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# A Review: RFID Smart Parking System Using IOT

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***Abstract:*** ***These technologies are RFID readers, RFID writers, RFID barcode readers, RFID smart sensors, and RFID controllers. In this study, a solution was provided to the problems encountered in parking management systems using technology. RFID.RFID readers, RFID tags, computers, barriers, and software are used as the main components of RFID technology. The software was managed for the management, control, transaction reporting, and operation of parking lots located in different parts of the city. Check-in and check-out operations will be controlled using RFID readers, tags, and barriers. Thanks to this technology, personnel costs will be significantly reduced. In the future, it will be possible to see unattended, safe, and atomized parking lots operating with RFID technology. Check-in and check-out will be processed quickly without having to stop the cars in order to avoid traffic jam problems during these processes. Drivers will not have to stop at traffic points and parking tickets will be out of order when checking in and out. Ticket stuffing problems will also be avoided for ticket processing machines. Vehicle owners will not have to make the payment each time they leave, so faster traffic will be possible, and since there will be no waiting at check-in and check-out, it will avoid gas formation resignation. An atomized revenue tracking system, a car tracking system for charging and a power station were developed and used the parking lot location system. Instead of parking cars on the streets, a more modern and faster parking system has been developed.***
***Keywords: IOT, Nodemcu, Rfid module, LCD display.***

## I. INTRODUCTION

Parking is very necessary in everyday life. Nowadays, every park, shopping center, hospital, multi-storey building has parking spaces. These car parks provide a convenient way to park customer vehicles. But due to rapid population growth, the use of vehicles is also increasing. Therefore, a better solution is needed for parking vehicles as the existing systems are time consuming and also less secure. Customer's waste time looking for available parking spaces. This leads to loss of time; traffic jams and also causes traffic. Another problem is that people who come from distant countries have to waste time finding a free place and sometimes even have no parking space. Lastly, users have to spend a lot of time processing payments and there are chances that people will leave the parking lot without paying. The Internet of Things or IoT is a system of interconnected devices connected to the Internet to transfer and receive data from each other.

The IoT has a big influence on our lifestyles, from how we react to how we behave. In this document, an IoT-based smart parking system is implemented for users. An Android application is implemented which provides security and flexibility where users can reserve their parking spaces and park their vehicles. This system helps reduce work and reduce time consumption. They can book their slot after a registration process. User data is securely stored in a database. The application offers two payment methods: online transaction and the use of RFID technology. The main objective of this methodology is to provide an application that enables RFID technology for the parking system.

By using RFID readers and tags in a centralized parking system, all parking spaces can be managed quickly and easily. RFID readers are used in the check-in and check-out areas so the user does not have to wait for payment to be processed. This system uses a Bluetooth beacon to locate the vehicle.

The IR proximity sensor is used to detect whether the parking lot is occupied or not. Although this technology has been around for a long time, recent standardization and affordability have greatly increased its usefulness. Check-in and check-out operations reduce car parking times, helping to reduce traffic congestion, driver aggression problems and air pollution. Active RFID tags have their own power source, low signal power required, wide communication range and large read/write data storage. On the other hand, passive RFID tags do not have an internal power source. They have a short communication range; small read/write data storage capacity and high signal strength.

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## II. LITERATURE SURVEY

1) *Ashna Viji Alex, Amina Abdul Rasheed, Shaun Thomas, Salmanil Farisi, Ansia S,(Android Application for Smart Parking using IoT ,2021).*

In this paper we are study the smart parking system using android. User safety is ensured by license plate detection. The aim of this approach is to reduce the time spent searching for available parking and also to offer hands-free payment. This intelligent parking system can be implemented in parks, shopping malls, hospitals. This app provides advanced parking reservation feature for users. Navigation is also provided for further assistance. IoT or Internet of Things plays an important role in our day today life. Parking assistance is provided to find the user's parked vehicle from the parking space via the application. On each car park, LED indications make it possible to identify occupied and unoccupied spaces. Users can make payment using two methods: online transaction and RFID technology. The IR proximity sensor is used to detect whether the parking lot is occupied or not [1].

2) *S. Rahmath Nisha , C.Shyamala ,S. Pooja , Pilo Abarnia A , Sabnam Shajeetha M ( RFID Based Smart Car Parking System Using IoT and Cloud ,2020).*

This article introduces the concept of using RFID and cloud-based technology in parking services in cities. It provides a solution that uses the RFID concept with the Internet of Things (IoT) connected to a cloud-based system. These features provide the nearest available parking for the user. In order to provide an easy-to-use environment, a website is being developed which provides information to the user on the availability of parking spaces. Finding a place to park vehicles in a densely populated geographic area wastes time and fuel when trying to find a parking spot. There is therefore a need for assistive technologies, which could communicate the availability of parking spaces to registered users. With the use of RFID, the reader module scans it, and further the implementation proceeds. The number of free and reserved parking spaces is displayed graphically on the web page, the WIFI module is used for communication between the web page and the reader module. In the past two years, a huge development has been made in the creation of smart cities. The proposed system provides real-time information on the availability of parking spaces in a parking area. Remote users can reserve a parking space for them through our mobile app. The efforts made in this document aim to improve the parking facilities of a city and therefore aim to improve the quality of life of the inhabitants [2].

3) *Ankita Gupta, Ankit Srivastava, Rohit Anand, Paras Chawla,(Smart Vehicle Parking Monitoring System using RFID , 2019).*

With the growing influx of population into developed, industrially, and technologically sound urban cities, the urgent need to make cities smart is becoming obsolete. Cities are being made intelligent through data sharing, artificial intelligence, machine learning, analytics, and thousands of RFIDs. tags and sensors. One of the main concerns of smart cities today is the growing need to manage vehicles on the road and create enough well-managed parking spaces to avoid traffic congestion in urban areas. Autonomous system to guide the driver to a free parking space in the vicinity. In this article, a real-time prototype of the intelligent parking system based on the Internet of Things (IoT) is discussed [3].

## III. METHODOLOGY

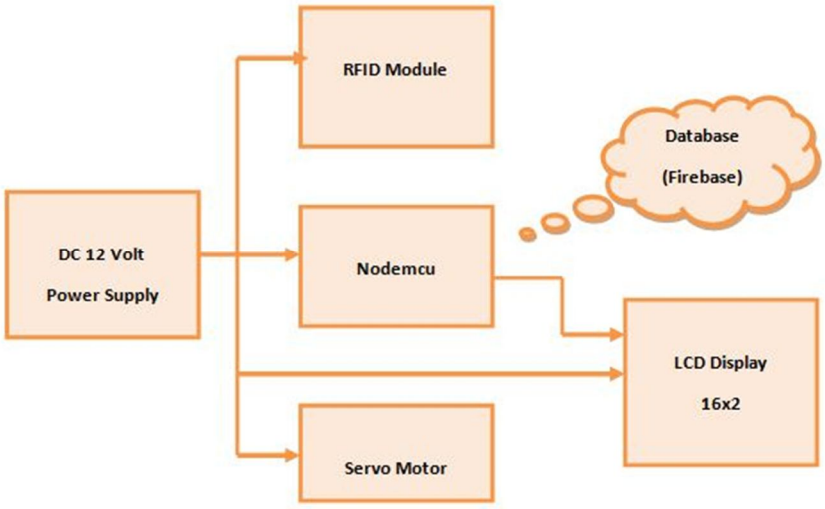



Fig 1. Block diagram of smart parking system.

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The above figure shows the block diagram of the smart parking system. This is consisting of the Nodemcu, servo motor, LCD display, RFID Module and Dc adapter. We are designed a smart parking system which is based on IOT. As per the above block diagram the firebase is main part of our system which is used as a database in our project. The Nodemcu is the controller or we can call it as the Iot device which is used to process the data. The smart parking system needs the user authentication. This can do with help of RFID module. It has the RFID cards which can have unique values read by the RFID module. To display the all operation we are used LCD display. The servo motor is employ for gate open and close when user authentication and payment done.

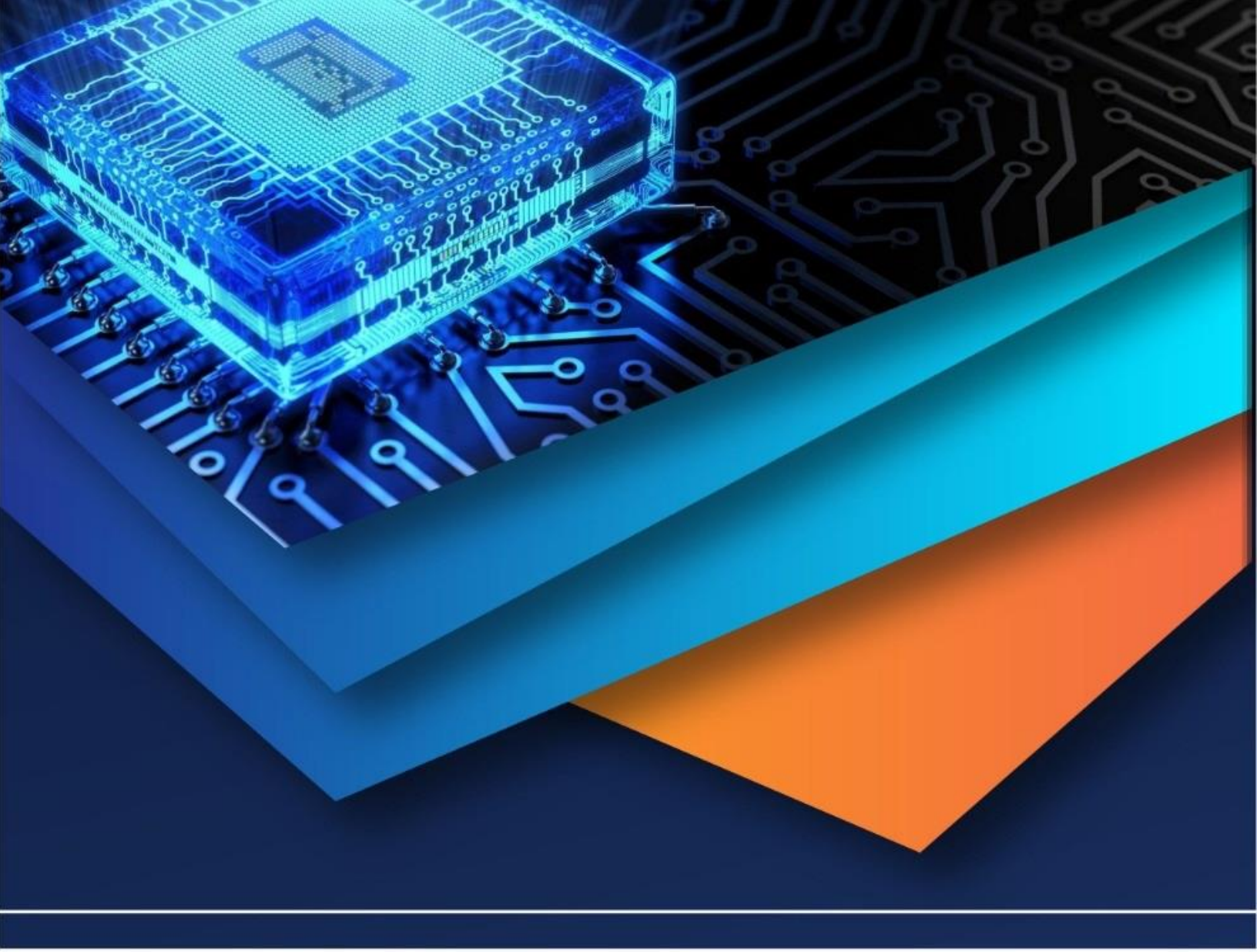
We are implementing a parking system which is based on iot. There are few scenarios that we want to be fulfilled. Just example we want to pay on cash in parkings. But we are planning to be make it smarter than others. Therefore we are using a firebase as database to store the information of a user. Authentication of a user is also required. This can be e e done with the help of RFID module. We have use nodemcu esp8266 as a microcontroller which can handle all the things of the project. The is nothing but iot device which can help to process our data as well as send the data to the database. The nodemcu give us the flexibility to connect Wi-Fi the every microcontroller needs programming and we are available software or dinner ID which is openly source available for nodemcu and it support c and c++ language. In this way we can implement our smart parking system.

## IV. CONCLUSION

In this paper we are observing the different types of system which is based on the parking system. We have survey of the research papers and after evaluation we are seen that the we want to implement the smart parking system with proper authentication and authorization. The system need best growing technology which is IOT (Internet of Thing).

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