electrical components, sensors, actuators, and network connectivity, the Internet of Things (IoT) gadget can transmit data or even perform remote control functions.

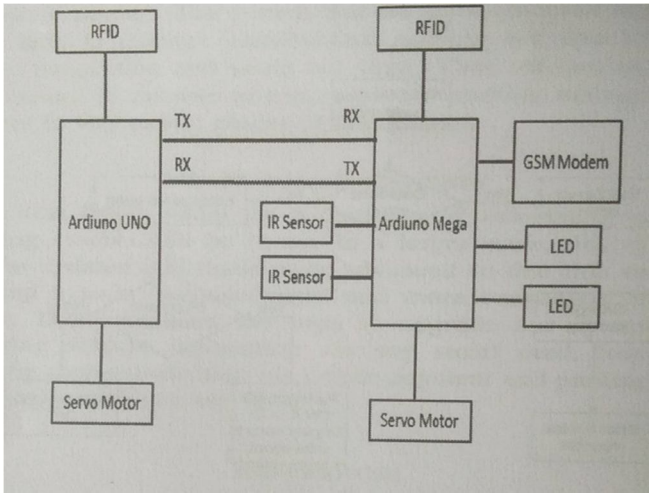


Fig No. 2- Data flow chart of the system

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III. PROPOSED WORK

The system consists if RFID module, GSM modem infrared sensor module, servo meter, Arduino mega. This system setup is show in figure:

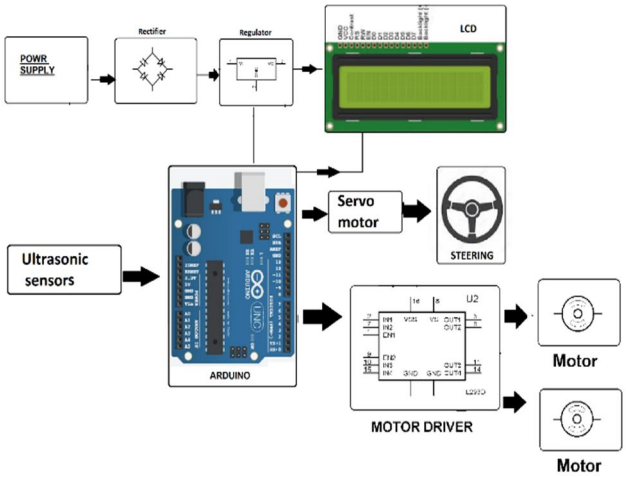


Fig No 3: Car parking using arduino UNO project

A. RFID

Radio Frequency Identification System is referred to as an RFID system. It is an "Identification system employing wireless communication" that enables data to be transferred between "Antenna (or Reader/Writers)" and "RF Tags (or Data Carriers)," which are held by people or affixed to things. A radio communication system, in a sense.

It uses electromagnetic waves to detect and automatically recognize tags or unique codes that are attached to items. A tiny radio transponder, a radio receiver and transmitter, or a scanning antenna, make up an RFID system.

B. Servo Meter

The parking gate is managed by the servo motor.

C. GSM Modem

A device that employs GSM mobile telephone technology to offer a wireless data connectivity to a network is known as a GSM modem or GSM module. Mobile phones and other devices that communicate with mobile telephone networks use GSM modems. To identify their device to the network, they need SIMs.

D. Infrared Sensor Module

The presence of automobiles in parking lots is detected with the use of IR sensors.

E. LED

Anytime a car is detected in the parking lot, the LED lights switch on. Additionally, when a registered vehicle is recognized as the entrance, these lights turn on; otherwise, they remain off.

IV. WORKING

1) User booking of parking spot through SMS
2) GSM modem gets the MSG and fed to microcontroller
3) The AVR microcontroller process. The requested massage and check the avaibility of parking slots using IR sensor
4) AVR microcontroller will replay the confirmation of booking by giving the password the slot number.
5) The counter for the reservation time will automatically start for sending massage.
6) The password will be used to inter the parking area.

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Fig No 4: Algorithm of local parking management system

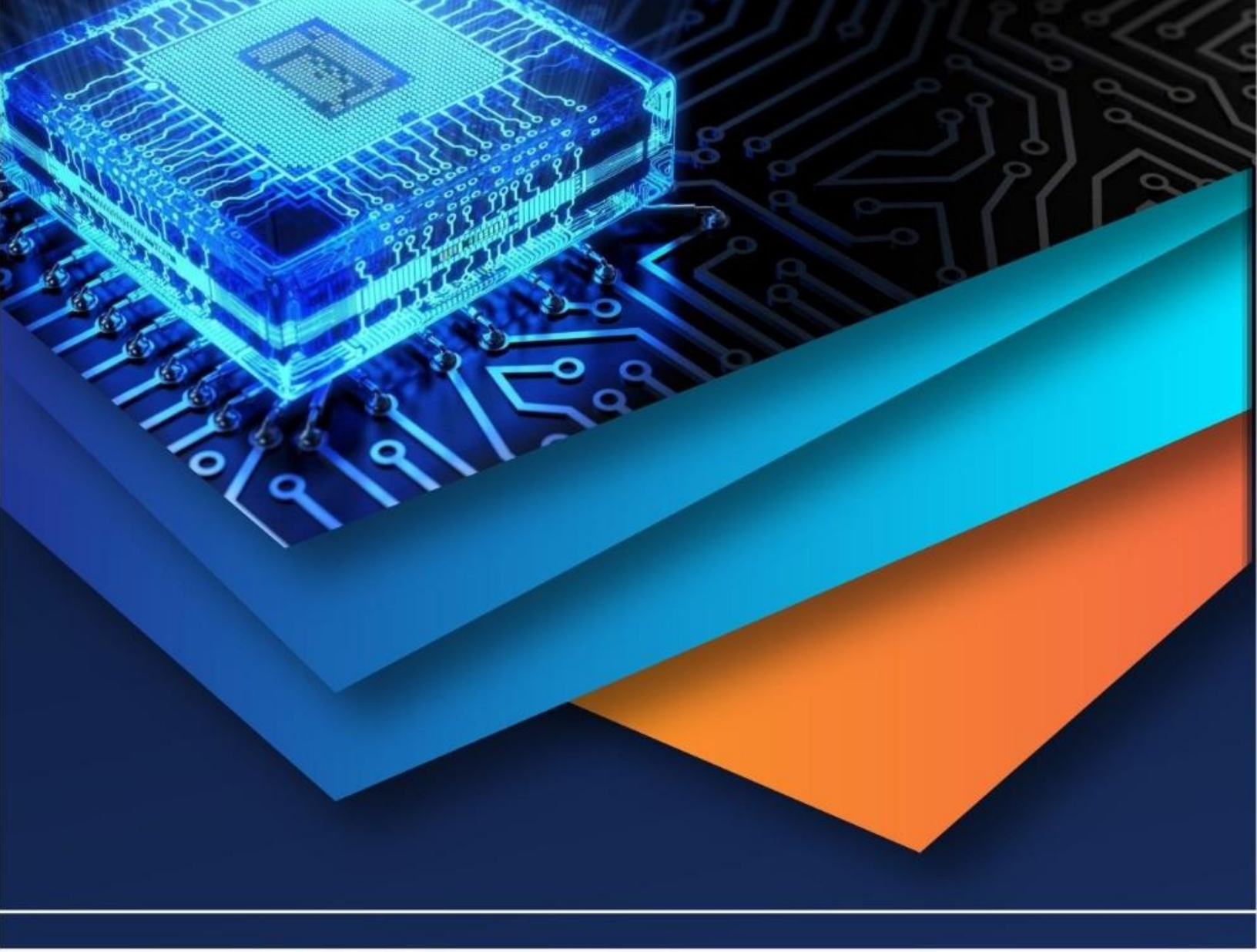
V. CONCLUSION

In conclusion, the project's goals have been attained. By making parking reservations via SMS, the trouble of looking for open spaces has been completely removed. Because of the system's simplicity and effectiveness, it could be used anywhere.

This document showcases a fully functional RFID basis parking system prototype that offers solutions to a range of parking issues. Because it holds all the data necessary for this module to function, it is expected that the RFID tag in question is modified from the ones used today on automobiles. To avoid traffic jams and annoyance, this module will allow drivers to reserve parking places in advance. Additionally, it will lessen air pollution and offer an effective system without wasting time or fuel looking for open parking spaces.

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