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”Automated E-Vehicle Stopping System At Signal”

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Abstract - The conventional traffic signal framework just offers guidelines to stop and not to the vehicle drivers. In any case, in the event that somebody is breaking the signal then this framework can’t get them and there are odds of taking bribe. Therefore to build the security of traffic signal and to decrease human endeavors and to stay away from the remuneration we are introducing automatic E-vehicle halting framework at signal through this smaller than expected project. The principal reason for this undertaking is to quit hopping of signs and to lessen the number of accidents. The essential thought is to make a programmed halting E-vehicle at signal utilizing handset and a miniaturized scale controller circuit.

Index Terms - E-Vehicle, Framework, RF Module, Transmitter, Receiver, Programmed, Micro-controller circuit.

I INTRODUCTION

The goal of the review paper is to build up a programmed E-vehicle halting framework at signs to decrease the number of accidents and to quit bouncing of signals. Nowadays in the greater part of the street intersections, the traffic is constrained via the programmed flagging framework.
In general red, yellow and green coloured lights are used for interpretation of three types of signals for traffic controlling operations. Green light signals to start a stopped vehicle, yellow light signals a moving vehicle to slow down the speed and red light signals the vehicle to stop. In any road crossing when red light is shown to a lane, the signal conveys the message to the vehicle drivers rushing towards the crossing to stop immediately. To make the methodology increasingly precise and progressively advantageous a uniform thick white line is drawn in each lane before the crossing. This line is normally known as a stop - line. Every vehicle coming towards the intersection must stop before this line if the red sign is seen by it. Stop-line is usually placed perpendicular to the direction of flow of traffic and is placed in the plane of the road. The task is to make E-Vehicles stop automatically at red signal.

II EXISTING SYSTEM

To be more specific we have taken the case of the Indian Traffic System. The current framework just comprises of the Red Light Violation Detection System which just clicks the picture of the vehicle who violate the STOP line when the signal is red[2]. This framework motivates vehicle drivers to stop at red signals yet will not in general stop them forcefully. In this manner, it doesn’t give much acceptable result, Yes! it is a valuable model to control vehicles from crossing red signals however it doesn’t give the desired result.

DISADVANTAGES OF EXISTING SYSTEM

1. Individuals don't follow traffic rules
2. Most of the cameras are off
3. Jumping of signal
4. More accidents
5. Corruption

III LITERATURE REVIEW

After studying the previous research and review we got to know that the existing research work which has been de- veloped are not implemented and implementing these may cost a lot[3]. Also, these systems are implemented to limit the speed at restricted areas and the R.F Transmitter con- tinuously transmits the R.F Signals which can cause the collision of vehicles. As our, the main component of the project is also an RF Transceiver but it will only be trig- gered when the signal is red, due to this continuous trans- mission on RF signals will not happen and a smooth flow of traffic will be obtained. The existing research work also tends to stop the vehicle immediately which can be a cause of the accident. Our main motto is to stop the vehicle grad- ually decreasing the speed slowly. For this, we will be in- stalling two-to-three the transmitters at a certain interval of distance before the STOP line at the signal and each trans- mitter will send the signal for different speed limiting val- ues in decreasing order. Also, the existing research work is very costly and the system is also using Ultrasonic Sen- sors which increase the initial cost of the system, in fact, the system can also, be developed by only using RF mod- ule if we increase the range of the module, by this we can decrease the initial cost of the system. For using the Ul- trasonic Sensor some obstacles have to be kept at the stop line which can also become the medium of an accident but by using RF transmitter we don't have to keep any obsta- cles, the RF transmitter will be connected with the signal and will be programmed to trigger when the signal is red.

IV PROPOSED SYSTEM

Problem Statement: The issue is individuals are hopping the signs and not adhering to fundamental traffic rules which are prompting mishaps.

Solution: These days in the vast majority of the street intersections, the traffic is constrained by the programmed flagging framework. When all is said in done red, yellow and green shaded lights are utilized for the understanding of three sorts of signs for traffic control activities. In any street crossing when a red light is appeared to a path, the sign passes on the message to the vehicles hurrying towards the intersection to stop right away. To make the technique progressively deliberate an RF Transmitter will be introduced at the stop line of the street and an RF receiver with an incorporated circuit or small scale controller in an E-Vehicle. The range of the RF module will be 5-10 meters (approx.) When the sign will be red the transmitter will consequently get turned ON, and as the vehicle will come in the scope of the transmitter the smaller scale controller/circuit will steadily diminish the speed of the vehicle and the vehicle speed will decrease close to zero.

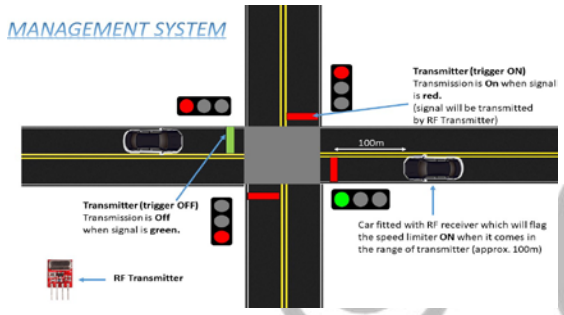

Fig 1.1(a) Working of module

Fig 1.1(a) The figure shows the full management of the E-Vehicles at a crossroad signal. The figure depicts that how the vehicle will gradually stop at red signals and also shows the interaction between the RF transmitter installed at signals and the RF receiver with an integrated circuit installed in the E- Vehicle.

Crafted by the task the project is partitioned into three basic modules.
Module1:Developing an integrated system
Module2: Installation of the incorporated framework in E-vehicle
Module3: RF Transceiver establishment in roads
Module1: In this piece of documentation we are making an integrated System for both the transmitter as well as the receiver by which the speed constraining/limiting activity will be performed. This coordinated framework is made by utilizing transistors, micro-controllers, and electronic circuit[1].
Module2:
This piece of documentation depicts the establishment of this incorporated framework in E-vehicles. In this part, the coordinated framework is associated with the RF Receiver module which will get the signal from the RF Transmitter module. The blend of RF recipient module and the coordinated system associated with the electric engine[4].

Module3:
This piece of documentation depicts the establishment of RF transmitters inroads. Which are fitted at the principle line before zebra crossing.

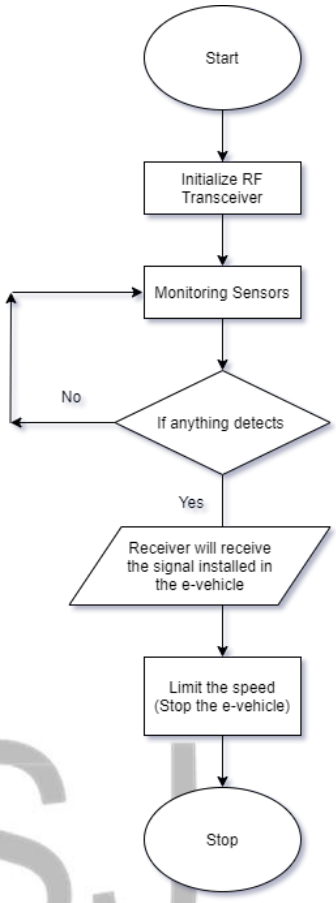

Fig 1.1(b) Flow chart

Fig1.1(b) The flow chart shows the flow of the project how things will happen. As given in the flow chart first the RF transmitter is initialized when the signal is red and then it will monitor if the vehicle is in the range or not. If detected in range receiver with an integrated circuit will receive the signal installed in the E-Vehicle and the speed of the vehicle will gradually decrease and finally it will stop.

V HARDWARE REQUIREMENTS

1. Microcontroller
2. RF Module
3. 9V Power Supply
4. DC Motors (for prototyping)
5. Arduino uno
6. Resistors and Capacitors
7. Transistors Cables and Connectors Diodes
8. Breadboards
9. IC Sockets

VI SOFTWARE REQUIREMENTS

1. Arduino IDE
2. Eclipse, Mbed

VII ADVANTAGES OF PROPOSED SYSTEM

1. Less Accidents
2. No jumping of signals
3. No need of traffic inspector at the junctions

VIII SCOPE OF THE PROJECT

Future is all about robotics and automated systems so this system will definitely make some contribution to the society.

IX CONCLUSION

The conclusion is that this an automated vehicle stopping system which will reduce the no of accidents, stops jumping of signals and people will follow rules.

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