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Smart Method of Vehicular Tactical Manoeuvre System

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ABSTRACT: A major real time issues in daily life is parking of vehicles especially parking cars at a free space . Its create a collateral problem to vehicular traffic overcrowding. This paper gives the basic concept of using cloud server based smart vehicular tactical manoeuvre systems in smart cities as an mandatory usage of the Internet of Things (IoT) paradigm. This system will be accessible through a smart phones or through the homepage in the web provided and can be used to observe and identify the free slots available in that parking area and reduce the wastage of precious time of the vehicle users .

KEYWORDS: Arduino,IR sensors,Wifi.

I.INTRODUCTION

The paper main idea is to provide a real life solution to the car parking system which the world is facing frequently [1]. People usually roam around in finding a parking slot within a particular area. A smarter and better parking system can reduce the problems associated with the current parking techniques. The system can monitor the state of every parking slot by deploying a sensor node on the slot. Sensor senses the state of every parking slot and displays the information on the screen for the user, to find the vacant space in parking area[3]. It leads to reduction in time and almost reduces the chance of entering the wrong way which might lead to traffic jam. It also has a message facility where the user can book a parking slot from any remote area through wireless module for certain time limit. To solve that problem we have created the automatic car parking system, using the open source hardware, programmable hardware and the use of computers to provide an interface to understand the digital output produced.This system main purpose is to produce a real life solution to the car parking problem which the whole world is facing frequently. People usually roam around in the parking lots trying to find a suitable place to park in [4]. To solve that problem, we have created the automatic car parking system, using an open source hardware, programmable sensors and the use of computers to provide an interface to understand the digital output produced.

II.SYSTEM MODEL AND ASSUMPTIONS

The existing system consists of the Arduino UNO which has 6 analog inputs, which can also be used as digital I/O pins, adding to the existing 14 digital I/O pins. This is also known as the ATmega328p microcontroller. This Arduino has Only one serial communication line (D0, D1) and Flash Program Memory is 32 Kbytes. It also has 14 digital I/O pins, of which 6 (D3, D5, D6, D9, D10, and D11) can be used as PWM outputs. The SRAM Data Memory: 2 Kbytes [5].Smart Parking Service based on Wireless Sensor Networks Intelligent Parking Management System Based on Image Processing. An Intelligent Parking Guidance and Information System by using image processing techniques are some of the existing methods[2] and their drawbacks are given as follows. Reservation feature is not available for the user.[4]. By using image processing technique it identifies car only but if any object other than car is at parking slot it doesn't considered that slot is booked. The weather conditions affect the System i.e. in terms of visibility. Using the Arduino Uno which has less input and output pins it cannot be applied for large parking areas [9]. All these drawbacks can be rectified by the proposed system.

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In the proposed system we use the Arduino Mega AT mega 2560 microcontroller which can be used for large parking areas and can also overcome the problems faced in the existing systems. It has 16 analog input pins, which can also be used as digital I/O pins, adding to the existing 54 digital I/O pins and 4 serial communication lines (pins D0, D1, and from D14 to D19). The Arduino Mega ATmega2560 has 54 digital I/O pins, of which 14(D0 to D13) can be used as PWM outputs. 256K Bytes of In-System Self-Programmable Flash. 8K Bytes RAM and 4K Byte Internal SRAM[5]. The other components that we have used are Infrared Sensors [7] Which can detect the presence of cars and hence to identify used slots & observe the unused slots in parking space, Wi-Fi module and the smart phone connected with application which can be used for the reservation of the parking slots observed from the cloud server.[3]

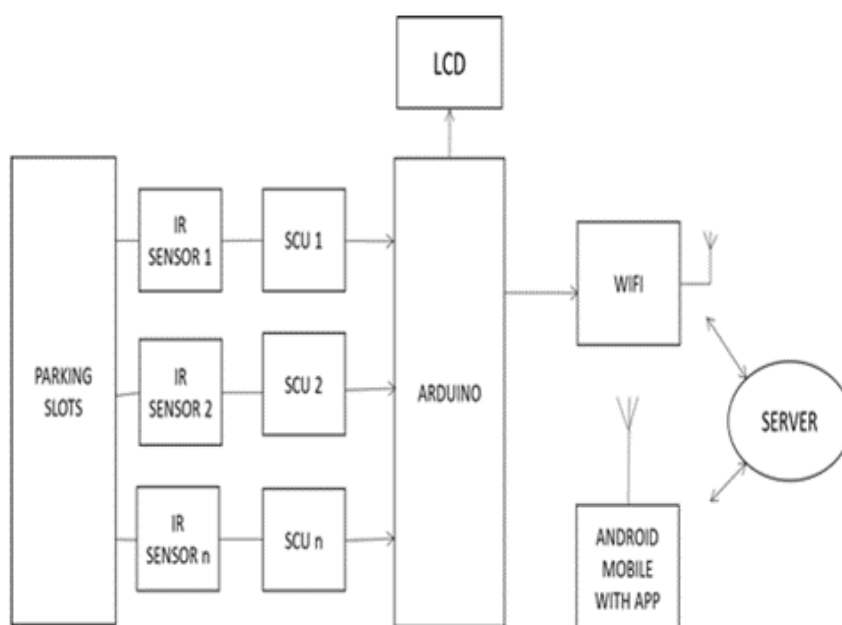


Fig. 1. Functional Block Diagram

The major issues in the existing system is to overcome by the arduino mega connected with internet enabled systems. here the user can use nearly n slots by using the arduino mega interfaced with IR sensor. The sensor converts the sensing output to arduino mega[8] through the signal conditioning unit(SCU). The available slots in the parking area can be visually seen by the user through the LCD. Main cloud server.

III. RESULT AND DISCUSSION

This method can be implemented for large parking areas. Fig 2 shows the hardware structure of the system design using Arduino mega interfaced with IR sensor and LCD display. Overcome the problems which occurred by using image processing techniques. Fig 3 shows available parking slots & unavailable parking slot information for the user.[9] This method easily observe and identify the available parking slot then the user make the Reservation of slots can save time and avoid congestion at parking zones. Traffic reduction.

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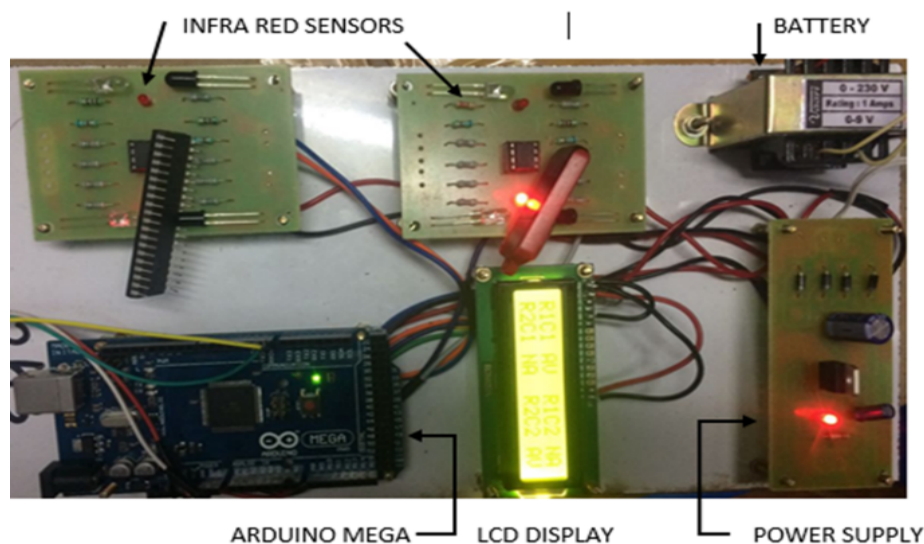


Fig. 2. Hardware Structure of the system

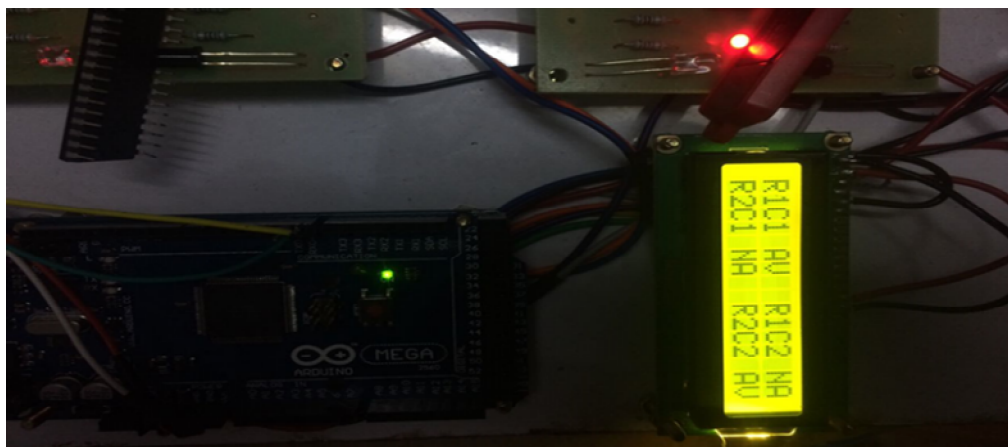


Fig. 3. Available slot in the display

IV. CONCLUSION

The proposed system overcomes the problems in the existing system and also provides a better solution to the traffic and congestion in the parking areas. It can also be implemented in large parking areas to save time. Reservation can be done with the help of the application developed and Wi-Fi can be used to view the available slots through mobile. This can give fast results and can be achieved by programming the sensors and Arduino mega.

For future enhancement the out time of parked cars can be given as input and can be displayed on the mobile through application so that it is possible for the incoming cars to park based on the time left for the other parked cars to leave[9]. Through this method also give the information about the cars usage in the parking slot for the vendors in an hourly basis.



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