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Advanced Centralized RTO System

Shreyas Jarande[1], Nameer Shaikh[2], Soham Khandke[3], Hrishikesh Hargude[4], Prof. Amrita Patkar[5]

[1,2,3,4]*Student, Dept. of Computer Engineering, AISSMS College, Maharashtra, India*
[5]*Professor, Dept. of Computer Engineering, AISSMS College, Maharashtra, India*

Abstract - *Due to high traffic people are fed up of travelling and the police too have lost their attention in traffic management. Many people fail to reach their destination on time due to traffic. In this paper we have implemented a system that will detect the vehicles which are parked in no parking zone which will be easier for the police to search by the detected location of that vehicle. It will also save the time as well as efforts of police.With the increase of the number of automobiles, the city parking demand occurred a rapid growth, and the city automobile parking had become a very serious traffic problem for Central Commercial District in cities. This paper studied the vehicle detection for better traffic management and to overcome illegal parking.*

Key Words: Arduino uno board, Infrared Sensor, GSM800L Module.

1. INTRODUCTION

As the number of vehicles are increasing the problem for its parking is also increasing. People park their vehicles on the road side or in "NO Parking Zone" so this gives rise to the increasing traffic problem in our city. As we know there is no special means to get the information of in which area the vehicle is parked on roadside which leads to traffic problem is not solved and remained as it is. As the owner or driver doesn't get any punishment for parking they again do the same .So for this reason in this project we are going to develop a system which will detect the vehicle is parked in the no parking area and the location of the vehicle on the android application. Urbanization in India from last two decades has shown very steep rise in personalize transport mode particularly in two wheelers which has resulted in various transportation problems. They are generally Parking, Congestion, Accidents, Excessive fuel consumption, Air pollution. These all problems have been reflected even in National Urban Transport Policy. Among these problems Parking is most disturbing problem in urban cities. Traffic research still cannot fully predict under which conditions a "traffic jam" may occur. It has been found that individual incidents may cause ripple effects which then spread out and create a sustained traffic jam otherwise, normal flow might have continued for some time longer.

2. LITERATURE SURVEY

In this hi-tech world, due to the increase in number of vehicles traffic has become a major threat to the society. The traffic is due to vehicles which are parked in no parking zone which consume a lot of space on the road. Police are also fed up of searching the vehicles. Since police can't the vehicles which are not in parking zone people tend to do the same thing again. There is no system which will detect the location of the vehicle, there are CCTVs but it will only capture the Video and the image which will not find the location of the vehicle. In 2010 authorized vehicles have been 75000 although find improved count. Goal with 2017 are nonetheless rising hugely.

3. EXISTING SYSTEM

In the existing System traffic management there are no means to find the vehicle in less time. Police have to search for the vehicle manually by walking on the road. This job needs time and energy. Since police can't find the vehicle they are not able to charge the owner of the vehicle properly. The law for traffic management is not implemented properly. This system has increased the traffic in crowded areas.

4. PROPOSED SYSTEM

The vehicle which is parked in no parking zone will be detected in the limits of the sensor. The sensor used is IR(Infrared) sensor which directly sense the vehicle when it parked more than 5minutes. It will be easier for the police to find the vehicle and immediately take legal action when necessary. The sensor will send the information to the Microcontroller and the microcontroller will send that captured information to the cloud. The android application will interact with the cloud and will send a notification to the police regarding that vehicle will is parked in no parking zone. Weekly report analysis of vehicles is done and is stored in the database for future use.

5. HARDWARE COMPONENTS

5.1 ARDUINO

Arduino is an open-source electronics platform based on easy-to-use hardware and software. We have used this as for

taking the information captured by the sensors and to send that information to the cloud.

Fig. : Arduino board.

5.2 IR SENSOR

An infrared sensor is an electronic device, that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion. This sensor will detect the vehicle which is parked in no parking. This will be done only when the vehicle is parked more than 5minutes.

Fig. : Infrared sensor.

5.3 GSM 800L MODULE

SIM800L is a cellular module which allows for GPRS transmission, sending and receiving SMS and making and receiving voice calls.

Fig. : GSM 800L

5.4 JUMPER WIRES

Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboard and other prototyping tools in order to make it easy to change a circuit as needed. Used for connecting hardware components.

Fig. : Jumper wires.

6. WORKING PRINCIPLE

One sensor will be placed in each area in the no parking zone and every sensor will have an unique id. Then all the sensors will be connected to one microcontroller then microcontroller will get internet access through the wireless medium(esp8266 wifi module) or through wired medium(by using Ethernet shield) and then if the vehicle will be waiting for more than 5 min then it will be considered that the vehicle is parked. And if the vehicle is detected then it will be saved in the database and from database through online web hosting we will show it in the website or the android application.

7. SYSTEM ARCHITECTURE

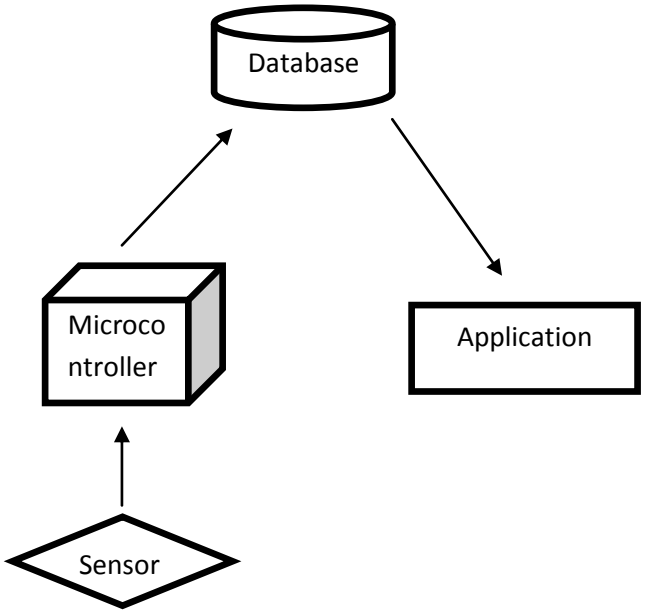

Fig. : Architecture

8. SECURITY

- SQL Injections cannot be performed.
- Prevents DDOS/DOS attacks.
- Directory transversal cannot be done.
- When there is a suspicious login the attacker's IP address and location is detected.

9. CONCLUSION

This system will help the police to charge a person who has parked his vehicle in illegal area very easily. It will save more time and energy. There is weekly report analysis of vehicles which will be very useful in case of any proof or misbehavior from anybody. There is extreme security provided so hackers will not be able to do any activity. Vehicle detection is more accurate and will instantly send notification to the police after a 5minutes of time span. It is simple and easy to operate.

10. FUTURE SCOPE

In future this project will give more personal. Details about the vehicle like it capture the vehicle number. Online complaints will be filed automatically and direct notifications will be sent easily. So it will be easier for police to do the job as they will not have the need to Search the vehicle. There will be no need of police officers for searching vehicles. It will be more accurate and stable. All the process will be in a computerized form so no need of human attention.

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[2] Smart RTO Web and Android Prof. Chandrakant Umarani1, RashmiTeggi2, Prachi Shetti3, Lavanya Dodamani4, Yogita Havale5 Assistant Professor1, Student2, 3, 4, 5 Department of CSE KLE College of Engineering and Technology, Chikodi, Karnataka, India.K. Elissa, "Title of paper if known," unpublished.