IOT- Based Traffic Signal Control For Ambulance

Prepared by Anith K N B (embedded systems)

AGENDA

- Requirement
- Flow Diagram

Requirements

- The main objective of the project is to detect the sound of the ambulance and send the signal to the sensor near the traffic pole to change the signal to green.

- Once the ambulance crosses the traffic pole, the signal comes back to the normal form.

- This process can be carried out in two lanes as well as four lane cross roads.

Ageing

- To demonstrate this project, it won't take a very long time.
- But to implement this to all signals in a city it will take many months to be completed

Cost

- The cost will be around 2000 inr to completely finish a Traffic signal control for ambulance.

Features

- The main view of this project is to save life.
- There are cases where a patient dies while travelling in a ambulance, where it takes a very long time to reach a hospital.
- The main cause of this is due to lots of traffic signals, around our cities
- With this project, we can reduce the time taken by an ambulance to reach a hospital.
- **Pros**
  1. Saves life
  2. Low cost
  3. Easy to install

- # Cons
  1. Time duration to implement to all traffic signals is high.

ABSTRACT

Increase in traffic in the city makes emergency vehicles, like ambulance, to take more time to reach the destination. The current, time-based traffic management system is not suitable and also not flexible for present day traffic. To solve this problem, we bring users a sound detector with automatic recording of various vehicle sounds and distinguishing the presence of ambulance in a particular area.

This system works on the sensors in Internet of Things IOT. Using the sound detector technique in IOT, the presence of ambulance at a particular place can be detected and signal is sent to change the traffic light, thus enabling the ambulance to reach the destination on time. The project is based on ambulance sound detection and traffic clearance by changing the traffic light using IOT.

5W & 1H

Who :- This will be done by myself

What:- traffic signal control for ambulance

Where:- At L&T technology services labs

When:- Already been started

Why:- To reduce the time taken by a ambulance to reach an hospital.

How:- Using Concept IOT, and with the help of Microcontrollers.

INTRODUCTION

- IOT is the collection of smart things which transmit and receive data in a much secured manner.
- Sensors are functionally simple devices that convert physical variables into electrical signals.

- Traffic is generally organized in many domains with marked lanes, junctions, intersections, traffic signals, or signs.
- The main problem is to regulate the movements at an intersection. When properly timed and maintained, a traffic signal increases the traffic handling capacity of an intersection.
- Sirens are integrated into a warning system such that it is linked with other warning media.
- Ambulance is mainly used to transport patients between hospitals.
- Due to the traffic, often traffic jams occur on roads as a result the emergency vehicles like ambulance and fire engines get stuck in traffic. Emergency service should be provided perfectly at the needed time.
- The proposed method will be beneficial for the vehicles at emergency circumstances to pass through the traffic junctions without

waiting so that they can reach their destination on time.

- This project is mainly based on interaction among ambulance, sound sensors, Arduino UNO and traffic signals.

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                    ┌─────────┐
                    │  Start  │
                    └────┬────┘
                         │
                         ▼
┌──────────────────────────────────────────────┐
│ (R1, G1 specifies red and green light in      │
│ lane 1. Similarly R2, R3, R4 and G2, G3,      │
│ G4 for the respective lanes)                  │
│                                               │
│ Case 1: R1 low, G1 high (R2, R3, R4 high)     │
│                                               │
│ Case 2: R2 low, G2 high (R1, R3, R4 high)     │
│                                               │
│ Case 3: R1 low, G1 high (R1, R2, R3 high)     │
│                                               │
│ Case 4: R1 low, G1 high (R1, R2, R3 high)     │
└──────────────────────────────────────────────┘
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NO

IF Sensor1 at 120m distance is ON

YES

Change to green at that particular lane and red at all other lanes

IF Sensor2 near traffic pole is ON

Change back to normal at all lanes