Automated Vehicle Parking System

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ABSTRACT:-

This paper gives us automation of the parking system. It discusses a project that presents a miniature model of an automatic automotive parking system which will regulate and manage the quantity of cars which will be put in a very given house at any given time supported the supply of parking spot. Here existing cars using a sensing device. The coming into to or feat from the parking lot is commanded by associate automaton based mostly application. We have studied a number of the present systems and it shows that the majority of the present systems isn't utterly automated and need a particular level of human interference or interaction in or with the system. The distinction between our system and also the different existing systems is that we tend to aim to create our system as less human dependent as potential by automating the cars additionally because the entire car parking zone, on the opposite hand most existing systems need human personnel (or the automotive owner) to park the automotive themselves. To prove the effectiveness of the system projected by United States of America we have developed and bestowed a mathematical model that will be mentioned briefly more within the paper.

Keywords—: Image Processing, Deep Neural Networks

I. INTRODUCTION

Our project presents a miniature model of an automatic automobile parking system that regulates the amount of cars which will be put in an exceedingly given house at any given time supported the car parking zone convenience. The aim is to automate the parking system. Show digital alphanumeric display is provided to display the data regarding the whole variety of cars which will be put and also the place free for parking. When any car comes at doorway it will be stopped to going at directly at car parking zone. The owner, then, de-boards the automobile and exploitation the robot application on his Smartphone, can command the automobile to park it. On receiving this command, the automobile can begin to trace the trail that leads towards the car parking zone. Once a vehicle comes at gates it will be stopped and checking of free space. Automobile car can check freer slot. On arriving parking, the info on the alphanumeric display is updated mechanically. Four basic modules area unit needed for implementation of this method.

(1) Microcontroller interfacing with alphanumeric display
(2) Microcontroller interfacing with GSM
(3) Interfacing of Microcontroller with RF Module.
(4) Robot Application.

The automobile driver at first positions the vehicle on the trail resulting in the car parking zone. Then, with the assistance of associate robot Application he sends associate encoded SMS language "Park the car". The Vehicle traces at gate. On the gate of the parking unit and automobile communicates with free parking slot and if a free slot is found, it's allotted and also the automobile traces the trail to the slot and gets put. The info on alphanumeric display gets updated at the same time. Thus, the aim of this method is to produce associate economical automobile parking system with borderline human intervention.

II. LITERATURE REVIEW

Various ways of building intelligent parking system. Study of those systems shows that these need a bit or additional human intervention for the functioning

One of the most effective systems is proposed by use of Image Processing [1]. In this system captures image from the parking area and checks for free parking slots. The information concerning the presently accessible parking areas is displayed on the 7-segment show. The parking slot image is taken from image and checks for parking slots. The noise is aloof from this image and therefore the object boundaries area unit known. The image Detection module determines that objects area unit spherical, by determining every object's space and perimeter. Consequently, the free parking lot is allotted.

A vision based parking system uses positive and negative type of parking system slot. Classifier Detect the object from the input. Positive pictures contain the images of cars from numerous angles. Negative pictures don't contain any cars in the system. The co-ordinates of parking heaps are used to observe the presence of cars within the region. However, limitations could occur with this method with respect to the kind of camera used. The co-ordinate system used selects parking location and therefore camera has to be set location. Only Set of positive and negative pictures could place limitations on the system

Number Plate Recognition technique [3] for developing Autonomous automotive parking system uses image process basis to process the quantity plates of the vehicles. During this system, the image of the identification number plate of the vehicle is no inheritable. It is any divided to get individual characters within the number plate. Supersonic sensors are wont to observe free-parking slots. Then the photographs of range plate are taken and analyzed.
Simultaneously, the present temporal order is noted thus on calculate the parking fees. The digital display displays 'FULL' sign to point that a parking slot isn't obtainable. But some limitations with the system embody background color being mandatorily black and character color white. Also, analysis is restricted to number plates with only one row.

Smart parking system [4] designs a mechanical model with picture process facility. The automobile would be put with the employment of carry at multiple levels. Also, image process is employed to capture the amount plate and store in information for comparison to avoid ineligible automobile entry.

Problem Statement

We aim to style a automotive parking system that represents a completely automatic model with minimum human intervention and overcome the constraints of previous systems.

II.   PROPOSED SYSTEM

In this paper, we have a tendency to gift the planned design of our System. we have a tendency to aim to develop associate degree autonomous automobile parking system that is commanded by humanoid application associate degreed therefore aim to produce an economical automobile parking system.

The projected system design diagram offers a schematic of the planning needed to develop this technique. Here, we have a tendency to see 2 sub-architectures – One for the automotive and one for the lot. The Parking system is commanded by the portable with mechanical man application as shown within the figure. The Parking system communicates with the system put in within the automotive thus on management the motion of automotive to the automobile parking space. The Parking system is exclusively to blame for making certain correct parking of the vehicle to the destined position. The system put in within the automotive is to blame for movement of the automotive as per the commands received from the Parking system.
The projected system is split into following four modules: -

1) Interfacing alphanumeric display with Microcontroller.
2) Interfacing GSM with Microcontroller.
3) Interfacing RF Module with Microcontroller.
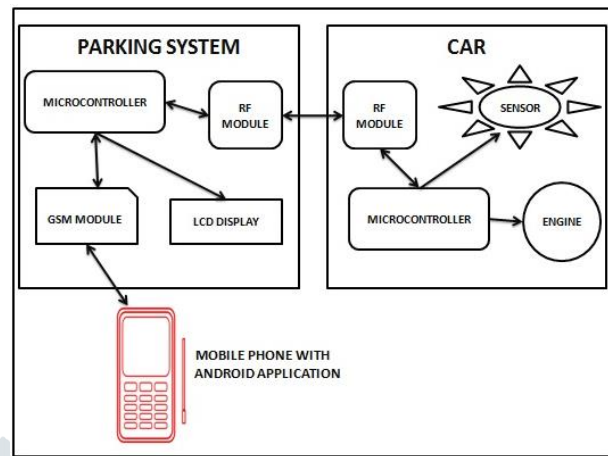4) Mechanical man Application Development

Figure 1. Proposed System Architecture

Modular Description: -

Interfacing alphanumeric display with Microcontroller Interfacing of microcontroller with alphanumeric display Unit is especially used for displaying the parking slot standing knowledge to the system user. The alphanumeric display module will represent knowledge in alpha-numeric knowledge at the side of some pre-defined characters. The alphanumeric display module communicates with the micro-controller and displays the quantity of free slots to the user.

Interfacing GSM with Microcontroller

GSM stands for world Systems for Mobile Communications. The GSM module is employed for causing and receiving encoded messages to or from the microcontroller. The GSM module is retrofitted within the Parking slot as shown within the system design diagram. Knowledge obtained from the mobile or the microcontroller is hold on into the buffer of the GSM module then transmitted more in serially synchronic kind.

Interfacing RF Module with Microcontroller

RF stands for frequency. RF Module could be a little electronic circuit to transmit and receive radio signals on range of carrier frequencies. In our projected system, we have a tendency to square measure exploitation the RF module for inter-microcontroller communication. It serves the aim of knowledge communication in between the microcontroller of the car park which of the automotive. The information communication takes place in serial synchronous type.

Android Application Development

In this module, associate humanoid Application is developed to instantiate the system. The humanoid Application would be developed by creating use of humanoid ADT-bundle and therefore the platform used would be Eclipse – Kepler. The humanoid application to be designed would generate encoded message which can be sent to the parking unit, on every occasion a user sends a "Park my Car" command. The message would be decoded at the parking management unit

and reckoning on the standing of the car park, reply would be sent back. Also, at the time of retrieving the automotive from the parking, the humanoid application would send associate encoded "Get my Car" variety of message to the parking slot to retrieve the suitable automotive.
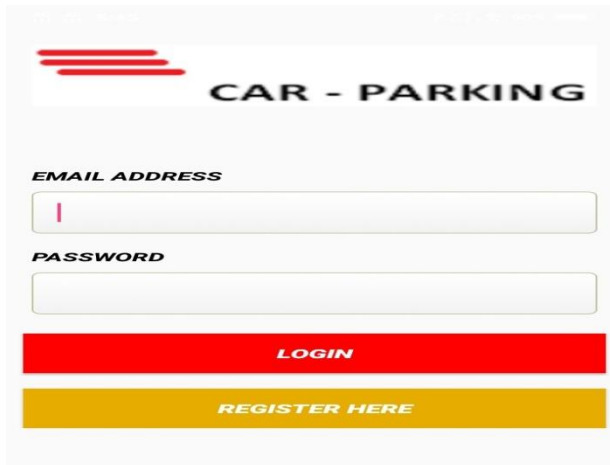
III.   RESULT
1.   Home Page

Figure2. Home Page of Android Application

2.   Registration of User

Figure3. Registration of User

3.   User Dashboard with slots

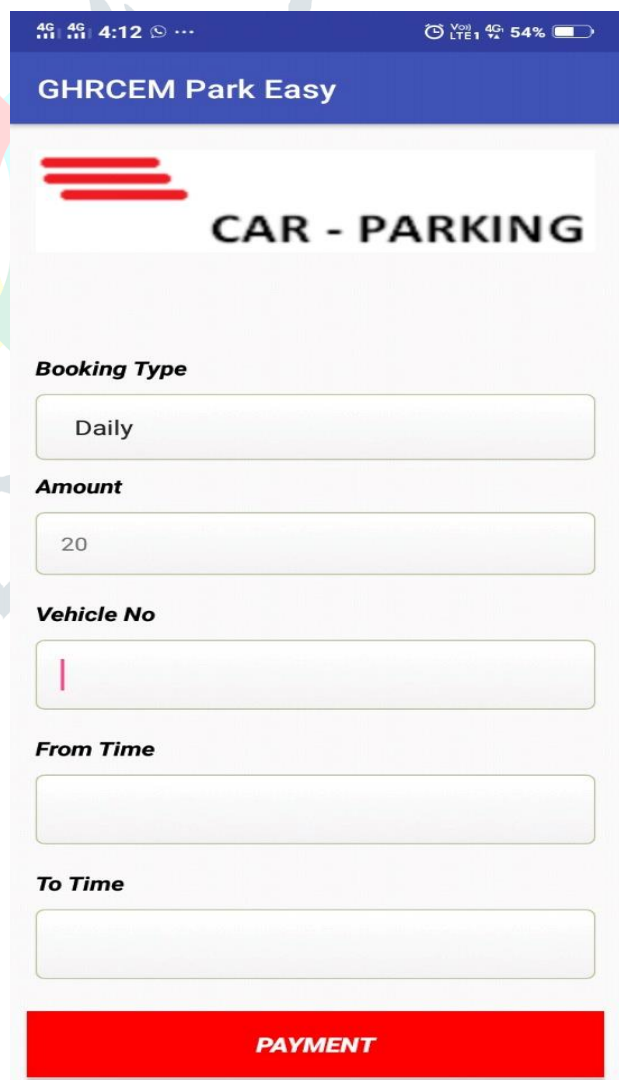Figure4. User Dashboard with Slots

4.   Booking Detail Page

Figure5. Booking Details Page
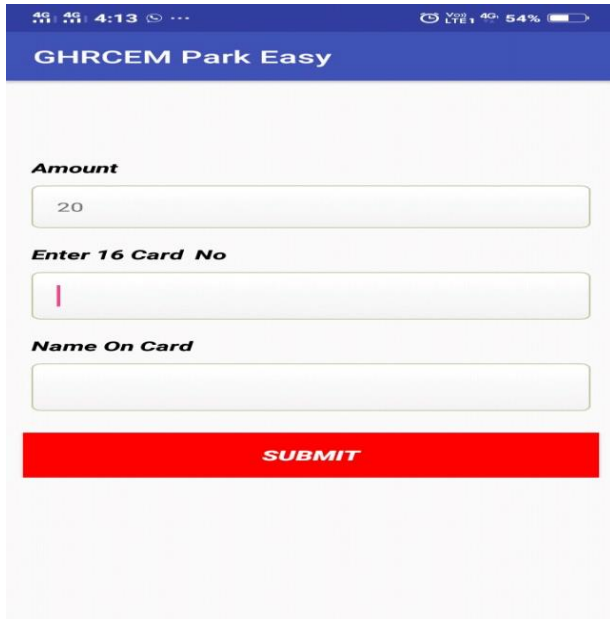
5. Payments Page

Figure6. Booking Details Page

6. QR Code Generation

Figure7. QR Code Generation
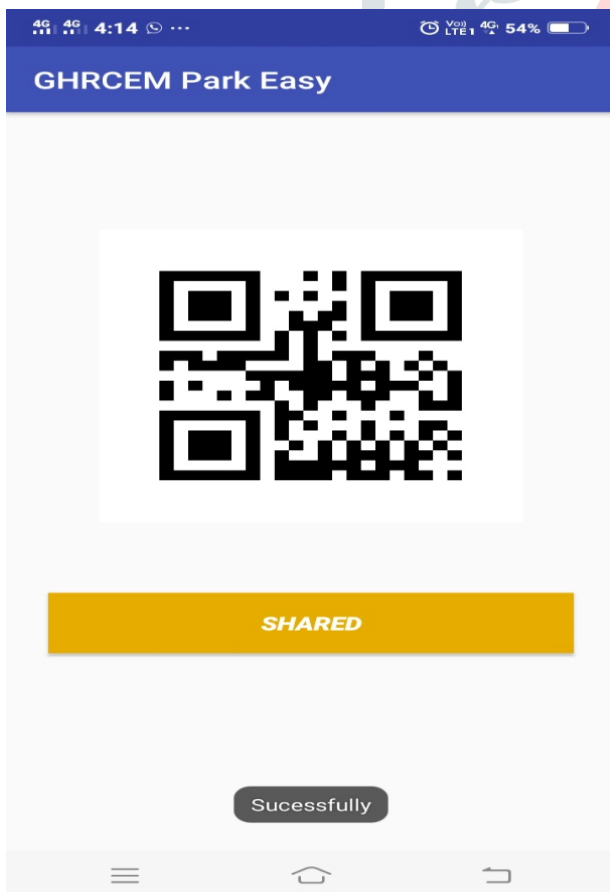
7. OR Code Checking Page

Figure8. QR Code Checking

IV.   CONCLUSION

A planned design of the machine-driven automobile parking system commanded by golem application is given during this paper. The allotment of the parking slot by associate degree autonomous searching methodology makes the parking of vehicles at public places a lot of economical. The looking out and allotment of parking

Slot, supported the standing of obtainable slots, as communicated to the microcontroller, and makes the path-tracing for the vehicle, to the appropriate free slot, easier. The planned system makes use of golem application to facilitate the parking and retrieval of the vehicle, for the user. we have a tendency to herewith aim to cut back the human efforts needed for parking of car at public places like shopping malls, public parking, 5- star hotels etc. Thus, the proposed style would offer associate degree economical automobile parking system by victimization associate degree economical looking out methodology, supported by the efficient functioning of the GSM Module, RF Module and therefore the microcontroller.

V.   REFERENCES

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