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Intelligent System for Improving Emergency Services

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Abstract - *The vehicles are increasing day by day and there is traffic jam because of that. Therefore, we have to think of a different method than what exists. This helps emergency vehicles to reach their destination without any delay. It would be helpful for all other emergency Vehicles and not limited to an ambulance, police van, VIP vehicles, and fire brigade. It can help to save human life. The main use of this intelligent system for traffic control is to minimize the delay that is caused by traffic congestion.*

Key Words: **Intelligent boards, Cellular Networks**

1.INTRODUCTION *(Size 11 , cambria font)*

The ambulance for emergency was started to bring the patient to hospital in a comfortable manner and as fast as possible from the year 1988. It was introduced by Y.S. Rajasekhara Reddy for the first time in India, who was the chief minister of Andhra Pradesh at that time. He has done wonderful work after implementing the 108 service for INDIA. GVK EMRI operates their services from Hyderabad. It is a public–private partnership with the state governments [2]. Because of traffic jams, there is a possibility of fuel consumption and ambulances getting stuck. Such incidences can be decreased by implementing the modified traffic system. In foreign countries, they successfully save human life, because whenever an ambulance comes they move aside to clear out the route till the ambulance passes through. On the other hand in INDIA, whenever an ambulance comes it is controlled manually at the traffic junction by a traffic officer.

Nowadays all systems are working automatically. So why do we depend on manual control at the traffic junction in an emergency. After implementing this system it will rely totally on intelligent automatic control and guarantee a clear route for emergency vehicles. The idea behind this paper is to implement the traffic system, which can help the ambulance to reach the hospital quickly and save the life of a human. It will also work for the fire brigade to save the life of multiple humans. And of course the police van to catch the thief. Let us see how the ambulance passes through the traffic junction in the below instance (Fig. 1):

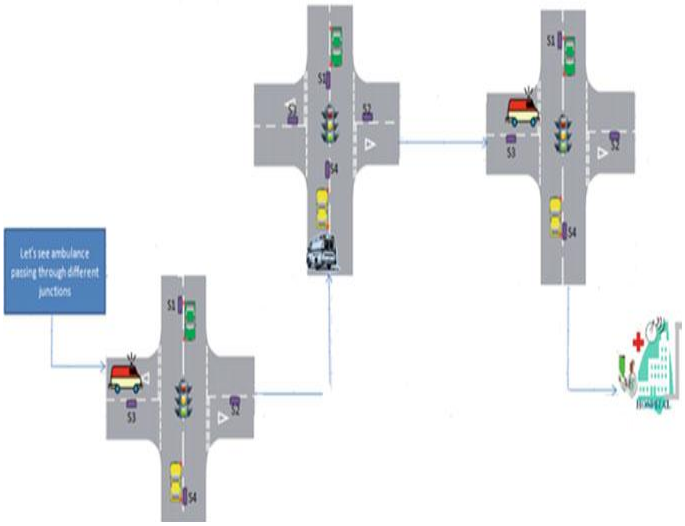

Fig-1: Ambulance passes through traffic junction

As seen, there are two cars moving ahead of the ambulance. They do not give way for an ambulance to pass through the junction. Here in this case, the ambulance cannot reach the hospital as fast as it can, and because of that people are dying. This is what motivated me to change the traffic system, so that the ambulance passes easily through the traffic junction and does not have to stay in the middle of traffic. Here, our goal is to give a clear route to Emergency vehicles with minimum interruption to regular traffic flow.

1.1 Why we need Intelligent System

In today's world health hazards are a major concern. Especially people in the older age group are the victims, and moreover the traffic conditions are worsening day by day, which results in traffic jams. Many important jobs get delayed due to these traffic jams. Ambulance service is one of the major services which get affected by traffic jams. To solve this problem we have come up with the solution of "ambulance with automatic traffic control". The Fig. 2 illustration shows the Intelligent Automatic traffic control system for an ambulance. Whenever an emergency vehicle come near to the traffic junction, then a traffic system automatically display the green signal to that lane and display red signal to all other lanes [1]. In this way, the

system gives first priority to the ambulance over all other vehicles.

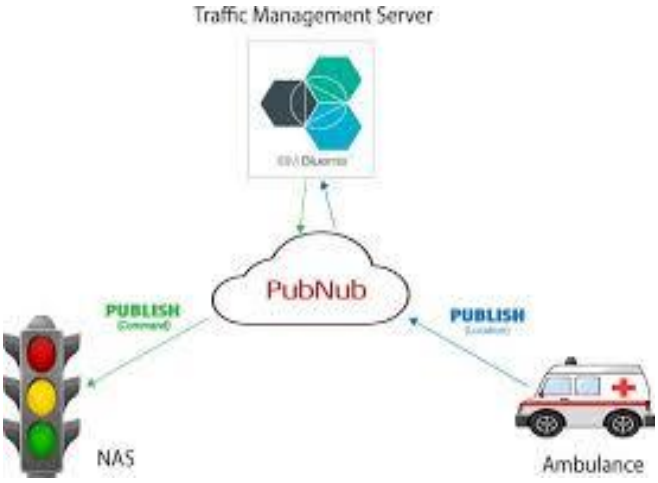

Fig-2: Intelligent system with automatic traffic control

2. Proposed System: Intelligent System for Emergency Services

The concepts involved:

- For sending SMS to the people who are on the particular area of ambulance location need cell-tower data
- Showing information on navigation maps like Google maps
- Using intelligent road-signs on roads like screens.
- Controlling traffic signals

The steps involved:

- The ambulance has GPS on board, and sends it's information to intelligent traffic control system.
- The intelligent traffic control system receives information from ambulance and sends information to traffic signals, intelligent boards(screens) and the central server of cell towers.
- From the cell towers the messages will be passed to people who are near to that particular area of location, so that the people can change their route and give space to pass the ambulance.

Fig-3: Sending information to intelligent traffic control system from ambulance

Fig. 3 represents how the information is sent to traffic control system, here a simple tab or smart device is used to update the route of ambulance from source address to destination address so that the traffic board gets alerts. We can also use some applications to update the GPS mapping addresses to traffic control system as shown in Fig. 4. This is an application for android mobiles to update GPS location. So we just need a smart device in ambulance to navigate. The traffic control system again sends information to intelligent boards and cell tower control system.

Fig-4 : Applications that are used to connect with traffic central system[3]

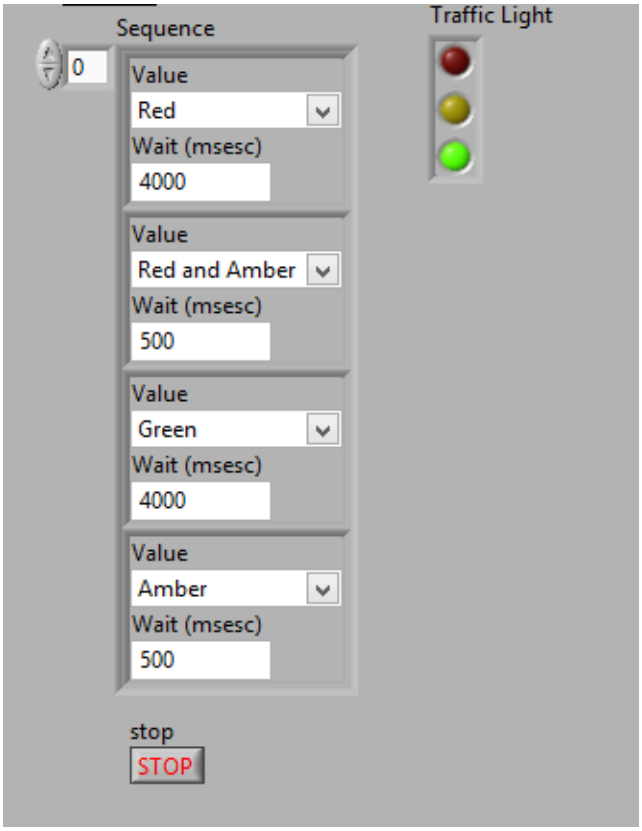

Fig-5 : Controlling traffic signals using Intelligence traffic control system

Many intelligent traffic control applications are available to install [3] and use. The intelligent traffic controller works like.. it receives signals from ambulance and controls signal lights up to the specified time as shown in Fig. 5. so that the red signal stops all vehicles and clears the ambulance route.

We can also send the information to the intelligent boards on road so that the people will aware of ambulance information as shown in Fig. 6. The intelligent traffic control system handle the information that are being sent to intelligent boards as shown in Fig. 7.

The final and most important step in this paper is sending information to the people who are travelling on the ambulance way. For this we use cell tower data. The Intelligent traffic board system sends the information (address) details to cell/mobile tower central system and the cell tower system will forward the message to all people who are located in the ambulance travelling area to make an alert. Fig. 7 shows the overview of the concept in detail.

Fig-6 : Intelligence boards on road to alert ambulance information

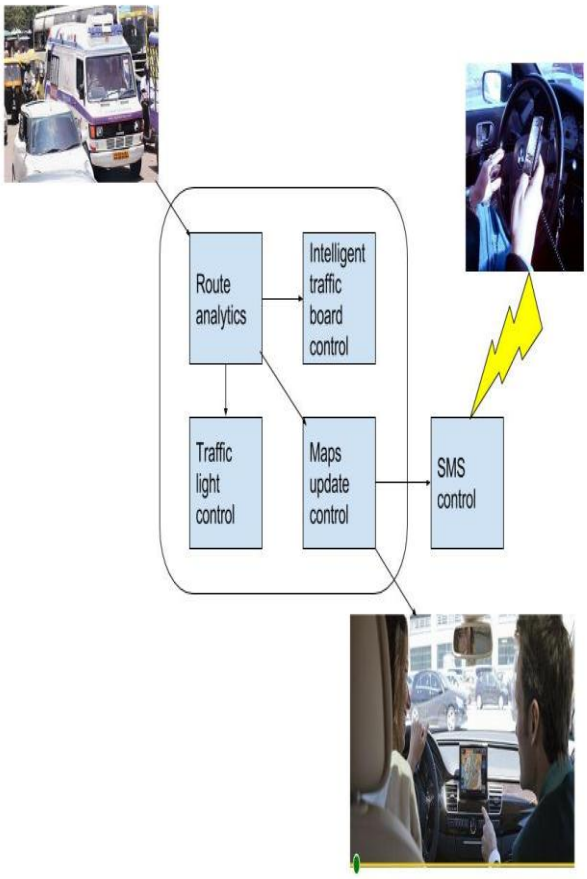

Fig-7: Overview of proposed system

3. CONCLUSIONS

This paper focus on improving emergency services using IOT methods. A system has been proposed about route analytics, intelligent traffic board control, traffic light control, map update control and sms control, these methods helps to improve ambulance services in India so that we can save many lives and can reduce accidental death rates. This system usage not only limited to ambulance services but also helpful in making route clear VIP vehicles etc.,

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