SMART DASHBOARD

Prof. P.G. Ahire[1], Rabiya Gupta[2], Karan Singh[3], Archana Jamdade[4] and Salahuddin Shaikh[5]

[1,2,3,4,5]*Department of Computer Engineering*

[1,2,3,4,5]*Sandip Institute of Engineering and Management, Nashik (India)*

Abstract - Road accidents is a major concern to the society as road accidents is life ending for people, not only to the drivers but to the other people who walk on the road and to people driving in other vehicle. Nearly 1.2 million people die in road accidents each year, on average 3,287 deaths a day. More than half of all road traffic deaths occur among young adults ages 15-44. The main aim of this is to prevent the major causes of road accidents, which are drink and drive, over speeding. So if we could let people not drive their vehicle when they are drunk or not let them drive at a speed higher than the prescribed, then these numbers will reduce to a significant extend as these problems are the major causes for road accident. The numbers are still that high is because of lack of technologies used in the less costly vehicle. As this period is of digitization, everything is being digitized. But still we don't have proper technology to reduce the number of accident and to monitor or track the driver's activities. Force driver to drive the vehicle at safe or given speed limit by monitoring and alerting him. By monitoring his driving style the owner of transporter can judge the driver's driving and gives instruction according to data he/she will received by the system. The higher authority also monitors driver's habits and activities. This system gives assurance the safe delivery of good or passengers of bus also ensure that they are in good hands.

Keyword- Network Operating System, Distributed Database, Distributed Application

I. INTRODUCTION

As of now there are no sensors in less costly vehicles which can prevent the road accident except speedometer. These existing systems with speedometers only show the speed to the driver and do nothing to prevent accident due to over speed. To overcome these problems, a system has been proposed, so that it could reduce the accident. There are four sensors in this system. Namely alcohol sensor[1], smoke sensor[2], rpm counter[3] and a gps[4]. The name itself suggests there working. The alcohol sensor senses the alcohol present in the breath of the driver. If the alcohol sensor senses the alcohol then it will send a message to the server side indicating that the driver is drunk. When this message is received by the server side then the person present there will send a message to the nearest traffic police so that the driver could be stopped and the accident due to alcohol could be prevented. The smoke sensor is used for fire prevention in a vehicle. For example if there is a big transportation vehicle and if somehow fire gets ignited then the whole vehicle will be destroyed with the inside things. So to prevent the losses due to fire, there will be a smoke sensor. Rpm counter will count the speed of the vehicle and measure it with the prescribed range of speed of the vehicle. As the speed range of heavy vehicle/ articulated vehicle in Delhi is 20-40 kmph. But if the vehicle is speeding over the speed range then again there will be signal sent to the server side providing the global coordinates i.e. longitudes and latitudes of the vehicle. And from that server side a message will be sent to the nearest next traffic controller. And with this the accident due to over speeding will be prevented. And in all this the GPS will be providing the positional details of the vehicle to the server side whenever there will be a message transmitted by the vehicle to the server. By using smart dashboard travel and transport agencies can monitor or track driver's activities. This system consist of following features: - Monitor speed of vehicle, Force driver to drive on safe speed, Track driver's activities (Alcohol, smoke/fire, rest and sleep monitoring).

II. LITERATURE SURVEY

Before finalizing the proposed idea of a Distributed Application with network operating system smart cabinet, a literature survey was done to analyze the problems with the existing systems related to the same field. The designed proposed framework is inspired by three main major problems in the vehicles of India. These are unable to sense alcohol, smoke and over speeding of the driver and vehicle respectively. While driving on highways, drivers should not drive at the higher speed more than the permitted for their vehicle. However, accident keeps occurring due to speed violations since the drivers violate the speeds by ignoring their speedometers.

Rash Driving: Mr. Girish and his team member has designed a system to record and report speed of vehicle and worn a driver via SMS. In this system IR sensors are place on highways in fixed distance that is on 100m.When vehicle is passing through one point to another on highway. Distance is measured and display on the handy device provided to highway policeman. If speed is exceeded it indicated by the sound alarm [1]. Drink and Drive: Ankita mishra, Jyoti Solanki, Harshala Bakshi and Priyanka Saxena, designed a system that checks the pattern of driving and matches with actual pattern of driving. Speed of vehicle is measured by accelerometer and orientation of vehicle is measured by the orientation sensor. This information is calculated and matches with predefined pattern according to this we come to know about a driver is drunk or rush [2]. Intelligent car: S.P. Bhumkar1, V.V. Deotare, R.V.Babar introduced a sys-tem that monitor behavior activity of passengers and system. System scan and store various parameters of car like fuel, engine temperature, speed, steering position, eye blink and alcohol sensors in internal memory. In this system eye blink sensor counts no of eye blink, if no of eye blink is less then it indicate by sound alarm [3]. Vehicle with multitask management:- Rituraj Prince1 ,Ashwin Kumar B M , Shivasharanappa , Veeresh K , Geetha R designed system uses sweat sensors which is used to monitor a health condition of driver while driving ,reduces speed of driving and park vehicle to left side of road also alert message is send to authorized person. System contains parking sensor which alert driver about obstacle while parking [4]. Vehicle safety using CAN protocol:- Ashwini Puttannavar, Manjunath Hombal introduced system consist two ARM micro controllers are used those are connected to CAN protocol.MQ6 alcohol detector used to detect consumption of alcohol through breathing .if alcohol is detected , driver is not allow to drive vehicle and vehicle is stop [5]. Alcohol and pollution detection: MARANA SATISH KUMAR, M.KRANTHI KUMAR designed system consist of CO2 sensor and alcohol sensor. Alcohol sensor is used to avoid drink and drive. CO2 sensor indicate level of toxic as smoke through alarm. Alcohol sensor sense alcohol consumption via control unit and vehicle door is locked so vehicle engine is not ignited [6]. Alcohol detection and prevention: Vijay Savania, Hardik Agravata and Dhrumil Patela introduced system for accident prevention through alcohol detection. In this system alcohol sensor sense consumption of alcohol if alcohol is detected vehicle is stop automatically and accident causing through alcohol are prevented [7]. Fuzzy based model: M.K.MISHRA, S.Mohanraj, T.Yazhini, K.Vijayasri, R.Gomathi designed system contains alcohol sensor to detect breath analyzer examines the breath pattern of person and test alcohol content in person's blood. It also uses eye blink sensor which is used to sense consciousness and indicated by sound alarm [8].Drowsy driver sleeping device: Rajasekar .R, Vivek Bharat Pattni, S. Vanangamudi introduced system to reduce the no of accidents from sleep driving. Temperature sensor is used to indicate any are inside it senses and stop vehicle alert through beeper device [11].Over speed detection: Monika Jain Praveen Kumar ,Priya Singh, Chhavi Narayan Arora,Ankita Sharma introduced system to reduce accidents due to speed violation. It uses IR transmitter and receiver. The traffic police man is provided with seven segment display with fixed speed limit, which calculate speed of vehicle when passes form one set point to another [12].

II. PROPOSED SYSTEM

Circuit and GPS are mounted at client side that means in cabinet. Circuit contain two sensors first one is alcohol and second one is for smoke detection. To get speed of vehicle we are going to design one more mini circuit that conation one motor which is connected to drive shaft via a belt as

per specific rotation of tier we will calculate the speed and increase the count of counter with the help of mini circuit and the whole circuit termed as RPM Counter. The input of circuit is active sensor's value. Server held the application program and internet connection. Application program need validation only authorized person can access the application designed to integrate with vehicle's dashboard, it will track all activities of driver and that and send it to monitoring server. Application program is used to receive input from client. The input of server contain Time, Longitude, Latitude, Number of satellite seen, Altitude, Active sensor's value. If any of sensor is active that means detect alcohol or smoke then microcontroller sort out which sensor is active, GPS locate longitude latitude and other attribute like time etc. And GPS is used to send it. As soon as server's application program get input from circuit it map the coordinates and one siren is start on client side then it's up to the higher authority they can take appropriate action according to activity.
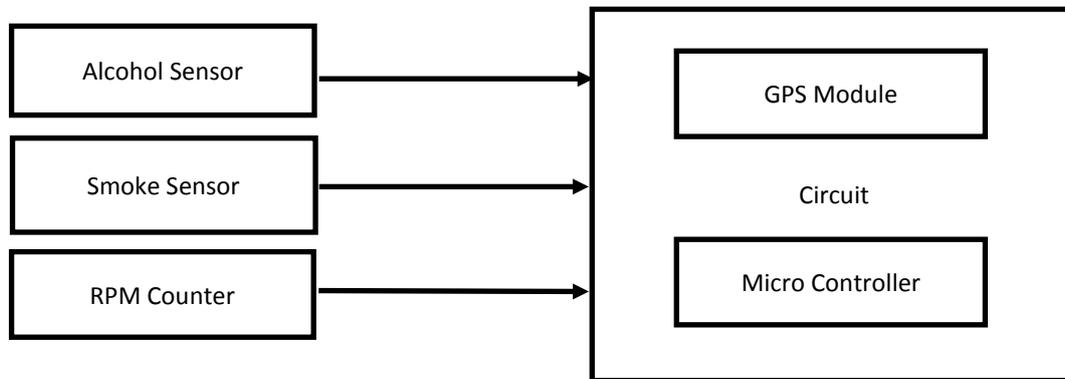

Figure 1: Client Architecture

Client circuit contain some sensors like Alcohol Detection Sensor and Smoke Sensor. RPM counter contain one clock wise motor which is connected to drive shaft belt and record the RPM of tiers and store it in counter.
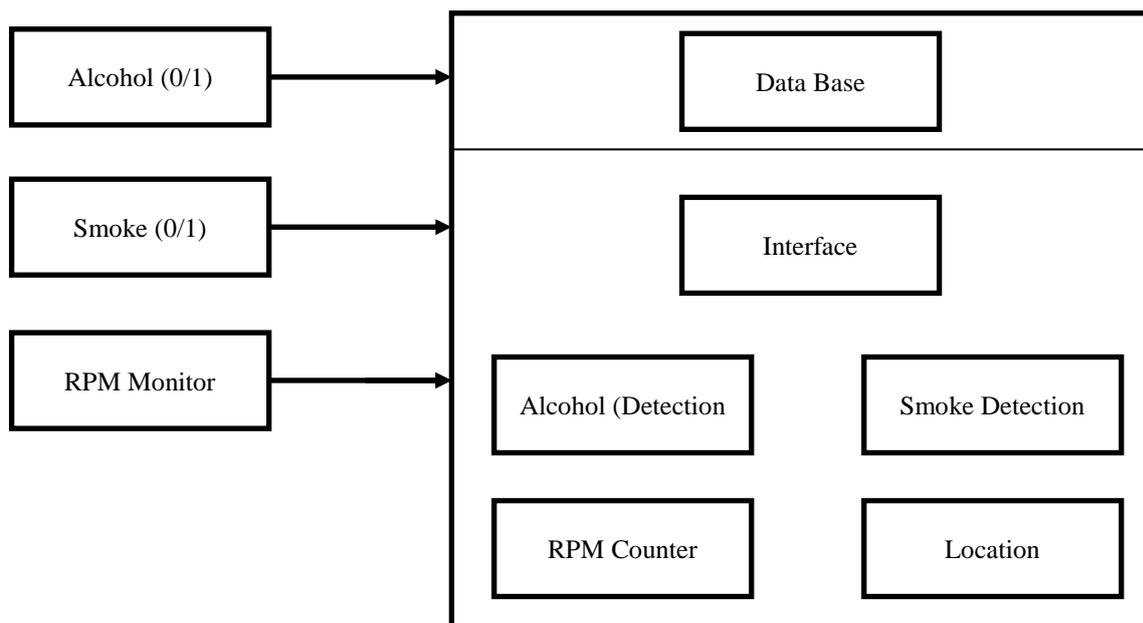

Figure 2: Server Architecture

III. CONCLUSION

In this paper, we conclude that there are several causes of road accidents of which some most recurring causes are drink and drive and rash driving. These issues are the main reasons of road

accidents and therefore we need some mechanisms to prevent them. There are a few sensors included nowadays in vehicles of which most of them are only mechanical use. So through this, the normal less costly vehicles can also have the important mechanisms through which accidents can be prevented.

REFERENCES

[1] As Mr. P. Girish, Mr. M. Chinmaya, Ms. P. Shifali, Ms. D. Pooja,"Relative Wireless Rash Driving Detection System:",Int. Journal of Engineering Technology in Computer science Electronics (IJETCSE),2015,vol.14,issue 2,ISSN: 0976-1353.

[2] Ankita Mishra, Jyoti Solanki, Harshala Bakshi, Priyanka Saxena, Pranav Paran-jpe,"Design of RF based speed control system for vehicles",International Journal of Ad-vanced Research in Computer and Communication Engineering,2012,vol.1,issue 8.

[3] As Prof. P.H. Kulkarni, Ms. Ravina Wafgaonkar, Ms. Shurti S. Gujarathi, Mr. Gaurav Ahirrao,"Alcohol Detection and Automatic Drunken Drive Avoiding System:",Int. Journal of Engineering Research and Application,2014,vol.4,issue 4,pp.21-24.

[4] Report on "Road Accidents in India 2011" by ministry of Road Transport and Highway Transport Research Wings New Delhi" in June 2012.

[5] Z. Zhu and Q. Ji, "Real Time and Non-intrusive Driver Fatigue Monitoring", in The 7th International IEEE Conference on Intelligent Transportation System,2004, pp. 657-662

[6] As A. B. Albu, B. Widsten, T. Wang, J. Lan and I. Mah, "A Computer Vision-Based System for Real-Time Detection of Sleep Onset in Fatigued Drivers","IEEE Intelligent Vehicle Symposium,2008, pp.25-30.

[7] as J. Lee, J. Li, L. Liu and C. Chen, "A Novel Driving Pattern Recognition and Status Monitoring System","First Paci_c rim symposium, PSIVT, 2006, pp.504-512.

[8] As A.V. Desai and M.A. Haque, "Vigilance Monitoring for Operator Safety: A Simulation Study on Highway Driving", Journal of Safety research, 2006, vol.37, issue 2, pp. 139-147.

[9] "Saab Alco Key Helps Drivers", http://www.saabnet.comltsnlpress/061013a.html.

[10] U.S. NHTSA, "Tra_c Safety", http://www.nrd.nhtsa.dot.govlPubs/811172.pdf

[11] As Jin Teng, Xiaole Bai, Zhoahui Shenj, Dong Xuan, "Mobile Phone Based Drunk Driving Detection", Digital Object Identi_er 10.41 OBIICST. PERVAS IVEHEALTH, http://dx.doi.org/10.41OBIICST.PERVASIVEHEALTH TH2010. 8901, 2010,

[12] As M.K Telaprolu, V.V. Sarma, E.K. Ratankanth, S.N. Rao, "Vehicular Electronics and Safety (ICVES), IEEE International Conference Pune, 2009.