

Silent Guardian : NodeMCU Revolutionizes Ambulance Transponding System

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Abstract

This is the project that criticize about the need of Ambulance. We all used ambulance whenever we are facing emergency health issue to get medical support in quick time. Despite the ambulance siren actively making emergency sound so that the cars would give way, the ambulance gets stuck. This is because people in the car are unaware of the ambulance siren due to closed windows or because they hear the siren sol late that there is no space to move the car. Another factor is that siren sound makes the patient and others more anxious contributing to increasing noise pollution. To solve this issue, we introduce a new ambulance system without siren sound. In this system all the ambulances will attach a transmitter and all the private and commercial vehicles will attach a receiver so that they can catch the signal transmitted by the ambulance. Our target is to initiate contact i.e., to send signal to a minimum range of 100 meter . This will help us to get quick response from a farther distance to move the cars away for the ambulance, also reducing sound pollution.

I. INTRODUCTION

We all know that the main problem faced in our society when driving is lack of knowledge about road traffic safety. This leads to an increase in road accidents all over the globe. There are multiple projects which aim to enhance the response time of emergency system like smart ambulance system [1], automatic traffic control [2], etc. However India is also one of the countries having poor traffic system and we Indians also naturally possess rude nature or lack of ethics. Because of all these reasons we have to face delay in emergency services.

To avoid the ambulance from getting stuck in traffic jam, we prepared this project. In this project an ambulance can give signal without the use of siren, we are using a transmitter which will be embedded to the ambulance, and a receiver to be embedded in the cars , to receive the transmitted ambulance signal. The main aim of this project is to effectively transmit signals from ambulances to other vehicles. As the process is performed with soundless system the patient inside the ambulance also relaxes, reducing anxiety/panic level. This work is not only for emergency service it also targeted to reduce noise pollution, not to disturb the environment and to reduce panic during emergency situations.

II. RELATED WORK

We are living in the world of advanced technologies which has made things easy for us, but it comes with its own disadvantages. One of them being health related problems. As a preventive measure we have invented many advanced technologies in hospitals. There are many inventions like automatic traffic signal where traffic signal and ambulance were communicated with cloud-based GPS system [2], smart ambulance system using smartphone app based on cloud [3]. In this system the track of the ambulance is triggered to nearby vehicle with the help of smartphone app. In order to control the traffic congestion a novel technique utilizing IR sensor technology is also put forth to address the crucial problems of traffic signal time consumption and vehicle congestion [4].Employing transmitters and receivers to alert drivers of other vehicles about

emergencies [5]. An IOT based traffic and road safety using transmitter, this project is actually based on road safety technique where the situation are collected automatically and notified to nearby vehicles [6]. More lives will likely be saved by smart ambulances, which are predicted to transform the emergency medical system. But they also have to deal with issues like cost and data security.

III. WORKING

The transmitter, receiver, buzzer, and NodeMCU serve as the main foundation for this purposed work .

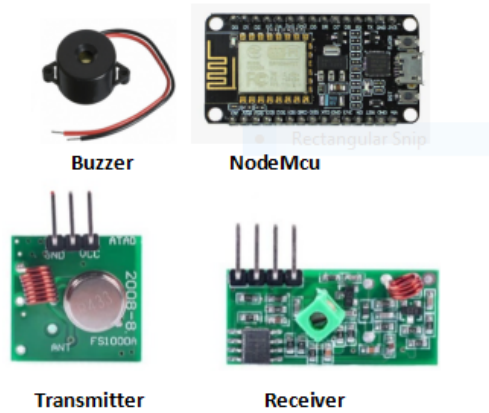


Figure 1: Components Actual : Sensors used for the work

All ambulances will have the transmitter attached, and any private or commercial vehicles will have the receiver attached. So that when an ambulance approaches, all the vehicles within a range of 100m will receive a signal from the ambulance which will be received by the commercial vehicles via their receiver. When signal is received by the receiver the buzzer will work as the notifier. This project aimed to transmit the signal at least 100m.

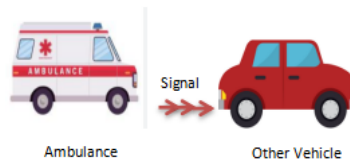


Figure 2: Working Principle

This is the working flows of the project. The main target of this project is to reduce noise and the cost effective i.e. one can readily assign to this practice.

IV. CONCLUSION

All the existing system are mainly based on traffic light control and they are almost based on cloud computing. But it is not easy to apply cloud computing systems in all the vehicles and it is costly. Another problem is that it will take more time to adapt to this system. Our project is pocket friendly and can be applied easily with our existing economic system and technology. Thus, we can resolve the problem of people ignoring the signal, because there is no accuse as the buzzer/indicator attached personally in respective vehicles. And it will also help to keep the patient and environment calm as it will be a soundless system.

V. FUTURE WORK

The future scope of this project is :

- a) To transmit the signal with larger coverage area.
- b) To pass the signal to the nearby hospital also to get ready and to give quick response.

(Dhatrak & Gandhe, 2018) (Sharmila et al., 2022) (Singh et al., 2015) (Mahalakshmi et al., 2022) (Gupta et al., 2015) (Deshmukh & Vanjale, 2018) (KOBAYASHI et al., 2019)

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