

IOT Based Movement Of Emergency Vehicles Using Raspberry Pi

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***Abstract-** Growing issue of traffic congestion problem is a trouble making condition in big cities across the world. Rise in population has increased the number of automobile users leading to a growth in traffic. as we know that movement of emergency vehicles now a days is very important During calamities, the response time taken by the emergency services play a crucial role whether it be medical services, Fire engines or police forces. The major problem that emergency workers face is the traffic problem. In order to overcome such kind of problem there is a need for smart traffic control system which dynamically adapts to the changing conditions. The main concept behind this paper is to ease the movement of the emergency vehicles without any traffic problem to the destination*

I. INTRODUCTION

The traffic congestion in big cities has been exponentially raised due to the movement of large number of vehicles on the road. Due to this large traffic, often traffic jams occur on roads because of which the emergency medical vehicles like ambulance and fire engines get stuck in traffic congestion which may be the cause for losing human lives. Current traffic control systems are a static case wherein vehicles have to wait for a predefined amount of time until the microcontroller switches the green light for that particular lane. If the ambulance is stuck near to the traffic signal, then the traffic police can give priority to the ambulance by giving necessary symbol or signs to the vehicles so that the ambulance can get out of the traffic as quickly as possible. Moreover, if the emergency vehicles are stuck in a lane far from the traffic signal, the siren of the ambulance is unable to reach the traffic police, in which case the emergency vehicles have to wait until the traffic gets cleared or we have to depend on other vehicles to move aside which is not an easy task in traffic situations. The use of IoT (Internet of Things) technology has been implemented in the proposed system.

II. LITERATURE REVIEW

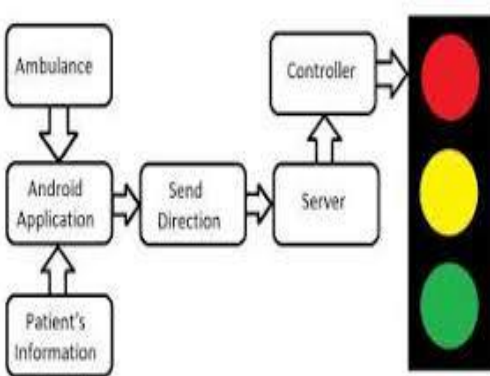
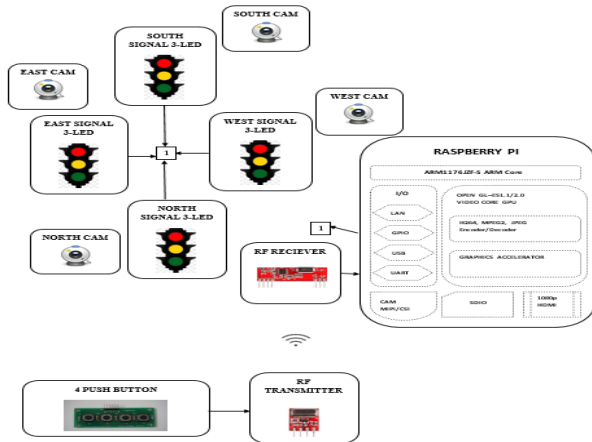
In the paper Accident Detection & Ambulance Rescue System Using Wireless Technology [3], they presented a system to detect accident automatically using vibration sensor, and ambulance unit send the vital parameter

of patient to the hospital. This will help to save the life of accident victim. In the paper Ambulance Assistance for Emergency Services Using GPS Navigation [4], they proposed a system which is used by the hospitals to track down their ambulances. The main aim of the project is to reduce the deaths of critical victims by making sure that they reach hospital in time for proper treatment. GPS technology is used so that the hospital can take quick action which might reduce the extremity. This system is more appropriate and the main advantage is that there is significantly reduce in time consumption. In the paper Accident Detection and Ambulance Rescue using Raspberry Pi [5], they proposed a system which finds the quickest path by controlling traffic light signals in favour of emergency medical vehicle. By this new system, the time delay is reduced by applying the RF technology that controls the traffic signals. The preference of service to the emergency medical vehicle follows the queuing technology through server communication. This makes sure of the reduced time delay between the accident spot and hospital. In the paper Smart ambulance guidance system [6], they propose a system that uses a central server to control the traffic controllers. The traffic signal controller is implemented using Arduino UNO. The ambulance driver uses a web application to request the traffic controller to make the signal green in which the ambulance is present. A low-cost system which can be implemented throughout the city thereby reducing the number of deaths due to traffic situations has been aimed at. In the paper ESP8266 based Implementation of Wireless Sensor Network with Linux Based Web-Server [8], they proposed a concept where the occurrence of a Wi-Fi based Sensor Network management exploitation using Linux board Raspberry pi and IoT technology using ESP8266 Wi-Fi module.

III. PROPOSED SYSTEM

This Smart Traffic system initially runs based on the Traffic density to turn the Green Light where there is more vehicle and make remaining signals as Red based on Vehicle density. As same as for every direction signal getting changed based on the Vehicle density in every direction. In addition, RF Transmitter will be presented in every Ambulance dashboard, if he heading towards one direction, he will press the push button which is mapped to that direction. If he is

heading towards North direction he will Press the North push button, so the signal gets transmitted to the RF receiver and based on the received signal, Traffic signal gets automatically changed to the Greenlight in the North direction as well as the system will make remaining signal light to the red light. So that ambulance can be pass away the Traffic signal easily.



IV. CONCLUSION

This Raspberry Pi Smart Traffic system is a very efficient system for managing Traffics, especially when the emergency vehicle is on the road. So that Traffic management system becomes easy. Since the Raspberry Pi contains the feature of processing cameras, It can be able to do all image processing applications using Open CV.

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