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SURVEY OF EXISTING SMART PARKING SYSTEM

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ABSTRACT

This paper describes a smart parking system having reliable techniques for outdoor car location and identification. Although parking occupancy monitoring systems have advanced significantly. The revolutionary low-cost sensor system that is suggested in this research enables real-time parking occupancy monitoring and payment without requiring any driver or user intervention. The proposed on-board vehicle transceiver device sensor can be installed in every parking lot without the need to add new parts. As a result of lessening system complexity, infrastructure investment, and battery replacement costs, it provides advantages in terms of detection and payment dependability as well as lowered costs.

Using a two-fold sensing method, a reliable vehicle detection and parking occupancy monitoring is accomplished. A series of motion detector and global positioning system sensing techniques are used. The proposed radio frequency wake-up mechanism wakes up the sensor when the car enters a parking area. As a result, the energy consumption is optimised, and a power-saving strategy is implemented with a power usage of only 20 W at a 3 V supply. The can be easily included into networks made up of intelligent vehicles.

Keywords: RF Wake-Up Sensor, Internet Of Things (Iot), Parking Sensor, Low-Power Sensor, Smart Parking, Smart Billing.

I. INTRODUCTION

In this approach due to a lack of parking spaces, parking is a problem in many nations to address this, we suggest a smart parking system parking system. This technology can aid in the efficient booking and maintenance of parking lots for both users and parking facilities. There are two users in this system: an admin who oversees parking sites and the vechile owner The usage of smart parking may be a way to reduce user inefficiency, fuel consumption, and time spent looking for parking spaces. In this, the output is obtained through analysis and processing of the data that was obtained from the sensor. This information is transferred via devices that separate the pertinent data and deliver it to an Arduino device, which simultaneously provides command instructions for the data to the specified devices. The servo motor receives the signal from the Arduino together with the GSM module, which also notifies and instructs the user.

The RFID card assigned to the registered user is scanned by the reader module when the user enters the parking area, assuring the security of the user identity. This enables the user to receive SMS notifications to their registered cellphone number and information about parking spaces that are available. It is divided into three sections, the first of which is the parking lot and contains IR Sensor and Arduino devices. With the aid of these gadgets, the user can interact with the parking lot. The cloud web services that serve as a middleman between the user and the parking lot are covered in the second half of the essay. Through the GSM module, the user receives an SMS alerting them to the availability. The user is informed when there are no more parking spots available, saving them time.

II. LITERATURE SURVEY

T. Limpisthira1, N. Chanjarasvichai1, T. Jareonwatanan1, W. Phongphanpanya1, S. Wareechuensuk1, C. Ajchariyavanich1, S. proposed An Internet of Things-based Car Parking System The parking system may undergo a change as a result of the smart campus campaign, which is now being promoted by numerous colleges worldwide. The management of parking places at universities can be made more effective by

combining Internet of Things (IoT) technologies. This article details the creation and prototype of Park King, an Internet of Things (IoT)-based cloud-integrated smart parking system for a smart campus. The components of Park King are as follows: I an IoT module for tracking parking spot availability and operating a parking flap; and (ii) a web application that enables users to reserve a parking place in advance. This article discusses the system overview, the functional and non-functional requirements, the tools and technologies used, prototype development/deployment, as well as the outcomes of field testing and demonstration. This system is anticipated to act as a blueprint and offer insight into the creation of a smart parking system on a college campus and/or in a smart city.

Houssam Arbess and Riad Kanan proposed a An Intelligent IoT-Based Parking Monitoring System as well as Automatic Billing This article covers a parking detecting system based on the internet of things (IoT). technology that uses reliable methods for outside vehicle location and identification. Nevertheless, parking occupancy monitoring systems have significantly increased In study on smart parking, advances and smart payment methods are rarely examined. This study suggests a new, inexpensive sensor system that can measure parking occupancy in real time. monitoring and payment for parking without the need for a user or driver iteraction. The planned VTD sensor, or on-board vehicle transceiver device, will deployed without needing to put in fresh parts on every parking lot.

It has advantages.

In terms of detection and payment dependability, as well as decreased cost by the cost of replacing batteries as well as the system complexity and infrastructure investment. Utilizing a powerful car identification system and parking occupancy monitoring dual sensing strategy It is a motion detector and global navigation sequence. approaches for satellite system (GNSS) sensing. When the trigger occurs, the sensor is Due to a suggested radio frequency (RF) wake-up, the automobile is in a parking lot. technique. As a result, the energy usage is reduced to a minimum and the VTD has an energy-saving plan that uses as little as 20 W at a 3 V supply. The intelligent vehicular ad hoc networks can smoothly incorporate the VTD. (inVANETs).

Sopater Fonataba and Augustina Ampuni proposed Smart Parking System With Automatic Cashier Machine Using IoT Technology .Finding a parking space is becoming increasingly challenging, which is why we are focusing on developing our suggested smart parking system in this article. In addition, the use of internet of things (IoT) technology has emerged as a great tool that complements complicated systems while requiring less hardware. The idea of smart parking system is anticipated to be able to offer services for vehicle parking space seeking and car parking spot allocation through the mobile application with the deployment of IoT based on cloud computing, numerous smart devices, and also smart automatic machine.

Ilhan Aydin, Mehmet Karakose, and Ebru Karakose proposed A Smart Parking Platform Based on Navigation and Reservations Technology advancements are making smart devices increasingly prevalent. commonplace in daily life. the creation of technology that allows for Internet connectivity Design ideas for smart cities have been influenced by how they store and tr ansfer data. It's a regular issue in our cities to have trouble finding open parking spaces. The garage traffic jam, and those who go to work are searching for a place. A navigation and reservation-based parking proposal system was used in this investigation. created for intelligent cities. The suggested approach entails the creation of small devices that use internet of things (IoT) technologies to transmit data to the internet. A genetic algorithm is used to locate the available parking place that is closest to the current location. A variety of cases are evaluated using the suggested method, and precise results are produced.

Mikael Fernstrom and Muftah Fraifer proposed CCTV Node-Based Smart Car Parking System Prototype Due to its advantages for users in terms of time and fuel economy, the adoption of smart parking systems has become crucial, especially in metropolitan areas. and annoyance when looking for an open parking spot. This presentation reviews current developments in sensing and communication technologies with regards to clever parking technologies. It gives an implementation process for the chosen systems and includes a brief examination of the chosen topics. Additionally, this work suggests a design strategy for a smart auto parking system prototype that makes use of closed-circuit television (CCTV), as well as an algorithm for computer vision identification through a simulation environment. The system has been put into use in a simulated setting. The system evaluation also reveals how well our design and implementation of the system worked and yields

encouraging results. In this essay, potential problems with the system are discussed. Additionally, issues and difficulties are listed.

III. CONCLUSION

We discuss the parking problem in this research and provide a web application-based smart parking system. The technology we suggest provides real-time data on the number of parking spaces that are available in a parking lot. The use of our web application allowed users from any location to reserve a parking space for themselves. The efforts made in this paper aim to improve a city's parking infrastructure while also enhancing the quality of life for its residents. Users of our system can see the actual view of parking spaces in malls, hospitals, colleges, and many other public parking lots. As a result, the user has a choice as to what mode of transportation to choose to get there.

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