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Smart Traffic Management for Emergence Vehicles Using Sound Detection

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Abstract

A smart city is nothing but the web network of digital devices which resolve the problem with less human interaction. This system will reduce accidents which often happen at the traffic light intersections because of other vehicle had to huddle for given a special route to emergency vehicle. Vehicular traffic is endlessly increasing everywhere in the world and can cause terrible traffic congestion at intersections. *Most of the traffic lights today feature a fixed green light sequence, therefore the green light sequence is determined without taking the presence of the emergency vehicles into account. The proposed approach is fully automated controlling the traffic lights thereby helping to reach the hospital in time. This paper may be a survey of variety of articles, that is bifurcate into 2 subsection:1-General case study, that covers the subject of smart city in an exceedingly general framework, and 2-Specific case study, that covers the subject of the smart city from a selected elaborated application, like Traffic Management System, Smart street-Light Technology. Then only the emergency vehicle is quickly served and can reach the destination in time.*

1. INTRODUCTION

Emerging Smart Cities plays a big role within the positive growth for the economy of each nation; India is not any exemption. On the brink of thirty first of India's current population lives in urban areas and contributes sixty three of India's gross domestic product (Census 2011). With increasing urbanization, four hundredth of India's population set to accommodate in Metropolitan areas and thereby contribute seventy fifth of India's gross domestic product by 2030 [1] The Quantity of vehicles on the roads has increased proportionally over the last few decades and this Quantity of vehicles are likely to Grow due to the increase in population growth and the Proportion of vehicle's quantity are manufacturing every day. A contemporary town offers intelligent solutions and helps organize everyday life because of sensors that receive information, references, and analysis them so the signal can transmits them again. Creating cities smarter is typically achieved through the employment of ICT-intensive solutions. Wireless innovations will support public health, giving doctors access to medical records simply and at lowest price. The case study has been done for traffic related issues occurring in the metropolitan city like Mumbai, Delhi; Nagpur etc face day to day life. Due to the huge traffic jam the emergency vehicles are not able to reach the needy location. The Case Study targets the system design that would be Accepted to the existing conditions at the traffic Crossing paths. India like nation is a developing country and hence the transportation, medical related facility is not up to the mark and hence many people have to come big city from small city which creating burden on traffic system which is very old. And hence every year huge traffic jam is increasing year by year which creating an problem for emergency vehicles like ambulances, fire bighted, police vehicles Etc

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2. Existing Work

The biggest problem for every emerging smart city to deal with traffic jam. The RTO officer Manage and handle the traffic in early days. Now the traffic is not controlled manually but it's totally manage by Automation in each lane 60 seconds of green light is set on by Smart traffic management system. Yellow light flashes for 6 second, signifying to ignite your vehicle and be ready to cross the cross path before the green light. Disadvantages with the current system is it does not provide timing based on priority because of that people has to wait for long time even though traffic is not there and also does not prioritize and recognize the emergency vehicle In the Existing system, cost effective RF transponder is used for traffic clearance. The Another Existing Implementation is control the normal traffic using sensor based density management. If any emergency situation occurs, then the swift movement is important to control the traffic congestion every natives of "Smart City" should not be digitally blind but should be acquainted with online culture and concluded that before implementing creation of "Smart Cities". Existing System can solve this problem but it also having loop holes which again generate the same problem. It is not total solution for by pass the traffic for emergency vehicles. ICT can be used in the houses, offices, and in public amenity Smart city requires some essential peripheral such as smart phones, interconnected network, internet and, sensor to inter Connect the people with mobile etc.

2.1 Smart Traffic system for Emergency Vehicles

In existing System, radio frequency identification RFID, as this technology uses only radio waves for its operation of identification of different objects. In another existing System ultrasonic sensor HC-SR04 is used to calculate the distance for Smart Traffic system. According to all these papers, a convenient wireless communication between emergency vehicles and the traffic light is by using RF. The prototype of this project is using the radio frequency of 535 MHz compared to the range of about 15 kHz to 350 GHz of frequency which have been reserved for the RF theoretically Both existing System is not able to distinguish between normal vehicles and emergency vehicles. This problem should be overcome, emergency vehicles such as ambulance fire brigade vehicles can struck in traffic. One of the loop hole in the existing System is, if traffic is block for longer time, the punching machine is place very starting and hence driver has to leave the vehicle take the RFID and go there and at last punch, after this the drive has to come quickly because signal for emergency vehicles will closed after 45 second, if it is not succeeded then the above step has to repeat and it will take time which will create delay for them. So this way the existing system will not able to resolve the problem related to traffic jam.

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Figure 1: Emergency vehicles struck in traffic

2.2 Smart Street Light with fewer sensors:

India is a developing country, for such an emerging country saving is the boon. Here through the street lights India can save electricity which can create very huge difference in saving of electricity because most of the places in India Electricity are dream for them. In the Existing System the huge number of sensors are used for detect the car and start the street light according that ,but they are costly for maintain for such a huge sensors and hence such a system is not implemented in India. the HID lamps are not cost effective and not reliable, smart street light system has overcome by replacing the HID lamps with LED. Due to automation, power consumption and price effectiveness within the present field of electronics and electrical related technologies, industry of street lighting systems are growing rapidly and getting to complex with rapid growth of industry and cities. As the vehicle moves, the road light that was glowing switches off and therefore the following lights begins to glow. To make street light smart, because the hardware which has been used for this is quite expensive and required high maintains, due to this thus things is not applied in real life scenario.

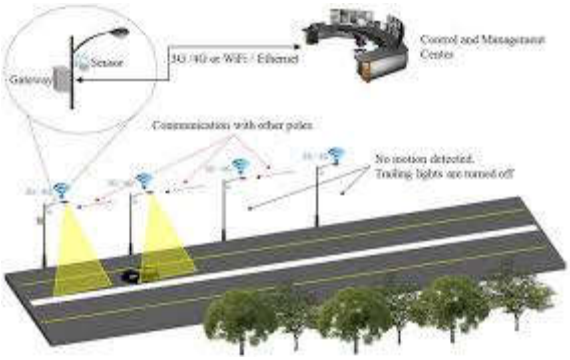

Figure 2: Smart Street Light

CONCLUSION

This paper has proposed a solution to existing solution by Using Arduino controller. Arduino controller is a microcontroller used for instructing the LED to glow. This method can be used to detect road accidents and identify violations of the spiral movements of cars. The whole system when installed on road, provides a way for easy traffic clearance for emergency vehicles without a need of sergeant Project was great opportunity for us to learn and work on Arduino controller. It was Concluded by study that the characteristics of siren sound of ambulance could be detected by using two times This detecting method worked properly even under the Doppler effect. Using smart micro-controller at traffic signals with vehicle status helps make a decision which can save lives. The proposed method seems to be applicable to detecting a police car siren or a fire-fighting vehicle siren.

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We need to test whether these applications work properly. The proposed method seems to be applicable to detecting a Emergency vehicle siren. We need to test whether these applications work properly.

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