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Parking Management System

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***Abstract:** In society, we may spend 5 to 10 minutes trying to find a place in a parking space. Parking spaces are everywhere, but they are highly inefficient. According to a study done by Inrix, the authority on vehicles and transportation, over 70 billion dollars are wasted every year searching for parking. In that process, we waste 3.6 billion hours of time and 1.7 billion gallons of fuel. That is a lot of wasted resource. In this project, I propose a parking management system, which consists of hardware and software modules. On the hardware side sensors and cameras. On the software side, java modules are implemented with efficient data-management. To test the system, I have modeled different possible actions of the drivers and ensured that the proposed parking system performs perfectly. This system can be used in any large parking structure in the modern smart cities. Some examples are hospitals, companies, downtown, airports, malls, events etc.*
***Keywords:** Parking Management, Smart Cities, Internet of Things, Sensor System, Image Sensors, Smart Buildings*

I. INTRODUCTION

Most of the car parking are inefficient nowadays as transport industry boom day by day. many government found that visitors are increasing as of that parking space is big deal for them. traffic problems are also major concern as more no of cars are running on road than their capacity. in country like india which is populated and crowed parking space is big problem .also driver search for empty parking space but result are not in favour . so, this car parking system helps to manage cars on road and in parking space .

II. TECHNOLOGIES

A. Android

An operating system that comprises of modified linux kernel which is mostly used in touch screen phones. It was developed initially by Android Inc, but later on bought by Google. Basically android app is coded in java or kotlin and rest features are supported with different technologies like as for database sql is used, for interface javascript, etc.

B. Java

Java is a general purpose object oriented language. Its open source and works on different platforms. The framework and classes makes it to use for android development.

C. MYSQL

For storing, retrieving and manipulation of data in a database we require software which can perform them all. MySQL comes in two editions they are: Some features of mysql are: 1) Their Cross platform support. 2) MySQL uses standard SQL. 3) It can be compiled multiple platforms 4) MySQL is free and easy to download and use. These are the main technologies that are going to be implemented in the application and some of more may be later on depending upon the requirements for the betterment of it

III. WORKING MODEL

The application will be controlled by different modules of code which are:-

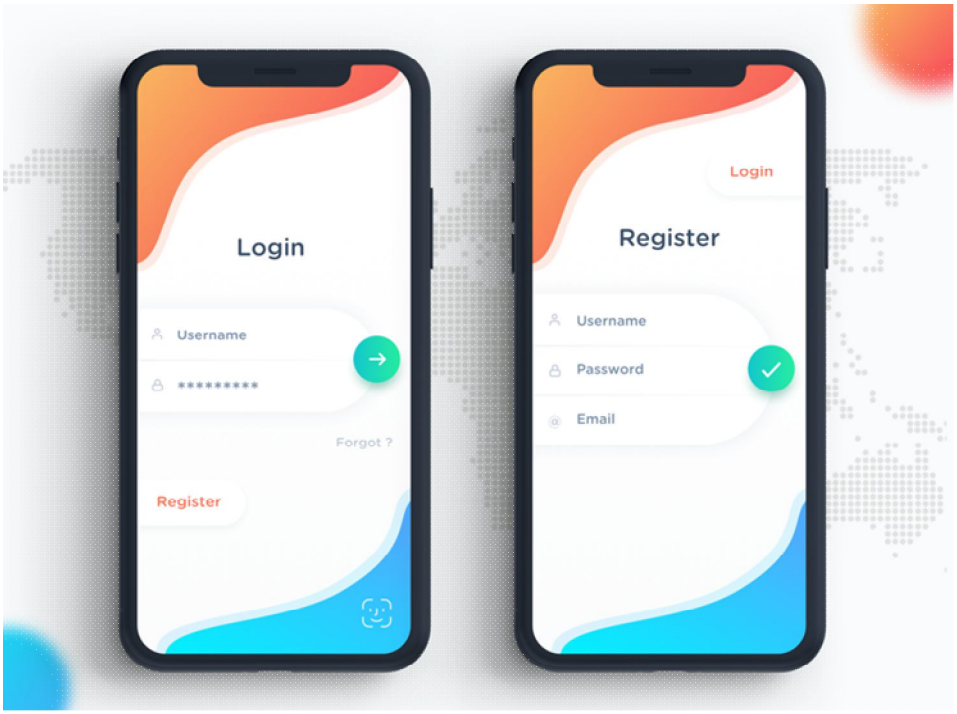
A. Signup/Login

The sign-up/login module will be controlling the user sign up where the user's voice and other necessary details such as given below will be recorded in database.

1) Username
2) Password
3) Phone Number
4) Email Id
5) City

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B. Location

In this module, the application offers users to give the location where they want to use the services, provided by us. To use the location services, the app must request location permissions There are two ways through which any user can give their location

1) Current Location
2) Choose Location (manually on map)

C. Select Vehicle

The application will prompt user to choose their vehicle type, then choose the model from the various models available in market, as the pricing will differ model by model of the vehicle.



D. Time Slot

The user has to book the time slot in which they will be available for the services.This helps in multiuses of parking space. At the selected time, it will be easy to reach and park the vechicle and will perform the desired work as per client..

E. Confirm And Pay

The application consists of a Confirm and Pay button which will be selected only after providing all the necessary details. On selection of this button, user will be prompted to make payments based on the type of service choosed and distance, which will be automatically calculated.

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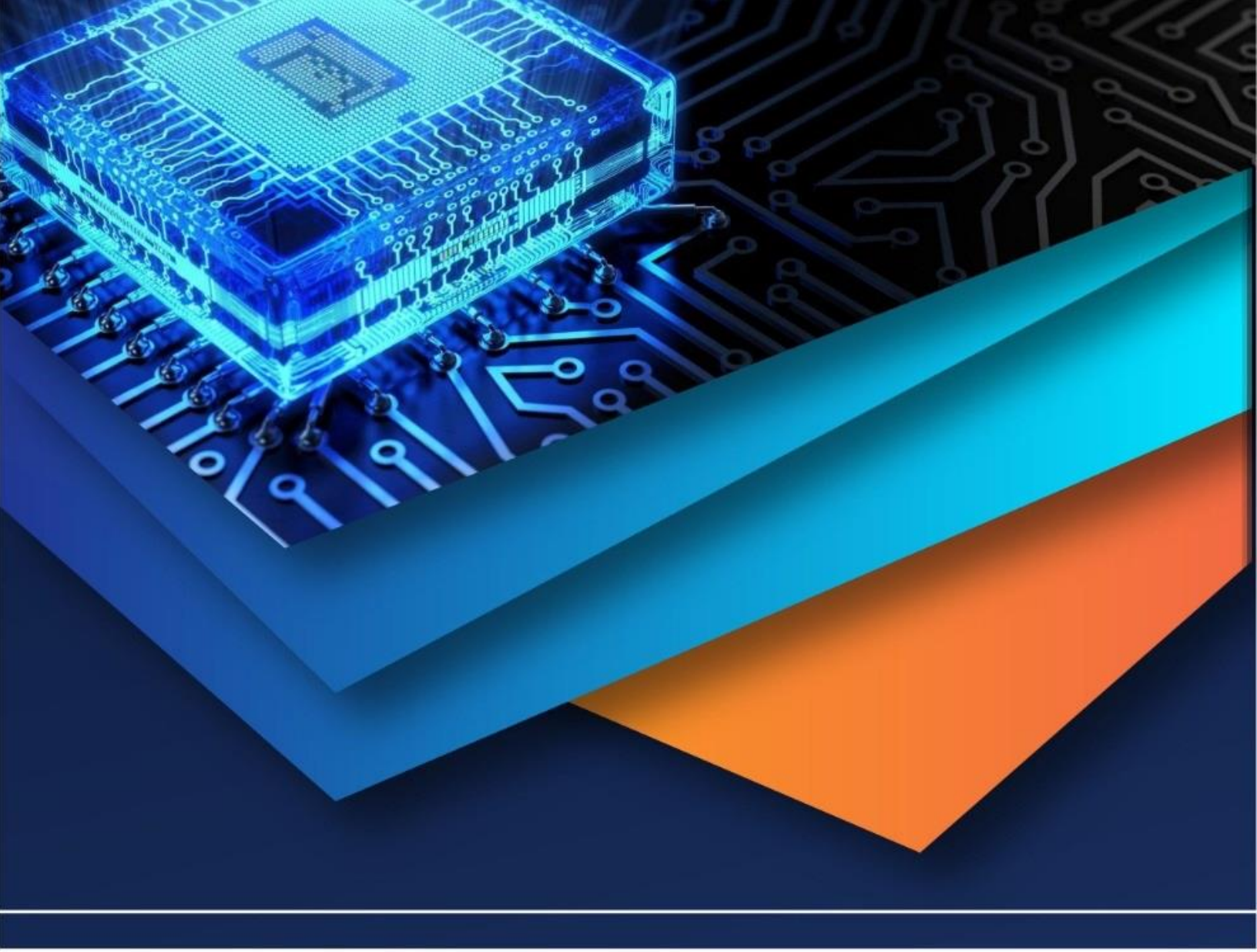
IV. CONCLUSION

In this work, I have successfully developed a smart parking management system. The system consists of hardware compone and software modules which closely interact with each other. Using this system, drivers of cars can park quickly, and wi save fuel, time and money. The experimental result shows very fast runtime and high success rate. This approach can save billions of wasted dollars in the US alone. The saved fuel, time and money can be reapplied in more productive places. By causality, it will help the environment as well

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