VEHICLE ACCIDENT PREVENTION USING EYE BLINK SENSOR

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ABSTRACT

Nowadays there has been a very large increase in road accident due to drowsiness of driver while driving which leads to enormous fatal accidents .The driver lose his control when he falls sleep which leads to accident .This is because when the driver is not able to control his vehicle at very high speed on the road. Driver in-alertness is a very important cause for many accident associated with the vehicles crashes. Driver fatigue ensuing from sleep deprivation or sleep disorders is a very important think about the increasing variety of the accidents on today's roads. Drowsy driver warning system will type the premise of the system to presumably cut back the accidents associated with driver's temporary state. This project will generate a model which may stop such accidents. To prevent this, we outlined a very simple and economical system which deals with this issue. In this project, when a driver falling asleep, an alarm is raised to warn the driver attached to the rear of the vehicle. The alarm continues for a minimum of 10 seconds so that the driver wakes and get ready to steady the vehicle he drives. Thus we can control the major accidents.

I INTRODUCTION

We can't watch out of ours whereas in running by less acutely awareIf we tend to done all the vehicles with automatic security system that has high security to driver, conjointly offersalarm.All vehicles should be equipped with eye blink sensor and alcohol sensor in future avoids these types of accidents Vehicle accidents are most common if the driving is inadequate.These happen on most factors if the motive force is drowsy or if he's alcoholic.Driver sleepiness is recognized as a very important think about the vehicle accidents.Advanced technology offers some hope avoid the up to some extent.

Thisprojectinvolves live andcontrols theattention blink mistreatment IR sensing element. The IR transmitter is employed to transmit the infrared rays in our eye.The IR receiver is employed to receive the mirrored infrared rays of eye.If the attention is closed means that the output of IR receiver is high otherwise the IR receiver output is low.This to grasp the attention is closing or gap Position.This output is provide to logic circuit to point the alarm.This project involves dominant accident thanks to unconscious through nictitation. A from PIC and other necessary elements as per our design requirement results as output.As chip styles get quicker, the cost of manufacturing a chip (with smaller components built on a semiconductor chip the same size) generally stays thesame.Before microprocessors, small computers had been implemented using racks of circuit boards with many medium and small-scale integrated circuits.Microprocessors integrated this into one or some large-scale ICs.Continued will increase in chip capability have since rendered alternative varieties of computers nearly fully obsolete with one or a lot of microprocessors utilized in everything from the littlest embedded systems andHandheld devices to the largest mainframes and supercomputers.

II. LITERATURE SURVEY

This literature review of road safety in Africa has been organized by the main road safety sectors. South Africa's references were provided by TRL's local counterpart, the Centre for Scientific and Industrial Research (CSIR) in South Africa and they are included at the end of each section. This avoided the risk of the road safety work in South Africa overwhelming the rest of the

region's efforts. The first source for the literature review was the IRRD database which contains references from over 30 institutes and organizations from 25 countries and includes references in English, German, Spanish and French. IRRD is reported to receive approximately 10,000 references each year and is updated on a monthly basis. The literature review was limited to those references published in the past decade and it was decided not to include the 1989 Second African Road Safety Conference. A few key older reports were included, such as UNECA's 1989 Road Safety manual on Low Cost Engineering Countermeasures which remains a practical reference. Articles were also identified from Conference Proceedings, including that of the 1997 Third African Road Safety Congress, TRL project files and from the personal libraries of colleagues.

One of the World Bank's Sub-Saharan Africa Transport Policy Program's Working Papers, Assum's Road Safety in Africa: Appraisal of Road Safety Initiatives in Five African Countries reviewed the institutional framework as well as the activities undertaken in each country. All five countries (Benin, Cote d'Ivoire, Kenya, Tanzania and Zimbabwe had national road safety coordinating bodies and while the roles and names may have differed, they shared the same main problems including funding and technical skill shortages which hindered implementation. The national road safety programmes were also summarised and the short and long term effects assessed (Assum, 1998).

The conditions for sustainable road safety work were described as: competence, political priority, funding, implementation, organization, monitoring and evaluation, and time with political priority seen as the primary requirement which can facilitate the delivery of the other requirements. This Working Paper concluded with a call for an African Road Safety Initiative, previously discussed at the Third African Road Safety Congress. Building on the success of the Road Maintenance Initiative which led to the introduction of road funds and private sector participation in road maintenance and rehabilitation programmers, an African Road Safety Initiative was recommended to use the same guiding principles: ownership, financing, responsibility, and management. Examples of national approaches to road safety management, including several National Road Safety Councils, are summarized below.

The French Ministry for Cooperation and the French Ministry of Transport collaborated on the implementation of a road safety policy in West Africa. The French had already introduced a system of sharing information within the sub-region and were using pilot projects to demonstrate best practice. Starting with a national road safety seminar in 1993, Senegal was chosen for the road safety pilot project. Locally identified priorities included improving the crash data system, driver training, awareness raising activities, and vehicle inspection. The activities undertaken for each of these areas were described in a presentation (Bodon, 1997).

After developing a standardised report form, a training programme in crash reporting procedures was undertaken in the 10 regional capitals. Two local computer analysts were trained in France and computerisation of crash data begun in 1994. The effectiveness of the project was evaluated in 1997 at a follow-up seminar which was attended by Mali, Burkino Faso and Guinea. These countries subsequently adopted some of the initiatives in their own countries.Various studies have addressed the various aspects of RTAs, with most focusing on predicting or establishing the critical factors influencing injury severity (Chong, A.et al. 2005).

Numerous data mining-related studies have been undertaken to analyze RTA data locally and globally, with results frequently varying depending on the socio-economic conditions and infrastructure of a given location. Ossenbruggen, Pendharkar et al.(2001) used a supply regression model to spot the prediction factors of crashes and crash-related injuries, using models to perform a risk assessment of a given region.These models enclosed attributes describing a web site by its land use activity, roadside design, use of traffic control devices, and traffic exposure.Their study illustrated that village sites were less venturesome than residential or searching sites.

Abdalla et al.(1997) conjointly studied the connection between casualty frequency and also the distance of AN accident from residential zones.Not amazingly, casualty frequencies were higher in accidents that occurred nearer to residential zones, possibly due to higher exposure.The casualty rates among residents from comparatively disadvantaged areas were considerably on top of those from comparatively affluent areas.

Mussone et al(1999) used neural networks to research vehicle accidents that occurred at intersections in urban center, Italy.These authors used feed-forward multilayer perception (MLP) with BP learning. The model had 10 input nodes for eightvariables: These authors used feed-forward multilayer perception (MLP) with BP learning. The model had ten input nodes for eight variables: day/night, traffic flows within the intersection, variety of virtual and real conflict points, intersection sort, accident sort, paved surface condition, and atmospheric phenomenon.

The output node ('accident index') was calculated because the quantitative relation between the amount of accidents at a given intersection and at the foremost dangerous intersection. Results showed that the best accident index for the running over of pedestrians occurred at non-signalized intersections in the dead of night. Sohn and Hyungwon (2001) conducted analysis on pattern recognition within the framework of RTA severity in Korea.

They determinedthat AN accurately calculable classification model for many RTA severity sorts as perform of connected factors provided crucial data for accident bar. Their analysis used 3 data processing techniques, neural network, supplyingregression, and call tree, to pick out a group of cogent factors and to construct classification models for accident severity.

Their 3 approaches were then compared in terms of classification accuracy. They found that accuracy didn't dissent considerably for every model, which the protecting device was the foremost vital consider the accident severity variation. to investigate the connection between RTA severity and driving setting factors, Sohn and Lee (2002) used varied algorithms to boost the accuracy of individual classifiers for 2 RTA severity classes.

Using neural network and call tree individual classifiers, 3 totally different approaches were applied: classifier fusion supported the Dempster–Shafer rule, the Bayesian procedure, and supplying model; information ensemble fusion supported arcing and bagging; and agglomeration supported the k-means rule. Their empirical results indicated that a clustering-based classification rule works best for road traffic accident classification in Korea. Ng, decorated and Wong (2002) used a mix of cluster analysis, multivariate analysis, and geographical system (GIS) techniques to cluster homogenous accident information, estimate the amount of traffic accidents, and assess RTA risk in city.

Their ensuing rule displayed improved accident risk estimation compared to estimates supported historical accident records alone. The rule was additional economical, particularly for fatality and pedestrian connected accident analyses. The authors claimed that the projected rule may well e accustomed facilitate authorities effectively determine areas with high accident risk, and function a reference for city planners considering roadsafety.

Chang and bird genus (2005) conducted data processing analysis specializing in building tree-based models to investigate thruway accident frequency. victimisation the 2001- 2002 accident information of National thruway one in Taiwan, the authors developed classification and regression tree (CART) and negative binomial regression models to determine the empirical relationship between traffic accidents and road geometric variables, traffic characteristics, and environmental factors. CART could be a powerful tool that doesn't need any pre-defined underlying relationship between targets (dependent variables) and predictors (independent variables). These authors found that the common daily traffic volume and precipitation variables were the key determinants of thruway accident frequency. What is more, a comparison of their 2 models incontestable that CART could be a sensible various technique for analysing thruway accident frequencies. Tibiae (2005) analysed historicalRTA data, as well as four, 658 accident records at the Addis Ababa Traffic workplace, to research the appliance of knowledge mining technology to the

analysis of accident severity in Addis Ababa, Ethiopia.Using the choice tree technique and applying the data SEEKER formula of the data STUDIO data processing tool, the developed model classified accident severity into four classes: fatal injury, serious injury, slight injury, and property damage.Accident cause, accident type, road condition, vehicle type, light condition, road surface type, and driver age were the basic determinant variables for injury severity level.

The classification accuracy of this call tree classifier was reported to be eighty seven.47%.Chang and Wang (2006) applied non-parametric classification tree techniques to analyze accident data from the year 2001 for Taipei, Taiwan. A CART model was developed to determine the link between injury severity and driver/vehicle characteristics, highway/environment variables, and accident variables.The most important variable associated with crash severity was the vehicle type, with pedestrians, motor cycles, and bicyclists having the highest injury risks of all driver types in the RTAs.Using one clustering (SimpleKMeans) and three lassification (J48, naïve Bayes, and One R) algorithms, Srisuriyachai (Srisuriyachai 2007) analyzed road traffic accidents in the NakhonPathom province of Bangkok. Considering the descriptive nature of the results and classification performance, the J48 algorithm was sufficiently useful and reliable.The outcome of the analysis was traffic accident profiles, which the author presented as a useful tool for evaluating RTAs in NakhonPathom.

III. METHODOLOGY

The PIC microcontroller PIC16f877a is one in all the foremost noted microcontrollers within the business.This controller is extremely convenient to use, the coding or programming of this controller is also easier.One of the most blessings is that it may be write-erase as over and over as attainable as a result of it use non-volatile storage technology.

It has a complete variety of forty pins and there square measure thirty three pins for input and output.PIC16F877A is used in many PIC microcontroller projects.PIC16F877A even have several applications in digital natural philosophy circuits.PIC16f877a finds its applications in a huge number of devices.It is employed in remote sensors, security and safety devices, home automation and in several industrial instruments.

An EEPROM is additionally featured in it that makes it doable to store a number of the knowledge} for good like transmitter codes and receiver frequencies and a few alternative connected data.The cost of this controller is low and its handling is additionally straightforward.

Its versatile and may be employed in areas wherever microcontrollers have not been used before as in coprocessor applications and timer functions etc.

The eye-blink detector works by illuminating the attention and/or lid space with infrared, then monitoring the changes in the reflected light using a phototransistor and differentiator circuit.The exact functionality depends greatly on the positioning and aiming of the emitter and detector with respect to the eye. Connect regulated DC power supply of 5 Volts. Black wire is Ground, Next middle wire is Brown which is output and Red wire is positive supply. These wires are also marked on PCB.

To test detector you simply want power the detector by connect 2 wires +5V and GND.You can leave the output wire because it is.When Eye closed LED is off the output is at 0V.Put Eye blink sensor glass on the face within 15mm distance, and you can view the LED blinking on each Eye blink.The output is active high for Eye shut and may incline on to microcontroller for interfacing applications.

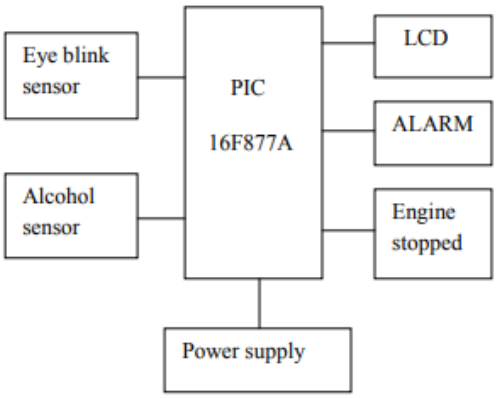

FIGURE 1: BLOCK DIAGRAM

IV. RESULTANDDISCUSSION

This Eye Blink sensor is IR based.The Variation Across the attention can vary as per innate reflex.If the attention is closed means that the output is high otherwise output is low.This to grasp the attention is closing or gap position.If the motive force closes eye for over three seconds, it give alarm, engine are stop and message with location sent to owner.

V.CONCLUSION

This project has proposed a design and implementation of accident prevention using eye blink sensor with PIC 16F877A Microcontroller Successfully. With future aims to implementing further advanced technology offers some hope avoid this up to some extent. This project involves measure and controls through eye blink using IR sensor.

VI. REFERENCES

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