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Intelligent Spike System Using Embedded

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ABSTRACT

Nowadays many mishaps are taking place due to unusual traffic. A steady rise in metro population increase the number of automobiles and cars rapidly. The metro traffic growing crowded leads to traffic jam problems. Due to such unusual traffic people do not obey the traffic rules and it leads to road accidents. To overcome such traffic problems we are introducing this system. As the present traffic signal system is not followed by the citizens properly. So in order to avoid road accidents this project is proposed. In order to prevent the vehicle jumping on traffic signals we are introducing the spike system. The main objective of our project is to provide a safe and secured system. In case of any emergency vehicles such as ambulance and fire engines, this project is used to control the traffic accordingly and provide the highest priority to these emergency vehicles.

Keywords: Spikes, RFID, IR sensor ,Traffic system, Emergency, Secured

I. INTRODUCTION

In current times, the use of vehicle has been increasing rapidly. We cannot count the daily road accidents and deaths because of driving mistakes and lack of road traffic rules followers. Every person on the road like pedestrians, motorists, cyclists or passengers have risk of injury or death.

The major examples of road traffic can be explained as *Heavy Traffic Jams on road:* With increasing number of vehicles, heavy traffic congestion has greatly increased in major areas of cities. This happened mostly at the main junctions commonly before and after office hours i.e. in the morning and in the evening.

At certain junctions even if there is no traffic people have to wait. Because the traffic light remains red for the preset time period, the road users should wait until the light turn to green. If they run the red light, they have to pay for it.

Emergency vehicles stuck in traffic jam: Generally during traffic jams the emergency vehicle such as ambulance, fire brigade and police are stuck at the traffic signal. This is due to the people waiting for the traffic signal to turn green. This is very critical situation and can make the emergency case more complex and life threatening.

Everyone should learn the road traffic and safety rules. So the main objective of this project is to make sure that everybody follows the traffic rules properly and it will also help the ambulance to reach on time.

Retractable spikes has been used in this project. The signal timer is implemented. This is an innovative idea to avoid traffic congestion and rescue the ambulance.

II. LITERATURE SURVEY

Road transport is the important mode of transport in India. It covers almost every corner of the country which the railway transport even could not cover. At

present, India has a total road network covering 4.69 million kms which makes it one of the largest road networks in the world. The country's road network consists of National Highways, State Highways, Major District Roads, Other District Roads and Village Roads.

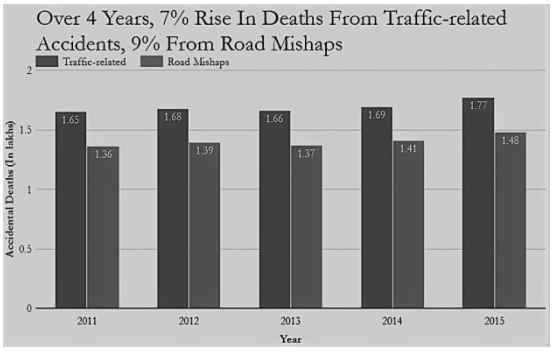

Figure 1. Flowchart of Road mishaps

SMART SPIKES SYSTEM IN TRAFFIC SIGNAL

The advanced system in traffic signals were if the signal turns red the spikes will comes UP at the delay of 5seconds. The yellow signal will gets ON only at the last 15 seconds of the red signal at zero second of delay. When the green signal gets ON the spikes will gets OFF at zero second of delay. This advanced system can be applicable in four ways. If the ambulance reaches the signal if the signal is red the ambulance cannot move. To overcome this problem we were transmitting signal from the ambulance to the signal. When the signal receives the information from the ambulance the other signal will turn to red on giving the alert sound of 5 seconds.

INTELLIGENT TRAFFIC SIGNAL CONTROL SYSTEM USING EMBEDDED SYSTEM

Case : When two emergency vehicles come on the signal and no. of vehicles are present in front of the emergency vehicle. So in this situation, IR sensor network detects the emergency vehicles and opens the divider gate to pass the cars. Arrows will indicate the possible direction. The sensor network is used to open and close the divider gate when emergency vehicles pass through gate.

III. PROPOSED WORK

Power supply is supplied to the system. It consist of ATMEGA16 micro-controller which is fed the required program. The LED's show the traffic signal logic and the LCD displays the timer. There are two IR sensors placed, out of which when a vehicle crosses the first IR sensor the buzzer buzzes and if the vehicle crosses the second IR sensor then the spikes will come up, ensuring that the vehicle will not cross the traffic signal when it is red.

In another case when an emergency vehicle such as an ambulance or fire truck which will be installed with an RFID tag and in an emergency situation the RFID will allow the spike to go down and the signal to become green to give these vehicles priority over other vehicles.

IV. OBJECTIVE

The following are the main objectives of this project:

1. The traffic signal system should properly be followed.
2. The people should obey the traffic rules properly.
3. The emergency vehicles should be given priority over other vehicles.

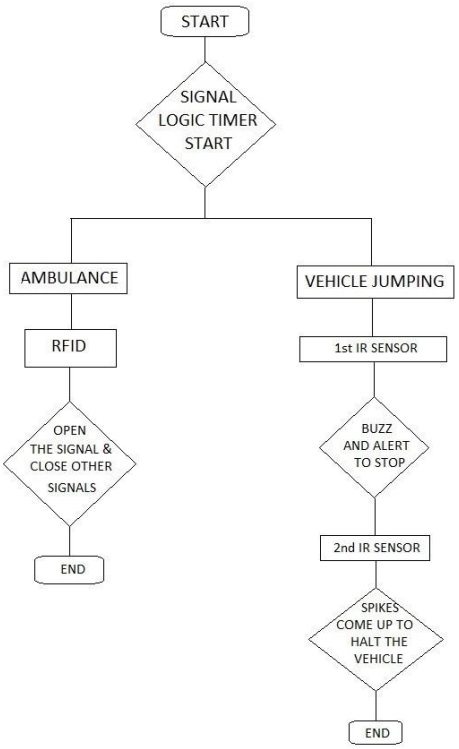

Figure 2. Flow chart of spike system

V. CONCLUSION

This project is used to minimize the vehicle jumping on traffic signals and to provide priority to the emergency vehicles over the other vehicles. This spike system is used for high traffic applications.

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