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Auto Vehicle Speed Control System in School and College Zones

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ABSTRACT: According to the recent surveys, in the past few years, accidents are taking place frequently near the schools, hospital zones and in the sharp turnings. one of the major cause is hurry to reach the targeted place soon. Therefore controlling the vehicle speed is mandatory at these zone. This project paves way for controlling the speed of the vehicles within certain limit in restricted zones without interruption of the drivers. An RFID is used for this purpose. The RFID reader is attached with the vehicle and the RFID Tags will be placed in required speed control Zones.

KEYWORDS: Road safety, Embedded System, Collision Notification, horn control etc.

I. INTRODUCTION

Road traffic injuries and deaths terribly affect people, groups and nations. Around 1.24 million individuals globally die each year because of road car accidents—that is about 3400 deaths per day. Road traffic injuries are the main cause of death all inclusive among individuals matured 15– 29 years [1]. More than 90% of the world's road traffic fatalities happen in low and center wage nations, despite the fact that these nations have just about a large portion of the world's vehicles. Without activity, yearly road traffic deaths are anticipated to increment to around

1.9 million by 2030 and to end up noticeably the main cause of death [2]. It depends on current traffic administration systems and practices, improved safety standards in design, construction, operation and maintenance of roads, and production and maintenance of safer vehicles. By setting up measures to expand safe strolling and cycling, governments can likewise lessen air pollution, greenhouse gas emissions and accomplish better well being coming about because of more physical action. It is of crucial significance to screen and approve the road transportation security, comprehensive checks on drivers, vehicles and wellbeing forms [3-4-5]. Further, it has been watched that cars and cabs are the kinds of vehicle destined to be associated with a road mischance. As indicated by the Ministry for Road Transport Highways, significant reasons for mechanized accidents are as per the following:

Driver's fault 83.5%

Pedestrian fault/fault of passengers 4.7% Mechanical defect in vehicles 3%

Bad roads 1.1%

Bad weather 0.9%

Other factors 6.8% [17]

The Indian Government has found a way to stay away from these accidents like restriction on the Bars and Restaurants on highways. Aside from these, restricted foundation, drinking and driving and not following the traffic rules are

likewise the reasons for road accidents. The inspiration behind the proposed work is an attempt to make an embedded system to bring a Positive difference in the field of road safety and road teach in light because of the fact the Road safety system are accessible in top high luxury cars, for example, Audi, Mercedes, Benz etc[1-2]. The proposed work handles with the real reasons of road accidents.

II.LITERATURE SURVEY

In Kalpana seelam et al [1], proposed system by the author handles some real reasons for road accidents, for example, breaking traffic signals and drunken driving. It additionally has a noteworthy target of practicing road discipline, for example, speed control in various zones and horn control in horn restricted zones. This system presents Vehicle Speed Control in Variable Zone-in this element; speed of the vehicle is controlled in various territories, for example, flyovers, bridges, highways, schools and cities. Horn Control of Vehicle in No Honking Zone-Controlling undesirable unsettling influences in horn denied zones, for example, hospitals, public libraries, courts, schools and so on. Alcohol detection- The alcohol sensor keeps the start key from working if the driver inhales into it and a noteworthy amount of alcohol is distinguished.

In Sanket Jhunjhunwala et al [2], authors has show a system which will recognize the alcohol in the drivers body and keep the start key to begin the vehicle. We as a whole realize that drink and drive is one of the fundamental reasons of road accidents. So this system is extremely helpful to keep away from the accidents which are caused by drinking and driving. In the given system, authors has utilized numerous sensors like MQ-3 Alcohol Sensor since it has Fast response and high affectability to Alcohol. Additionally it has Stable and long life. Another sensor is BMP-180 Pressure Sensor. To detectif breath test has been given to the alcohol sensor module or not. It is the new computerized barometric-weight sensor from Bosch Sensortec. It has an elite and Hall-Effect Sensor to distinguish the speed to the vehicle.

In D.Bindu Tushara et al [3], In the proposed system, wireless SMS alert system is utilized which distinguishes the event of a accident and sends a SMS to the enlisted mobile number using GSM. This system will identify conceivable impact and avert it. The proposed work shows a proficient usage of security system for the moving vehicles utilizing SMS ready system. The system utilizes microcontroller which makes it unique than other alternate systems. In the given system every one of the parts utilized are connected with recognizing the mischance, sparing the telephone numbers and sending the SMS. The real segment is the Atmel microcontroller AT89S52 which plays out every one of the tasks identified with controlling the implanted system circuit. The security for the vehicles is given regarding recognition of accident done using vibration sensor. This location is sent as a SMS alarm to portable using GSM. The installed system encased with the segments is fit inside the vehicle for accident discovery.

In D.Guru Pandi et al [4], in the proposed system the authors uses ultraviolet rays to detect the objects and applies brakes before car hits the object which might be a car, truck or some other obstacles. In this system, First the image of all items before a moving car get caught took after by which, image preparing is done by the processor and further checks for the break sensor if any object is found. On the off chance that, if the driver is aware of the obstruction he will apply the break and will maintain a strategic distance from impact, though in the case that he doesn't know about the obstacle he wouldn't have any significant bearing break, the controller monitors this and thus gives a first stage alarm to the driver and waits for a certain period of time and even after that if the driver isn't reacting by applying break the controller starts the driver circuit to apply the break and stop the vehicle before getting crash. In this work the author utilized a PIC 16F84 controller to screen and control the conduct of vehicle utilizing a camera and break sensor. Video processing is done through camera.JPG organize is being utilized by the 2D images and are each an incentive in the exhibit speak to the RGB triplet for an individual image. For video handling the author has utilized different strategies, for example, Gray scale Conversion, Median Filtering, Thresholding and Line Detection.

In Y M Jagadeesh et al [5], In this paper authors has given another idea which will empower the activity light to change from red to green in view of traffic density. This paper is concerned about the advancement and usage of Sensor based Traffic Light System with Dynamic Control which thus lessens the Average Trip Waiting Time (ATWT). The system comprises of IR sensors, Low Power inserted controllers, comparators and capacity gadget. In this project the author concentrated on improvement of wise activity light controller in a city utilizing IR sensors and controllers. The system design comprises of a few infrared sensors set at both ends of the road to identify the density of the activity line. These sensors are set at the specific separation to locate the correct estimation of vehicles. The block diagram consists of various sub system like detection unit, microcontroller and light indication unit. Detection unit has

number of sensors connected. IR sensors are laid on every one of the lines of the road upto 500m .

These IR sensors are associated with basic microcontroller. The sensor detects the information and exchange it to the smaller scale controller. Microcontroller will examine which line has a more traffic density and appropriately it assigns the most noteworthy need to that specific line.

In Lea Angelica Navarro et al [6], In this paper authors has proposed a system that catches the Iris image of the driver by identifying if the individual is smashed and in like manner to build up a dependable calculation for Iris Recognition. This paper is made out of equipment and programming system which centers around the usage of a calculation in light of Gabor Filter. The system comprises of CCD Camera and Analog-to-Digital Converter, which is connected into a MATLAB program to recreate the caught image which at that point gives a signal setting off to the microcontroller and a transfer circuit to control the car start. In this venture Iris Recognition System is utilized which is a biometrically based innovation utilized for ID and check purposes utilizing a person's iris prints. To Design the Alcohol Detection for Car Users through Iris Recognition utilizing GaborFilter, it concentrated on three principle assignments. In the first place is catching an iris image. Furthermore, it is important to encode the iris data into a configuration which is receptive to estimation and calculation. At last, a signal originating from the open source acknowledgment system will control the car/vehicle using microcontroller and hand-off circuit which truly associated with the start arrangement of the car/vehicle. Once the driver is distinguished positive to alcohol utilization, a sidestep code will take after which will then the open source acknowledgment system will perceive. At that point, the open source acknowledgment system will discharge a signal heading off to the microcontroller and hand-off circuit, and the car/vehicle will begin.

III. PROPOSED METHOD

The proposed system aims to enhance road safety by implementing various measures. One such measure is the control of vehicle speed in different areas like flyovers, bridges, highways, schools, cities and internal areas. Another measure is the control of horn in no honking zones such as hospitals, public libraries, courts, schools, etc.

The system also includes red light traffic control, which automatically stops vehicles when the traffic signal is red. In case of an accident, the system sends automatic collision notifications via SMS to the control room and the nearest relative of the victim.

In proposed method, RFID is used to indicate the zones.

The indicated zone through RFID is used to reduce the vehicle speed that passes through the zone.

Additionally, the system includes an alcohol detection feature, which prevents the ignition key from working if the driver has consumed alcohol. The alcohol sensor consists of two sections - Transmitter and Receiver Section. The Transmitter module can be installed on the roadside sign board and will transmit the information using the RX/TX module on a particular frequency range. Data generated by four switches connected to the Encoder's Data Lines will be decoded on the vehicle side.

The alcohol sensor prevents the ignition key from working if the driver breathes into it and a significant quantity of alcohol is detected. The model consists of two sections - Transmitter and Receiver Section.

Transmitter Circuit : Transmitter module can be fitted on the roadsidesign board. To transmit the information, RX /TX module is needed

which will work on some particular frequency range. On the Data Lines of the Encoder, 4 switches will be connected. This will generate the data for the project and will be decoded on vehicle side.

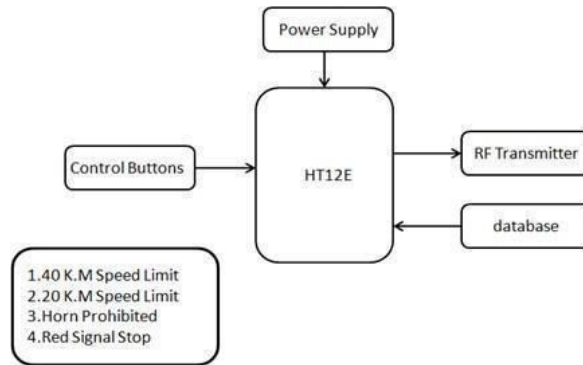


Fig.1: Schematic of the model for Transmitter Circuit

Receiver Circuit : Receiver module will be placed on the car. On receiver side, each switch closure will have a particular meaning. When the car in a motion comes in that particular range of frequency automatically the circuitry start working .

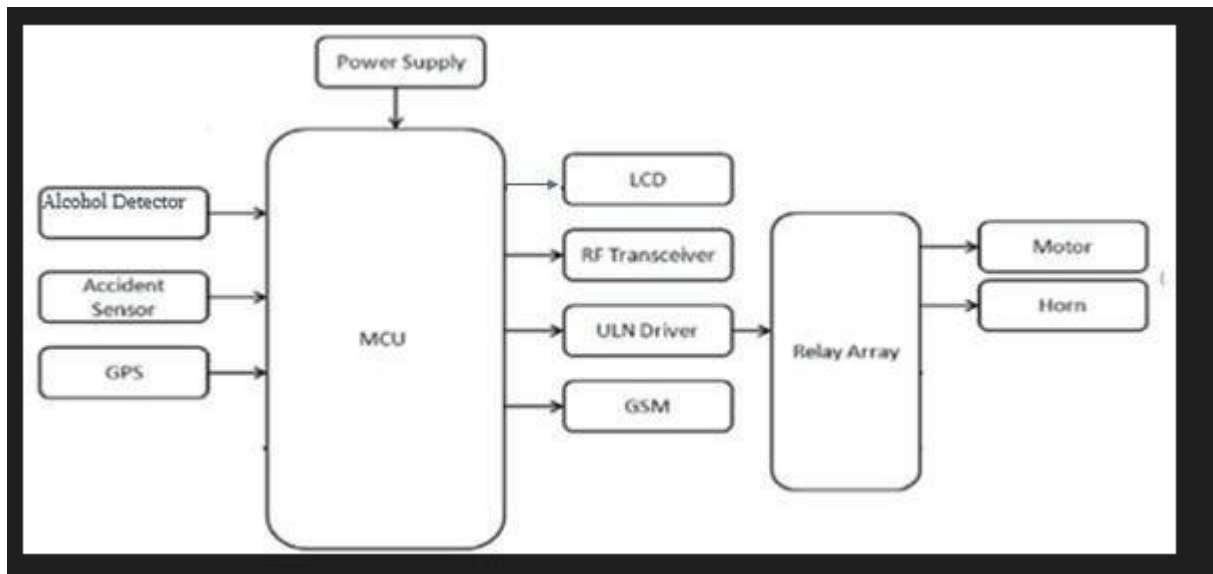


Fig.2: Schematic of the model for Receiver Circuit

IV.CONCLUSION

In this paper we have gone through various road safety techniques available .The proposed module can be use to implement for the vehicles in order to avoid the road accidents. With this prototype, acost effective embedded system can be implemented which will help in reducing road accidents by following traffic rules. Since speed plays an important role while driving, by using this concept the passenger’s journey will become even more safe and secure.

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