

Smart Emergency Vehicle And Automatic Traffic Control System

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ABSTRACT

Nowadays the road accidents in modern urban areas are increased to uncertain level. The loss of human life due to accident is to be avoided. The main theme behind is to provide a smooth flow for the emergency vehicles like ambulance to reach the hospitals in time and thus minimizing the delay caused by traffic congestion. Traffic congestion is the biggest problem faced by densely populated countries like India, China etc. So, our project focuses on two areas- Ambulance and Traffic density control. In this system concentrated on problems faced by Ambulances So, ZigBee concept used to communication between Emergency vehicles and Traffic Signal to control traffic. In that Concentrated on Traffic density control, IR transmitter and receiver are used to provide dynamic traffic control and thus increasing the duration of the Green light of the Traffic signal in which traffic density is high and hence, regulating traffic.

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I. INTRODUCTION

The traffic lights are used mainly for pedestrians to be protected when they cross the roads. The normal function of traffic system is to control the coordination to ensure that traffic moves as smoothly and safely as possible. It was reducing collisions, both vehicular and pedestrians. It was encourage travel within the speed limit to meet the green lights. The emergency will occur any way, any time and on any location. In that case the speedily response is required. The number of vehicles using the limited road networks infrastructure which was slowly increased. I feel that the major consequence of this increase is the traffic management problem. One of the most critical consequences of traffic problem is the delay of emergency vehicles such as, ambulance during accidents to reach hospitals on time, Fire brigade vehicles, police van to catch the thief, and VIP (minister or president) vehicles. There are traffic jams occur on main way in special seasons and rush hours. That was lead to a long waiting time of peoples and high cost of fuel consumption on the road. And in that delay the Emergency vehicles are stuck in traffic jams. Sometimes even if there is no traffic then also people have to wait because there is a certain time limit of traffic signal. So road users have to wait till the traffic signal turned to green light.

System Information:

Traffic congestion is a severe problem in many major cities.

One of the major problem faced by emergency vehicles. For e.g. Ambulance, Fire Brigade, etc.

Due to heavy traffic one can often see the ambulances stuck in traffic for long duration thus, causing danger to patients life.

So our project aim is to solve this problem of ambulance.

In early days Traffic congestion problem is increased due to high traffic density. This Problem may cause by humans life .This problem is overcome by using IR sensor and Zigbee module. IR sensor controls the traffic density and congestion of traffic is solved. Another important feature of this system is for emergency vehicle passes immediately and saves the patient's life. For this system work we using ZigBee CC2500 module, for communication purposed. so using IR sensor And Zigbee module we can control the traffic density for vehicles & Emergency vehicles.

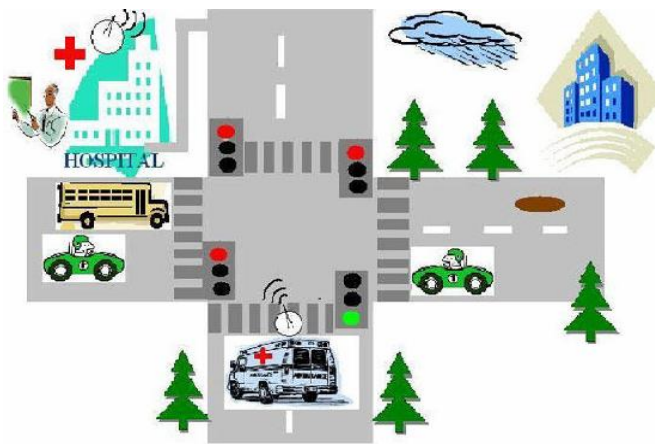


Fig 1: Conceptual view of project system

II. LITERATURE SURVEY

In This Paper Select Zigbee Module Working Because It Is Less Complex Than RF Module. The frequency range of the RF module is 433MHz and the frequency range of ZigBee module is 2.4GHz. So we can select the ZigBee module.[1]

Take The Advantages Of IR Sensor Like Large Distance Communication, And Cost Of The IR Sensor Is Less Than Rf Module. Normal Time Limit Of The Traffic Signal Is 1minute Minute So For Control The Traffic We Can Change The Delay Of Traffic Signal According To Traffic Density Of Vehicles Using Ir Sensor.[2]

This Paper, Described System Of Congestion On Roads Eventually Results In Slow Moving Traffic, Which Increases The Time Of Travel, Thus Stands-Out As One Of The Major Issues In Metropolitan Cities.[3]

The Emergency Traffic Light Control. Traffic Control At Intersections Is A Matter Of Concern. Large Cities Several Attempts Have Been Made To Make Traffic Lights Sequence Dynamic So That This Traffic Light Operate According To The Current Volume Of The Traffic.[4]

III. PROPOSED SYSTEM

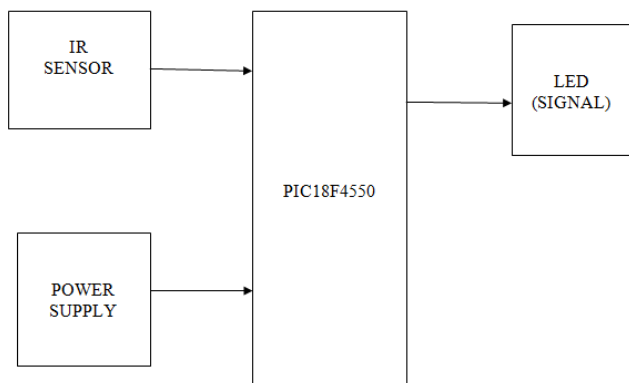


Fig 2: Automated signal control

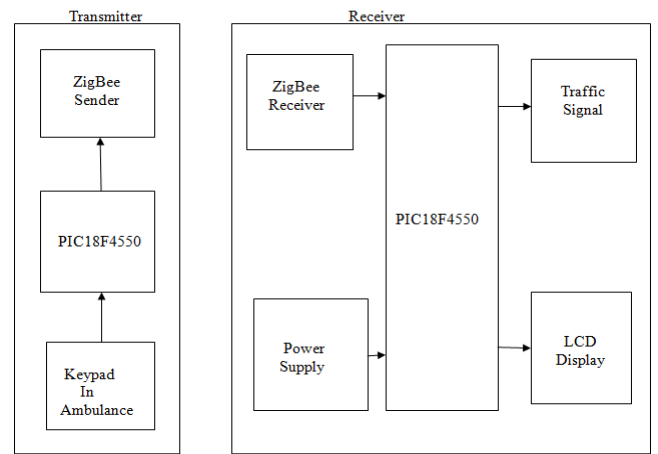
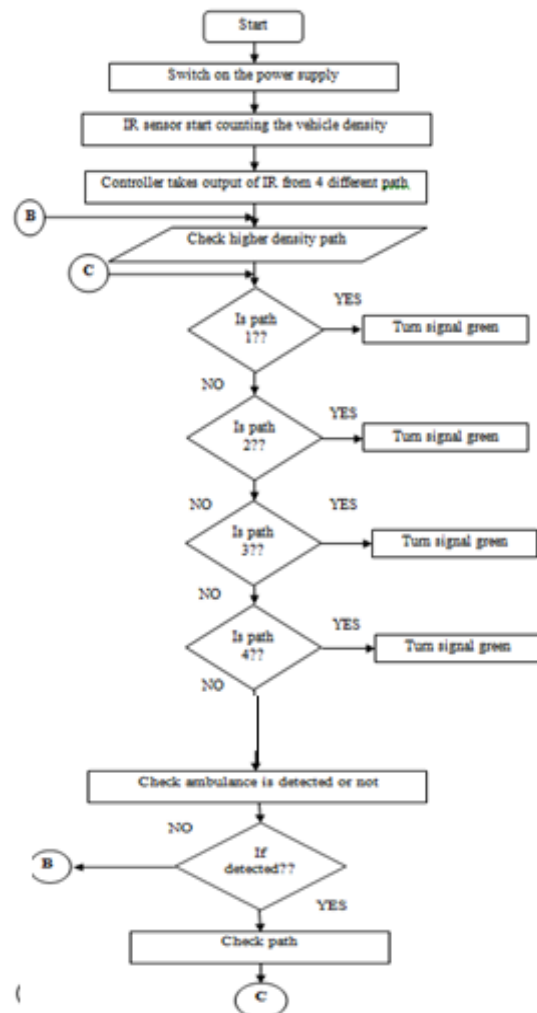


Fig 3: Emergency Vehicle Clearance Ambulance/Fire brigade

IV. FLOW CHART



V. ADVANTAGES AND APPLICATION

Advantages of traffic density control System:

- A modernised way of controlling traffic.

- Number of road accidents can be reduced to a large extent.
- Easy traffic regulation in busy cities such as Delhi, Mumbai etc.
- Help the traffic police in easy control of traffic.

[4]Implementing Intelligent Traffic Control System For Congestion Control, Ambulance Clearance,And Stolen Vehicle Detection. By Rajeshwari Sundar, Santhosh Hebbar, And Varaprasad Golla

Advantages of smart emergency vehicle system :

- Ambulance service will no longer be affected by traffic jams.
- Over a wide range applicability.
- One time investment cost.
- Life of people can be saved.

Applications:

- Using Traffic control signal.
- It is used in Ambulance clearance.
- Emergency vehicles passes immediately.

VI.CONCLUSION

This system will definitely help to traffic police to give the way to the ambulance when there is a heavy traffic on the road. The design and implemented this system is directly targeted for traffic management so that emergency vehicle on road get clear way to reach there destination in less time and without any human interruption.

The main feature of this operation is ability to communicate with purpose using ZigBee and IR sensor. It is a very smart to find the location of emergency vehicle and get clear path to pass on.

VII. FUTURE SCOPE

This project can be enhanced in such away as to control automatically the signal depending on the traffic density on the road using sensor like IR detector/receiver module extended with automatic turn off when no vehicle are running on any side of the road which helps in power consumption saving.

Traffic light can be increased to N number and traffic light control can be done for whole city by sitting on a single place.

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