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Radio-Frequency Identification and Sensor Based Safe Zone Vehicle Speed Control

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***Abstract**: Nowadays people drive very fast, accidents occur frequently and there is loss of property and life. In order to avoid such kind of accidents, to alert the drivers and to control their vehicle speed, RF technology is being used. The main objective is to design a Smart Display Controller (SDC) meant for vehicle's speed control and monitoring of zones, which can run on an embedded system. Smart Display & Control can be custom designed to fit into a vehicle's dashboard and displays information on the vehicle. The project comprises of two separate modules: zone status transmitter unit and receiver (Speed Display and Control) unit. Once the information is received from the zones, the vehicle's embedded unit automatically alerts the driver, to reduce the speed according to zones, it waits for few seconds for the driver to control the speed and if the speed is not reduced then the vehicle's SDC unit will automatically reduces the speed of the vehicle and stops the vehicle.*

I. INTRODUCTION

Road facilities are a major concern in the developed world. Many accidents occur frequently. Recent studies show that one third of number of fatal or serious accidents are associated with excessive or inappropriate speed, as well as changes in the roadway. Reduction of the number of accidents and mitigation of their consequence are a big concern for traffic authorities, the automotive industry and transport research groups. In order to control the vehicle speed in the safe zones we are using RF technology which is used to tag the warning signals placed in the dangerous portions of the road. The basic concept of RFID relies on storing and retrieving the information using tags. By using RF tag, we can set the speed limit for the vehicles, RF reader which is placed in the vehicle will get the values from the RF tag and check the vehicles speed with the speed in the RF tag and if it is greater than the speed limit that is set in the RF tag then the buzzer will be produced. If the speed is not controlled even after the indication by the buzzer, then through the GSM which contains the vehicle number, a warning message will be send to the particular authority and the vehicles speed will be automatically reduced and then it will be stopped. Another major advantage of this system is the use of eye blink sensor which will sense the eye blink of the driver and if the driver's eyes are not kept opened for more than 30 seconds it will produce a signal and automatically the vehicles speed will be controlled. This project mainly focuses on reducing accidents in the accident prone areas.

II. EXISTING SYSTEM

Recent study shows that one third of the number of fatal or serious accidents are associated with excessive or inappropriate speed, especially in roadways. Previously ECU has been used for controlling speed and to avoid accidents. But it is cost effective and fuel consuming process, so Arduino and speed governor are used. Here, if the vehicle is above its speed limit then the vehicles speed is reduced with the help of Arduino.

This project is mainly designed to be executed in the safe zones like schools, hospitals, etc. Here the speed limit is set in the RF tag being placed in the safe zones and the vehicles speed is checked with the speed limit. If the speed of vehicle is greater, a buzzer is being produced to indicate the user that he is above his speed limit. Even after the indication of the buzzer alarms, if the driver does not reduce his speed then a message, which contains the information about the vehicle will be send to the nearby authorities with the help of GSM. Then the vehicles speed will be gradually reduced and the vehicle will be stopped automatically by the use of Arduino.

The RF tag is a small device which contains a 16 digit hexadecimal unit which stores information such as the type of zone, speed limit, etc. Considering the school zone for instance, the RF reader present in the vehicle reads the hexadecimal values from the RF tag present anywhere nearer to the surrounding location. Once the reader senses the tag, it identifies the necessary information from the tag. RF reader uses the RF Tag, gets actual speed of the vehicle, recognizes what type of zone it is and sends the signal to the

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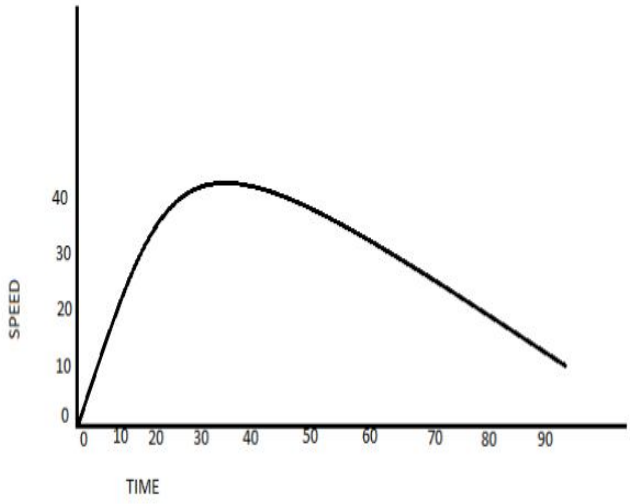
Arduino board. Along with this it displays what type of zone it is, to the driver. Then the Arduino board indicates the user about the speed by generating an alarm. The speed sensor in the vehicle specifies the speed of the vehicle. If the vehicle is above the speed limit in the safe zones, then a signal will be send to the arduino. Further if the vehicle is not controlling the speed, the speed of the vehicle is automatically reduced and the motor will be off with the help of speed controller in the vehicle.

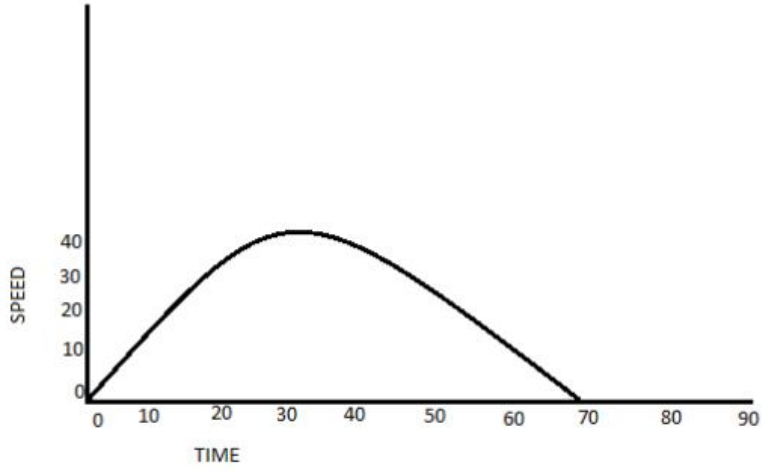
III. DRAWBACKS OF EXISISTING SYSTEM

The fuel consumption is high.
The vehicle is not stopped immediately, only its speed can be reduced gradually.
Large amount of heat will be produced, which will cause the wear out of engine components quickly.
For better performance, the ECU has to be reprogrammed on a periodic basis.
Information about the vehicle cannot be send to the authorities.

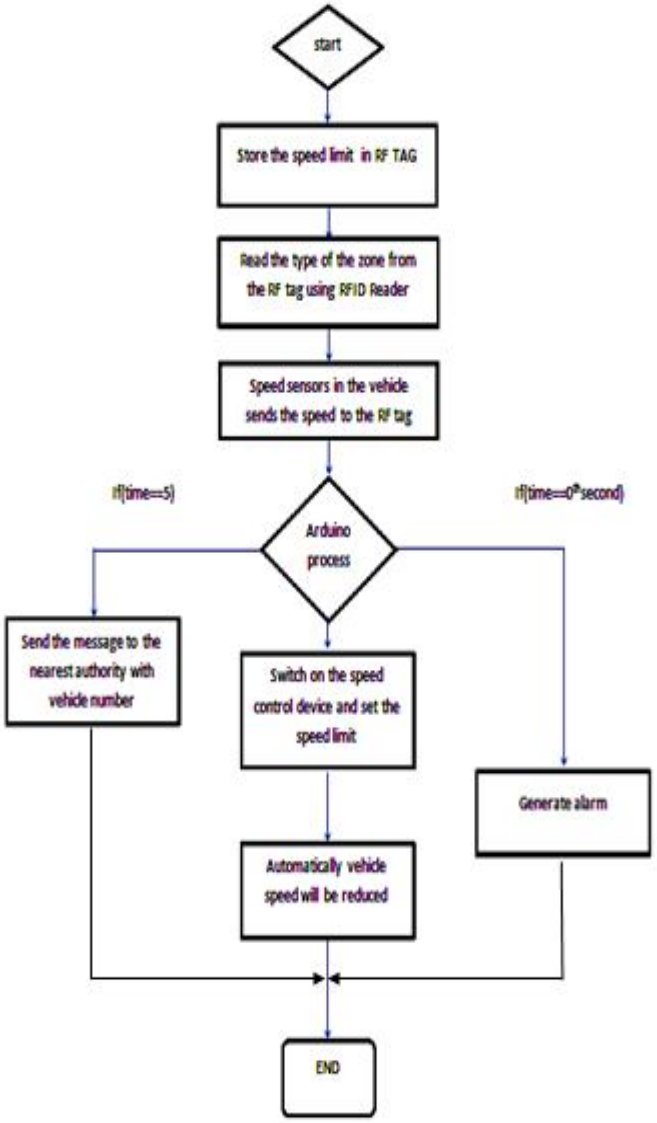
IV. PROPOSED SYSTEM

Our proposed work is to overcome the difficulties of existing system. In the existing system the vehicle cannot be stopped completely, but in the proposed work the vehicle can be totally controlled by using Arduino. Another major advantage of this system is the use of eye blink sensor which will sense the eye blink of the driver and if the drivers eyes are not kept opened for more than 30 seconds it will produce a signal and automatically the vehicles speed will be controlled. This project mainly focuses on reducing accidents in the accident prone areas.





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Initially in the RF tag the speed limit of the vehicle will be set. Along with this, it also contains the type of zone. The RF tag will be placed near the safe zones.

The RF reader placed in the vehicle will detect the nearby RF tag and get the corresponding speed values and sends the speed related information to the Arduino.

Arduino checks the vehicles speed with the speed in the RF tag and if the vehicles speed is greater than the speed limit then an alarm will be generated with the buzzer to indicate that the vehicle is above its speed limit

Even after the indication of the alarm, if the vehicle is above its speed limit then with the help of the GSM the vehicles information will be send to the authorities. The authorities information will be stored in the RF tag and from the RF tag the information will be sent to the arduino. From the arduino the GSM will retrieve the authorities information and send the message containing the vehicles information to the authority. Then the vehicles speed will be automatically reduced with the help of arduino.

Eye blink sensor which will sense the eye blink of the driver and if the drivers eyes are not kept opened for more than 30 seconds it will produce a signal and automatically the vehicles speed will be controlled. This Eye Blink sensor is IR based. The Variation Across the eye will vary as per eye blink. If the eye is closed means the output is high otherwise output is low. This to know the eye is closing or opening position. This output is given to logic circuit to indicate by the alarm.

V. ADVANTAGES OF PROPOSED SYSTEM

The vehicle speed can be controlled immediately, if it is exceeding its speed limit By using GSM vehicle's details can be tracked

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Vehicle's speed can be reduced if the driver is in drowsy state

VI. CONCLUSION AND FUTURE WORK

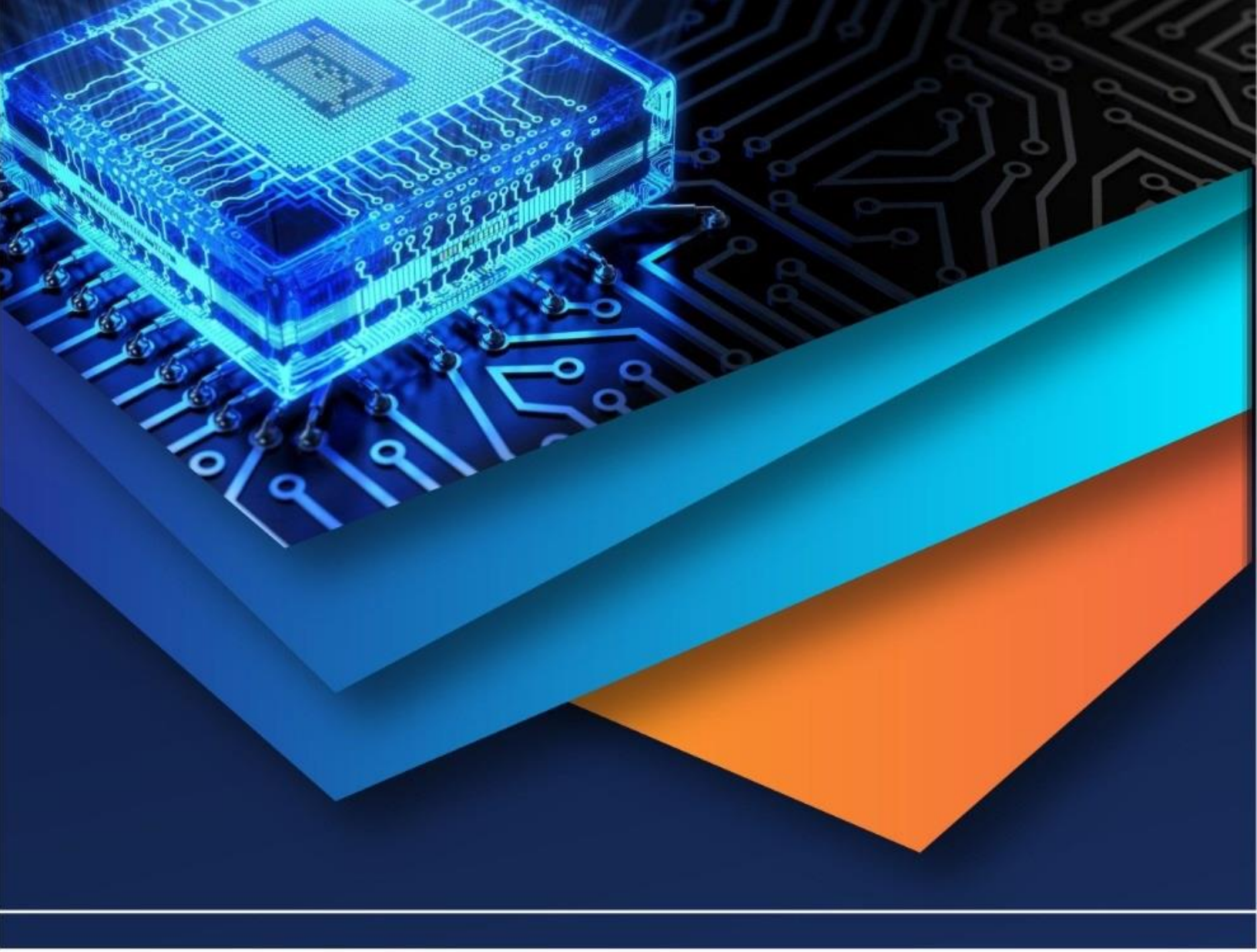
In this system it shows that the automatic reduction of vehicles speed, if the vehicles speed is not being reduced in the safe zones. Here, as we are towards the safe zones our vehicles speed will be automatically checked with the speed that is being stored in the RF tag that is being placed near the safe zones and if the vehicles speed is greater than the speed that is set in the tag then the driver will be indicated to reduce the speed with the help of the buzzer being produced. Even after the indication of the buzzer, if the driver is found that he is not reducing the speed then the information about the vehicle will be sent to the particular authority with the help of the GSM. After sending the information to the authorities the vehicle as it is nearing to the safe zone, the vehicles speed will be automatically be reduced with the help of Arduino and gradually the vehicle will be stopped.

In our project as the vehicle will be stopped automatically when it exceeds the speed limit or when the driver is in a drowsy state. Due to this the vehicle will be stopped immediately and the upcoming vehicles will not know about it and hence a collision may occur. So in our future we will indicate the upcoming vehicles about the stopping of our vehicle.

REFERENCES

[1] AamirSawarJahan, "GPS Enabled Speed Control Embedded System," 2013.
[2] S. Ankita Mishra, "Design of RF Based Speed Control Embedded System," International Journal Advanced Research in Computer Science and Communication Engineering, vol. 1, no. 8, oct-2012.
[3] D. M. Ahmadil.H, "An Intelligent System for Vehicle Access Control using RFID and ALPR Technologies," 2016.
[4] J. Anuratha P.George, "GSM Based Car Security System," International Journal of Engineering and Innovation Technology, vol. 2, no. 4, oct-2012
[5] B. Harsh Mohan, "Design of Automobiles Speed Control System Using RFID," International Journal of Computed Trends and Technology, vol. 37, july-2016
[6] LujainaAiShabibi, "Automobile Speed Viloation Detection System using RFID and GSM Technologies," International Jounal of Applied Information System , vol. 7July-2014
[7] SathyaNarayana.B.V.V, "Automatic Vehicle Speed Control with Wireless In-Vehicle Road Sign Delivery System using ARM-7," International Journal Technology Enhancement and Emerging Engineering Research, vol. 2, no. 8, 2014
[8] J. SoniKumari, "Review of Automatic Speed Control of Vehicle using RFID Technology," International Jounal of Advanced Research in Electrical and Communication Engineering, vol. 5, no. 5, May-2016
[9] L. SwethaAnnuJames, "Automatic Speed Control of Vehicles using RFID," International Journal of Engineering and Innovation Technology , vol. 3, no. 4, May-2014

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