

INTELLIGENT AUTOMATIC TRAFFIC CONTROL FOR AMBULANCE

GS ADITHYA, AISHWARYA P, ASHWINI V, AMOL KALE
S N PRASAD

School of ECE, REVA University

ABSTRACT

In highly crowded metropolitan cities like, Bangalore, Mumbai, Delhi etc., road traffic congestion has become a major problem. Due to which, ambulances are not reaching hospital at right time. To overcome this problem, this paper has come up with 2 case solutions. First case is when, the traffic signal displays red and vehicles are already jammed. And when the ambulance is few meters away from the traffic signal, it transmits RF signal from the pre-installed RF transmitter. The control unit present at the traffic signal shifts the divider making place for the ambulance to move forward which we have termed as "DIVIDER SHIFTING" and displays green allowing the ambulance to pass through. Second case is when the traffic signal displays either green or yellow, ambulance transmits the RF signal when it's few meters away from the traffic signal. This time control unit displays alerting LED's present on the lane which we have termed it as "RED LANE". When red lane is displayed, vehicles are prohibited which allows the ambulance to pass by easily without wasting any time. All this operations, resumes back as soon as the passkey is entered in ambulance. Divider shifting can also be used when heavy traffic congestion occurs on the two way road near traffic signal or near flyovers.

Keywords: *Traffic congestion, Control unit, Divider shifting, Red lane, RF signal*

I INTRODUCTION

The basic concept of this paper is to provide a smooth flow for the emergency vehicles and ambulance to reach the hospitals in time which minimizing the delay caused by traffic jam. The Microcontroller with RF system and gears together, helps us for divider shifting which would save many lives at emergency situations. Radio Frequency (RF) is a tiny electronic device that comprise of a small chip and an antenna. The RF receiver located at the traffic signal reads these information from the RF transmitter located and installed at the ambulance.

This paper seems to be a good way to allow free flow of emergency vehicles without getting stuck in traffic jam. In present day, transportation of a patient to reach the hospital in emergency situation may seem to be easy but in reality, it is very difficult during peak hours. And the situation gets more worst, when ambulance has to wait for passing by vehicles to make way in traffic congestion. According to research, 95% of the heart attack patients can be treated, if the ambulance reaches the hospital in time without getting stuck in the traffic jam. As we know, the number of vehicles in cities are increasing day by day so the situation will get more worst. In this case, Recovery steps should be taken as soon as possible. So, for our over-crowded environment, there is a real need for this paper, to make ambulance transportation much faster. This paper will help to reduce jamming of ambulance in traffic signals and help us to provide immediate recovery steps.

II RELATED WORK

The four road intersection cause huge traffic jam for ambulance service at peak hours at traffic signal.in highly .crowded cities. Several smart ways have be introduced for effective traffic management.

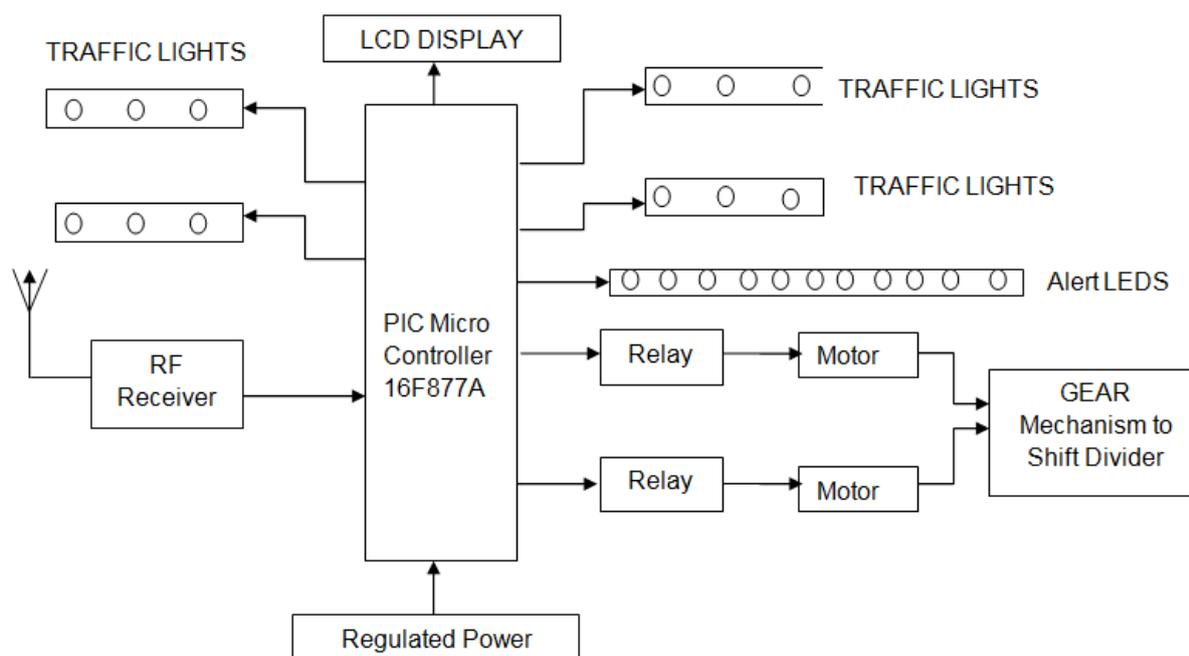
The Intelligent Traffic Control System abbreviated as “ITCS”, proposed by [3] for emergency vehiclesimplements signal alteration by using RFID technology or IR sensors.There are many technical failures, has there is no proper alternative method for control flow .There is no proper information regarding ambulance state- whether its in emergency or not. Due to which, ambulance in any state is allowed causing a lot of problems and disturbance for other passing by vehicles. So it is not required to make any alteration in traffic signals of traffic management system in non-emergency situation proposed in [5]. Therefore, we have considered ambulance state for better efficient of traffic management system

The work in Intelligent Traffic Control System,provides the basic connectionbetween traffic signal,cloud data and the emergency vehicles. This work [6]has implemented usingan alerting system for red light crossing and wireless-sensor network to inform the riders on other sides of road to save theirlives from accidents. This method from [4] is based on the number of vehicles on lane near traffic signal. This analysishelps control unit near traffic signal, to allot timer based signal on overly crowded lane. This system majorly works from sensor obtained information about number of vehicles on road. RFIDtechnology, cloud data and sensor information where obtained from many sites

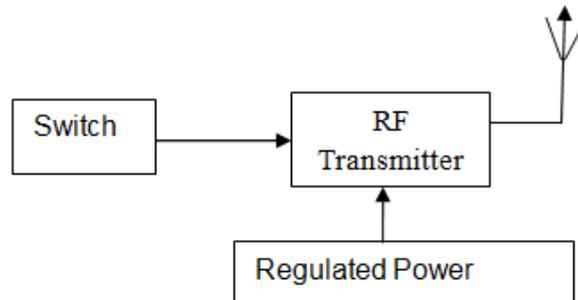
III PROPOSED WORK

3.1 Block diagram

3.1.1 Receiver



3.1.2- TRANSMITTER



3.2 Working

- To smoothen the ambulance movement we have come up with 2 case solution.
- First case - when traffic signal displays red, vehicles gets jammed. And when the ambulance is few meters away from the traffic signal, it transmits RF signal from the pre-installed RF transmitter. So when receiver receives the RF signal ,microcontroller present on the receiver side is programmed in such a way that ,it makes the traffic signal green and widens the road by the rotation of motors connected to the divider.so divider shifting occurs. As soon as the ambulance passes by the divider comes back to the actual position.
- Second case - when the traffic signal displays either green or yellow, ambulance transmits the RF signal when its few meters away from the traffic signal. This time control unitdisplays red lane.
- LCD screen is displays the action occurring.
- Divider shifting can also be used when heavy traffic congestionoccurs on the two way road near traffic signal or near flyovers.
- Once ambulance passes through the signal, driver presses the passkey so that system will comes to its normal position.
- Control unit has manual switches for both divider shifting and to resume the system to its normal position.

IV HARDWARE AND SOFTWARE REQUIREMENTS

Table:4.1

HARDWARE REQUIREMENT	SOFTWARE REQUIREMENT
<ol style="list-style-type: none"> 1. PIC Microcontroller 2. 16X2 LCD 3. LEDS 4. Gears 5. Relay 6. DC motors 7. RF TX RX pair 8. 12VAdaptor 	<ol style="list-style-type: none"> 1. MPLAB IDE 2. CCSC Compiler 3. PIC boot plus

V CONCLUSION

Human life is precious and appropriate measures should be taken to save it. So this paper is made in such way that, ambulance flow is smoothened and traffic rules are also followed. By using intelligent ambulance system, we can reduce the time taken by the ambulance, therefore saving lives in time. As we all know, efficiency and advantages of the RF pair is better when compared with Cameras, so in this proposed paper, we improve the performance of traffic system using RF pair. This system is comparatively cheap and has many uses, which makes it more efficient.

This model will reduce the huddles made by vehicles riders on the lane to give way for the ambulance. This is life saver project has it reduces the number of accidents and also saves the life of patients at critical time by minimizing the time delay at traffic congestion

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