GSM Based Securing For Smart Car Parking System Using LABVIEW

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Abstract: **The main aim of this proposed system is to develop a smart car parking system. This system not only helps in parking of the vehicle but it also helps the user in finding the free space along with a security system. This is just a step forward to reduce the traffic created on the roadsides due to parking of vehicles. Each and every Public places like offices, shopping malls; Entertainment Plazas have a major problem for finding free space for parking along with a security system. Even after finding space for parking a human power is getting completely wasted for the whole day to maintain the parking system which is practiced now a day with the platform of GSM and Lab VIEW a smart car parking System is to be designed. The major task performed by this proposed system is, helping the user in finding the available free space with the help of sensors. Automatic token monitoring system and along with that the system is developed in such a way that it avoids and protects itself from accidents that is, it stops automatically when it finds an obstacles. This system satisfies the major requirements of a parking system. This system will be smarter than the existing system to a greater extent.**

Keywords— **Smart car parking system, Lab VIEW, Dc Motor.**

I. INTRODUCTION

In modern days, cost and time is a major thing for every human being. The major problem faced by most of the people everyday is the traffic management system. Due to the migration of majority people's from rural to urban. Most of the present generation wants to improve their life style which leads to increase in the number of commercial complex. Comparing to past 40 to 50 years, today the number of shopping complex and office complex are drastically increasing. The common problem that every person come across in their complex system to find the available parking slot for their vehicle. In the development of traffic management systems, an intelligent parking system was created to reduce the cost of hiring people and for optimal use of resources. The most common method used is to find the parking space manually where the driver usually finds a free space in the particular area. This system is proposed to yield the optimal solution to overcome the difficulties of the existing method using LabVIEW and smart parking system has been proposed to identify the available free space in a parking area using IR sensor. Using

GSM module to generate the pass code for the parking vehicle to ensure the safety of the vehicle.

II. RELATED WORKS

Thanh Nam Pham proposed a parking system by using IoT (Internet of Things). In the development of traffic management systems, an intelligent parking system was created to reduce the cost of hiring people and for optimal use of resources for car-park owners. Currently, the common method of finding a parking space is manual where the driver usually finds a space in the street through luck and experience. This process takes time and effort and may lead to the worst case of failing to find any parking space if the driver is driving in a city with high vehicle density. The alternative is to find a predefined car park with high capacity. However, this is not an optimal solution because the car park could usually be far away from the user destination. In recent years, research has used vehicle-to-vehicle [1] and vehicle-to infrastructure interaction with the support of various wireless network technologies such as radio frequency identification (RFID),

Zigbee, wireless mess network, and the Internet. This study aimed to provide information about nearby parking spaces for the driver and to make a reservation minutes earlier using supported devices such as Smartphone's or tablet PCs. Furthermore, the services use the ID of each vehicle in booking a parking space. However, the current intelligent parking system does not provide an overall optimal solution in finding an available parking space, does not solve the problem of load balancing, does not provide economic benefit, and does not plan for vehicle-refusal service. To resolve the aforementioned problems and take advantage of the significant development in technology, the Internet-of-Things technology (IoT) has created a revolution in many fields in life as well as in smart-parking system (SPS) technology [20]. The present study proposes and develops an effective cloud-based SPS solution based on the Internet of Things. Our system constructs each car park as an IoT network, and the data that include the vehicle GPS location, distance between car parking areas and number of free slots in car park areas will be transferred to the data center. The data center serves as a cloud server to calculate the costs of a parking request, and these costs are frequently updated and are accessible any time by the vehicles in the network. The SPS is based on several innovative technologies and can automatically monitor and manage car parks. Furthermore, in the proposed system, each car park can function independently as a traditional car park. This research also implements a system prototype with wireless access in an open-source physical computing platform based on Arduino with RFID technology using a Smartphone that provides the communication and user interface for both the control system and the vehicles to verify the feasibility of the proposed system.

III. METHODOLOGY

The main aim of this new system is to find the parking space easily and to reduce the parking area.

1. Software Architecture
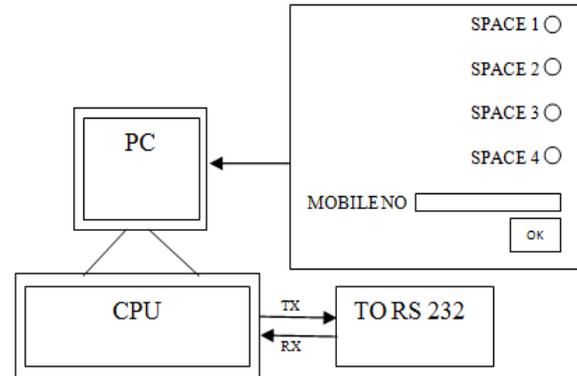
In this system, LabVIEW software is used as the backbone of the controlling process. The user has to press the space button in the front panel to find the free slot for parking. The user himself has to enter the mobile number for security purpose. The microcontroller RS232 sends the allotted slot number to the user mobile as a message.

2. Hardware Architecture
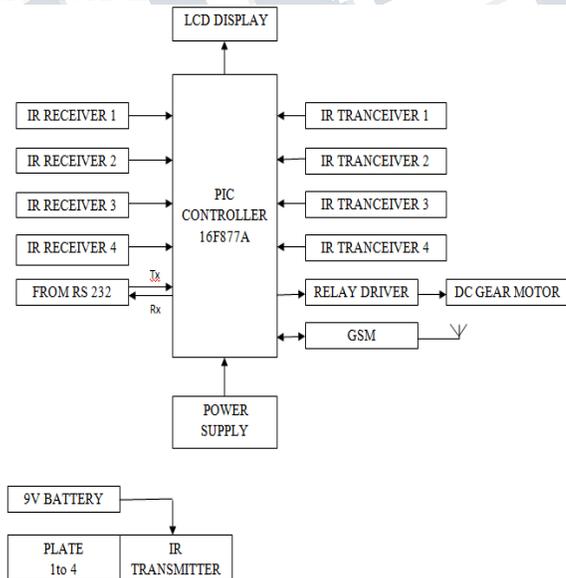
IR Sensor is used to find the available space to park the car. In this IR Sensor placed in both parking lot and base of the parking system. It will act as a Transceiver. The major role of the GSM is security purpose. GSM send a message to the user is lot number of parked car. From the RS232 cable, the user mobile number and the lot number is stored in Microcontroller. Gear Motor is used to rotate the parking lot. The user makes a call to the parking system for retrieve the car again.

IV. WORKING

The system consists of hardware components such as a 5 Volts DC gear motor, IR sensors, and ball bearings. The main principle of automatic car parking system is to place the car on the seat and retrieve the car from the seat using sensors, GSM and motors.
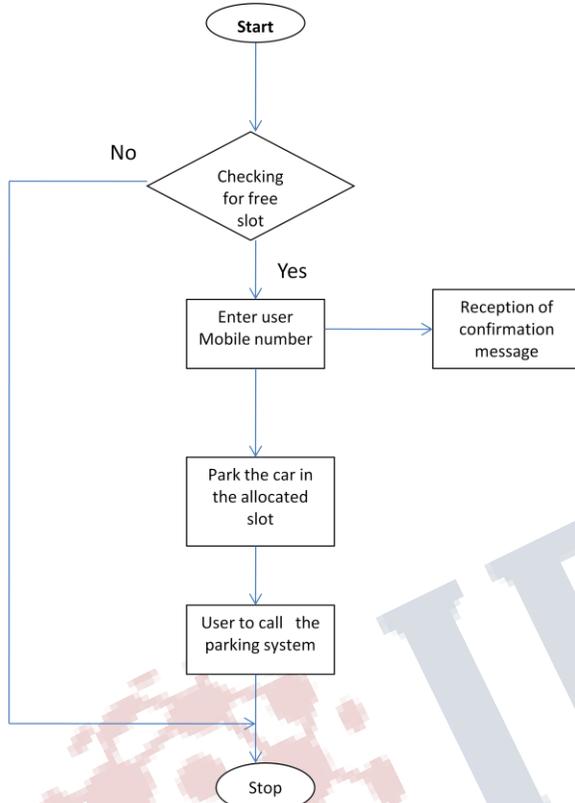
In this prototype model there are totally 4 trays, 4 IR sensors and unidirectional motion DC gear motor. When the car comes and is placed on the tray, the IR sensor senses the car after the tray is already sensed. When both the tray and the car are sensed, the counter is incremented by one. The user comes out of the car and automatically the tray goes upward and stands at null position. The process continues and in the meanwhile when a user comes to retrieve the car and giving the missed call from the registered number the car is retrieved and the decrement of 1 takes place in counter the tray comes down and person can take the particular car.

V. ADVANTAGE

- Avoid car dashing.
- High security

VI.RESULTS AND DISCUSSION

According to this proposed system, the module which has been developed for car parking using the tray and for security purpose GSM module is used and the registered number which is very important for the parking and while taking the car out of the tray.

VII.CONCLUSION & FUTURE WORK

For security purpose we use GSM module, in future we can use finger scanner and face detector sensor.

In future we can use bomb detector sensor to avoid bomb blast in urban areas.

VI. OUTPUT

REFERENCES

1. Christoph Sommer, David Eckhoff and Falko Dressler "IVC in Cities: Signal Attenuation by Buildings and How Parked Cars Can Improve the Situation", *IEEE Transaction on Mobile Computing*, Vol.13, No.8, August 2014.

2. Thanh Nam Pham, Ming-Fong Tsai, Duc Binh Nguyen, Chyi-Ren Dow and Der-Jiiun Deng, "A Cloud-Based Smart-Parking System Based on Internet-of-Things Technologies", *IEEE Transaction on Mobile Computing*, Vol.13, No.8, September 2015.

3. Tzuu-Hseng S.Li, Ying-Chieh Yeh, Jyun-Da Wu, Ming-Ying Hsiao and Chih-Yang Chen, "Multifunctional Intelligent Autonomous Parking Controllers for Carlike Mobile Robots", *IEEE Transaction on Industrial Electronics*, Vol.57, No.5, May 2010.

4. Christoph Sommer, Reinhard German and Falko Dressler, "Bidirectional Coupled Network and Road Traffic Simulation for Improved IVC Analysis", *IEEE Transaction on Mobile Computing*, Vol.10, No.1, January 2011.

5. Ho Gi Jung, Yun Hee Lee and Jaihie Kim, "Uniform user interface for Semiautomatic parking slot marking recognition", *IEEE Transactions on Mobile Computing*, vol. 10, No. 1, January 2011.

6. Hamzh Asyrani Bin Sulaiman, Mohd Fareez Bin Mohd Afif, Mohd Azlishah Bin Othman, Mohamad Harris Bin Misran, Maizatul Alice Binti Meor Said, "Wireless Based Smart Parking System using Zigbee", *International Journal of Engineering and Technology*, Vol.5, No.4, September 2013.

7. M.S.Karunarathne and L.D.J.F.Nanayakkara, "A Prototype to Identify Availability of a Car in a Smart Car Park with Aid of Programmable Chip and Infrared Sensors", *International Journal of Emerging Technology and Advanced Engineering*, Vol.2, Issue 7, July 2012.

8. Satish V.Reve and Sonal Choudhri, "Management of Car Parking System Using Wireless Sensor Network", *International Journal of Emerging Technology and Advanced Engineering*, Vol.2, Issue 7, July 2012.

9. Rongxing Lu, Xiaodong Lin, Haojin Zhu and Xuemin (Sherman) Shen, Fellow, "An Intelligent Secure and Privacy-Preserving Parking Scheme through Vehicular Communications", *IEEE Transactions on vehicular technology*, vol. 59, no. 6, July 2010.

10. Vanessa W.S. Tang, Yuan Zheng and Jiannong Cao, "An Intelligent Car Park Management System based on Wireless Sensor Networks", *International Symposium on Pervasive Computing and Applications*, March 4, 2009