

Route Clearing System for Emergency Vehicle

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ABSTRACT: As number of vehicles has increased largely in recent years traffic problems are increase largely. Because of heavy traffic, accidents happens which may cause death. Also, because traffic ambulance cannot reach to hospital on time so patient has to take his last breath in ambulance only. So we are suggesting Route Clearing System for Emergency vehicle. The main theme behind this scheme is to provide a smooth flow for the ambulance to reach the hospitals in time and thus minifying the expiration. The idea behind this scheme is to implement a IR sensor which would help to control the traffic lights in the path of the ambulance. The project is meant to be used in the conceptual city called as SMART CITY. We have introduced one more signal of BLUE colour and specially used for ambulance transportation or emergency vehicles. In this project, PIC microcontroller is interfaced with LCD, traffic signaling system, and IR sensors. This combined technology project is used to clear route for ambulance in emergency condition. This project will be arranged to traffic signaling system that is to be operated. The traffic signal will include the blue led among the red, green and yellow signal.

1. INTRODUCTION

1.1 Introduction to RCSFEV (Route Clearing System For Emergency Vehicle)

There is loss of life due to the delay in the arrival of ambulance to the hospital in the golden hour. This is the biggest problem. This delay is mainly caused by the waiting of the ambulance in the traffic signals[1]. It would be of great use to the ambulance if the traffic signals in the path of the hospital are on.

Thus we propose a RCSFEV (Route Clearing System for Emergency Vehicle) design for controlling the traffic and achieving the above mentioned task so that the ambulance would be able to cross all the traffic junctions without waiting. Every traffic junction will have a sensor detecting the ambulance before traffic signal and will display the blue light with LCD which will help to clear the route for ambulance. As the IR sensor is detecting the ambulance passing through it, it gives command to microcontroller due to which there is display LCD's and blinking of LED's. If blue LED blinks simultaneously green will blink which will indicate other people to make side for ambulance[3].

This is helpful for other VIPs and ARMY vehicle called as emergency vehicle.

1.2 Idea and Innovation

1.2.1 Better Traffic Technology:

As people take their last breath in ambulance due to traffic jam, thus this is a major issue to in society to overcome this we had planned

for ambulance to clear the route as early as possible[6].

1.2.2 LT (Lane Technology):

Now a days the roads in India are not design properly, therefore we want 3LT to be implemented. So, the traffic jam can be decrease due to which the time required for all vehicles to reach their destination will be decreased[2].

1.2.3 Blue Led:

We want Blue Led to be regularized all over India for ambulance emergency and all emergency vehicles such as fire exit, VIP vehicles in traffic signal.

3 PSEUDO CODE

3.1 AMBULANCE

In the code given below it is explained how the ambulance transmitter had generated the unique frequency of (38KHz.)

using for loop we initiate i equal to 0 and less then 50 as our max delay time is 50

with addition of 1 to initial value of i till max 50.

for loop(in between 0 to 50)

{

GPIO=0xFF; //general purpose input output is assign to max value

GP0_bit = 1;

```
Delay_us(12);

GPIO=0x00;    // general purpose input output
is assign to min value

GP0_bit = 0;

Delay_us(5);

}
```

```
GP0_bit = 0;
```

```
Delay_ms(3);
```

3.2 MASTER

Master coding is done to explain how master interface with slave .Thus we had initially saved 3 tracks of hospital say H1 H2 H3. 1 indicates left, 2 indicates straight ,3 indicates right. Combination of these [1 2 3]makes certain path/route.

Then slave controller are distinguished by their different ids. So as per the slave receive the message from master they in return send their unique id to master so that master can recognize which slave had send the response . After this hospital path comes into picture as per slave id.

```
const char H1[8]={2,1,3,3,1,3,3,2};
```

```
const char H2[8]={3,3,2,1,1,3,3,2};
```

```
const char H3[8]={3,2,1,3,3,2,1,3};
```

```
dat[1] =0b00100100 ; // data1 and 2
represent bits of lcd
```

```
dat[2] =0b10000000 ; //b represents
binary
```

```
Delay_ms(1);
```

```
dat[1] =0b10010010 ;
//R1Y1G1R2Y2G2R3 FOR data 1
```

```
dat[2] =0b00000000 ; //G3 FOR data 2
```

```
Delay_ms(10);
```

```
dat[1] =0b00110010 ;
```

```
dat[2] =0b00000000 ;
```

```
Delay_ms(10);
```

3.3 SIGNAL

The code explains us how the master sends the broadcast message to all slave controller and in return how they send message regarding detection of ambulance to master and as per this information the master manages to display traffic leds as per there requirement for clearing the route for ambulance and mean while displays the direction of ambulance on lcds .

```
if(Ambulance_dir==1 )
```

```
{          Lcd_Out(1,1," <--      ");
```

```
}
```

```
else if(Ambulance_dir==2 )
```

```
{
```

```
    Lcd_Out(1,1,"  !^!      ");
```

```
}
```

```
else if(Ambulance_dir==3 )
```

```
{
```

```
    Lcd_Out(1,1,"      --> ");
```

```
else
```

```
{
```

```
    Lcd_Out(1,1," no update  ");
```

```
}
```

4. APPLICATION

We can use this Emergency Ambulance Route clearing system for various purposes such as:

- To save the human life
- Road traffic control and management
- Traffic Monitoring System, if interface with the web (future scope)
- Avoid the disturbance and congestions for Special Category Vehicle like Ambulance, Fire Extinguisher, VIP's VVIP's and so on.
- Hazard and proof of concept if apply the camera and database interface

5. CONCLUSION

In this project, we have successfully implemented IR sensor with, PIC microcontrollers for emergency ambulance route clearing system.

In this project , we understood various features of all the devices we have used (i.e. IR receiver, IR transmitter, LED, LCD, Resistor ,Capacitor, Regulator) we also got familiar with

PIC 18,12 families and their huge applications and importance. If such system will come in market it is not only useful for ambulance but also for army vehicles and for VIP persons. But the most important use of this system is it will help to save life of any person . He or she will never have to take his or her last breath in ambulance.

Here we have proposed the Three Lane Technology (3LT) to control or manage the road traffic. Hence, this system is very helpful for human being and should want this system to deploy in cities.

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