Android Application for Vehicle Parking System

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Abstract: Enrollments into the corporate offices have been increasing steadily. As the number increases, various problems arise. One such problem is to find a parking spot. To make things easier for the employees, staff and the visitors, it is important to have a parking management system using mobile application. This system can help reduce the time to find an empty parking spot. QR codes are used in this system which can help mark the distinction between two cases. First case is when the parking lot is empty and the other when it is full. There will be QR codes on the office ID cards of the employees and staff members, when they will reach the entrance, the watchman will that QR code using our application. The allotment of parking detail will be directly sent to the employee's phone number as a text message. By referring that the person will park the vehicle.

I. INTRODUCTION

Automated car parking system commanded by android application" is a miniature model of an automated car parking system that can regulate and manage number of cars that can be parked in given space at any given time based on the availability of parking slot.

With the development of this most recent burning technology, everything around us is expected to be connected to a network and communicate with one another with less human interactions. A few parking systems that are currently in operation collect information using sensors.

In Our case initially the driver sends request via mobile phone using Android application and do reservation as mentioned in the smart parking overview.

Lot of time is wasted in finding a parking slot. Parking in garages is very expensive. All these problems are overcome by an appointing a human to look into these problems and assist people find a slot, then calculate the bill for that period.

II. LITERATURE SURVEY

- The author suggests a parking system based on QR codes. To reserve a spot in the parking lot, the user must scan the QR code. When a user books a parking spot, the output is shown to them, preventing any inconsistencies in the parking system.
- The study demonstrates an Android-based system for item recognition based on scanning QR codes. The approach is designed to make it easier to identify different goods that are present in an existing inventory. The system as planned consists of a database, a Web service to allow for intermediate access to the database through the Web, and a client Android application that may be used on smartphones and tablets.

III. IMPLEMENTATION

The customer, watchman, and admin modules make up the bulk of this project.

Admin module consist of Java application for administration

An android app called "Customer and Watchman" is available.

Using the Eclipse IDE, the admin application and web application are constructed. Developers continue to use Eclipse despite Google no longer supporting Android Studio and removing Eclipse from its list of supported development IDEs because it is more reliable and less prone to problems. For the development of our project's client and conductor, we continue to use Eclipse.

3.1 Development Environment:

3.1.1 Android applications

For mobile devices, the Android software stack consists of an operating system, middleware, and important apps. A software program that runs on the Android platform is known as an Android app. A typical Android app is

created for a Smartphone or tablet PC running the Android OS because the Android platform was developed for mobile devices (Android Operating System). The Android Operating System is divided into four layers: Framework Apps, Android Runtime Application, Kernel Libraries, and Linux.

3.1.2 QR code

Quick response codes (QR codes), also known as matrix or two-dimensional barcodes, were invented and initially made public by the Japanese company Denso- Wave in 1994. Camera phones can scan QR codes. We can store up to 7,089 numeric characters' worth of data in byte/binary kanji characters and up to 4,296 alphanumeric characters' worth of data. Symmetric keys are used to encrypt QR codes, and the decryption key might be made up of sentences or random characters. The key is used to execute a bitwise XOR operation during encryption on both data chunks. The original message may be obtained by using the same method on the encryption. For information collecting on papers, websites, and items, such as email addresses, QR codes are extensively utilised.

3.1.3 XAMPP

The Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages are the core components of XAMPP, a free and open-source cross-platform web server solution stack bundle created by Apache Friends. Cross-platform Apache, MySQL, PHP, and Perl, often known as XAMPP, enables you to create WordPress websites locally on your PC using a local web server. This straightforward and lightweight solution is "cross-platform" in that it runs on Windows, Linux, and Mac.

3.1.4 Postman

Application programming interface (API) development tools like Postman make it easier to create, test, and alter APIs. This tool has almost all of the features that a developer could possibly require. More than 5 million developers use it each month to make developing APIs quick and straightforward.

One of the most well-liked tools for API testing right now is Postman, which enables communication between software programs via API calls. Information may be retrieved from a specified URL using get requests.

3.1.5 MYSQL

The relational database management system MySQL is free and open-source. The word "My" is a mix of "SQL," the acronym for structured query language, and "My," the name of co-founder Michael Widenius's daughter. This is really helpful if you have a webserver and want to use your Android app to access its data. The webserver uses MySQL as a database, and PHP is used to get data from the database. Our program will provide the required parameters to the PHP page, and PHP will make contact with the MySQL database, collect the results, and then send them back to us.

Once the entry has been generated, PHP is also used to get it from the MySQL database. Certain information has to be given in order to obtain the record.

3.2 MODULE AND ALGORITHM

The program is easy to use and is free to download. The project was created to assist daily commuters by providing information on parking spaces, the surrounding area, and the services that are offered from their starting point to their final destination. It also displays maps, tracks slots' locations in real time, and estimates the amount of time it will take to get there. The goal is to eliminate every flaw in every prior application and produce quick, precise outcomes.

The suggested system has been split into the following three modules. admin app for module 1

Module 3 is the client app, whereas Module 2 is the conductor app. Using client-server technology, this is done.

1. Module 1 (Admin App)

The admin will have the authority to add watchmen; no watchman may be independently established.

Fig. 3.2.1 Admin Application Login Screen

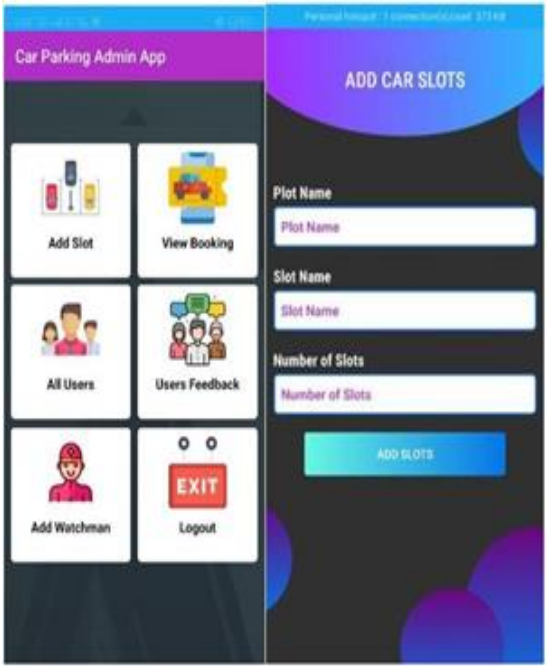

Fig. 3.2.1 Admin Application main Screen

2. Module 2 (Watchman App)

The watchman will scan the customer's QR code to obtain the customer's car information. The watchman will then distribute the parking, and the client may check the view booking section to see which parking is distributed.

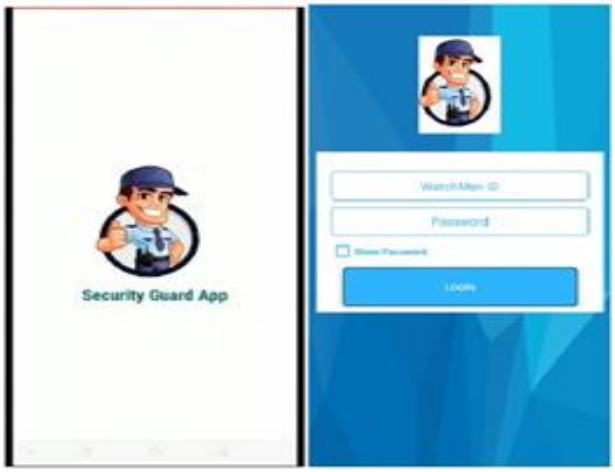

Fig. 3.2.2 Watchman Application Login Screen

Fig. 3.2.2 Watchman Application Main Screen

3. Module 3 (Customer App)

When a customer creates an account, a QR code with their vehicle number is generated for them, which the watchman may then scan.

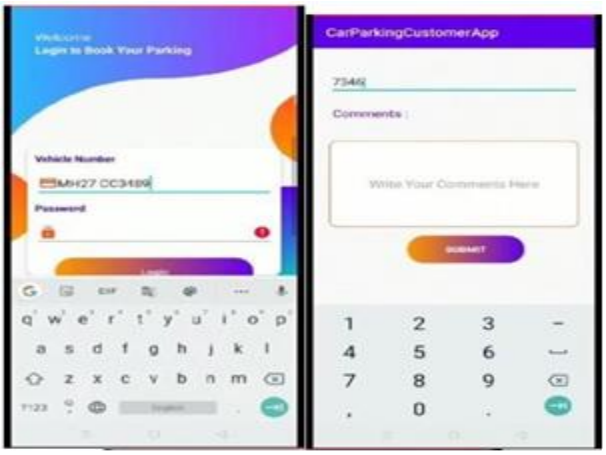

Fig. 3.2.3 Customer Application Login Screen

Fig. 3.2.3 Customer Application Main Screen

VI. CONCLUSION

An Android software called Smart Parking System was created to make parking at universities convenient. The application's primary role is to display precisely which parking spaces on different parking lots are open for use. QR codes are used to do this. While parking and again before leaving, the user must scan the QR code that is given to them in the menu selections. This makes parking easier overall.

V. ACKNOWLEDGMENT

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