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Digital Smart Lock and Anti-Accident System

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***Abstract* – Now a days vehicles accidents in more number becomes big issue. As we know,68% accidents are happened due to drinking and 60% accidents are happened because of drivers drowsiness. So we proposed to design a system which is used as security and anti-accident. The smart security made up of password with photo identification. Alcohol sensor is used to sense and verify whether the driver had drunk or not . If the driver drunk, then system will block for 12 hour (adjustable) and vehicle will not start for 12 hour .If the driver had not drunk, then system will start vehicle .Display is used to show all indication. In the night and daytime to avoid or to prevent from accident because of drowsiness mode. We need to use eye blink sensor (eye tracker).For this image processing have to do by adjusting eye blink frequency approximately 1 blink per one sec(adjustable).If the eye blink frequency reduces system will indicate to driver through vibrator with buzzer circuit as wake up indication. The MQ2 sensor is used for pollution emission application and float level sensor is used for indicating level of fuel in vehicle.**

***Keywords* – Driver Drowsiness Detection, Transportation Safety, Hybrid Measures, Driver Fatigue, Artificial Intelligence Techniques, Sensor Fusion**.

I. INTRODUCTION

Driver fatigue is a significant factor in a large number of vehicle accidents. Recent statistic estimate that annually 1,200 deaths and 76,000 injuries can be attributed to fatigue related crashes .The development of technologies for detecting or preventing drowsiness at the wheel is a major challenge in the field of accident avoidance systems. Because of the hazard that drowsiness presents on the road, methods need to be developed for counteracting its affects. By monitoring the eyes, it is believed that the symptoms of driver fatigue can be detected early enough to avoid a car accident. Detection of fatigue involves a sequence of images of a face, and the observation of eye movements and blink patterns. The analysis of face images is a popular research area with applications such as face recognition, virtual tools, and human identification security systems.

This project is focused on the localization of the eyes, which involves looking at the entire image of the face, and determining the position of the eyes by a self-developed image-processing algorithm. Once the position of the eyes

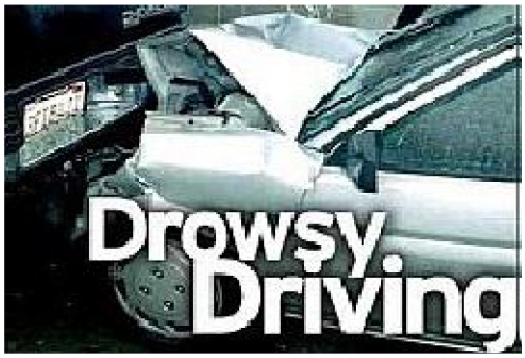


Fig.1. Drowsy Driving

is located, the system is designed to determine whether the eyes are opened or closed, and detect fatigue.In today's world, every human being uses a vehicle. It is often considered as luxury but it has now become a necessity in a common man's life. People are very much concerned about their safety and also the vehicles safety be it in case of theft or in case of an accident. Vehicles are being used for many means like for transporting people, goods and also family trips. During long driving hours the driver gets tired and the person starts feeling sleepy but still goes on driving for reaching the destination early. Due to this, the driver tends to exert himself by driving in non-safe conditions. When the person feels sleepy he or she still goes on driving in spite of the fact that it is very dangerous. He or she falls asleep and the vehicle is no more in control and collides with other vehicles on road leading to loss of many lives.

II. PROJECT OBJECTIVE

Drowsiness affects mental alertness, decreasing an individual's ability to operate a vehicle safely and increasing the risk of human error that could lead to fatalities and injuries. Furthermore, it has been shown to slow reaction time, decreases awareness, and impairs judgment. Long hours behind the wheel in monotonous driving environments make truck drivers particularly prone to drowsy-driving crashes. Successfully addressing the issue of driver drowsiness in the commercial motor vehicle industry is a formidable and multifaceted challenge. Operational requirements are diverse, and

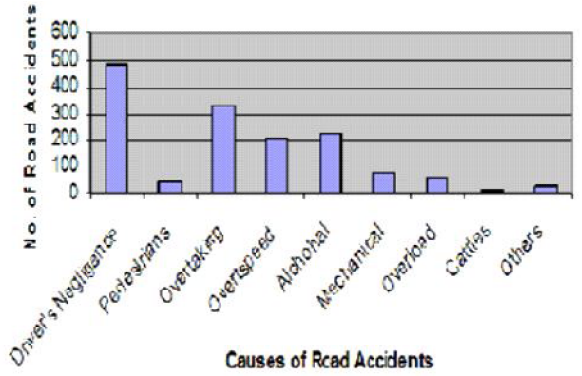


Fig.2. Causes of Road Accidents

factors such as work schedules, duty times, rest periods, recovery opportunities, and response to customer needs can vary widely. In addition, the interaction of the principal physiological factors that underlie the formation of sleepiness, namely the homeostatic drive for sleep and circadian rhythms, are complex. While these challenges preclude a single, simple solution to the problem, there is reason to believe that driver drowsiness can nevertheless be effectively managed, thus resulting in a significant reduction in related risk and improved safety. Addressing the need for a reduction in crashes related to driver drowsiness in transportation will require some innovative concepts and evolving methodologies.

In-vehicle technological approaches, both available and emerging, have great potential as relevant and effective tools to address fatigue. Within any comprehensive and effective fatigue management program, an on-board device that monitors driver state in real time may have real value as a safety net. Sleepy drivers exhibit certain observable behaviours, including eye gaze, eyelid movement, pupil movement, head movement, and facial expression.

III. Experimental Block Diagram

Power supply is used to provide 5V supply for the whole system. The combination of keypad and web camera can provide a strong security from theft. It stores images of authenticated person for recognition purpose. Alcohol sensor is used to sense and verify whether the driver is addicted or not. If the driver is addicted the system will block for 12 hour (adjustable) and car will not start for 12 hour It is used to control all the operation of system. In the night and day time to prevent from accident because of driver's drowsiness. We need to use Eye blink sensor (eye tracker).

Fuel level sensor DUT-E is designed for precision fuel level measurement in all kinds of vehicles tanks, also in tanks of fixed installations Gas sensor (MQ2)They are used in gas leakage detecting equipments in family and industry, are suitable for detecting of LPG, i-butane, propane, methane ,alcohol, Hydrogen, smoke.

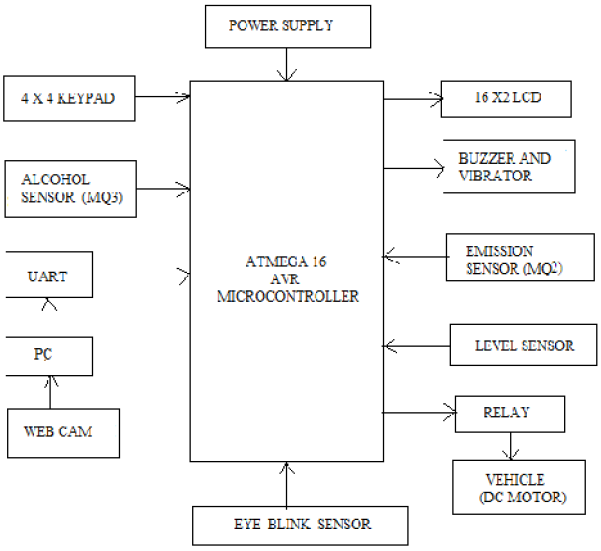
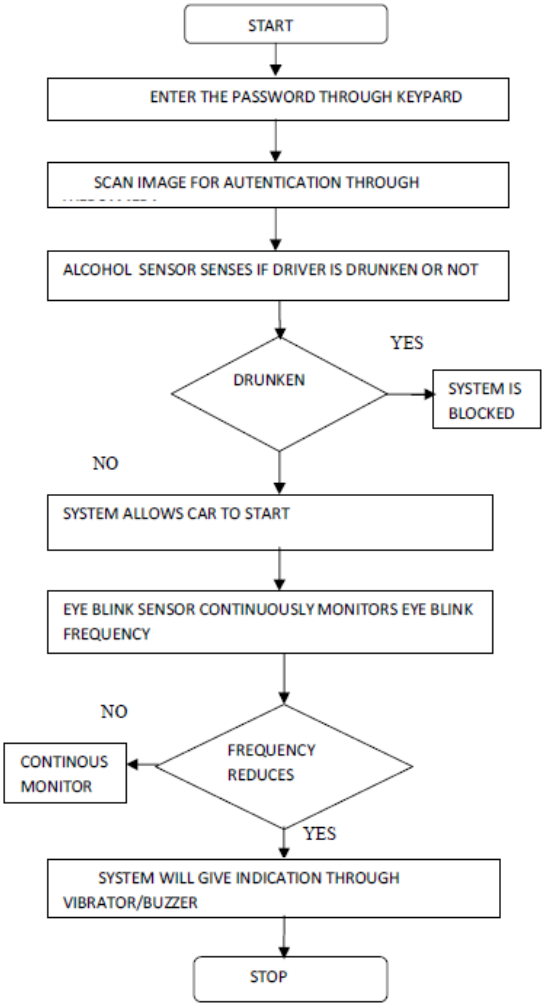


Fig.3. Block Diagram of System

V. Flowchart



VI. RESULT

The aim of this project is to develop a prototype drowsiness detection system. The focus will be placed on designing a system that will accurately monitor the open or closed state of the driver's eyes in real-time.Safe Drive Systems is a leading developer and distributor of advanced, active auto safety technologies. Safe Drive Systems specializes in adapting the same types of advanced safety systems offered in luxury cars for all vehicle owners. Our team of engineers is dedicated to providing luxury-quality, reliable collision prevention technology that is affordable and easy to use.This model is just for the safety of all human beings. The model prevents the accident from happening and thus saves a lot of money and reduces the risk

VII. CONCLUSION

Save lives through collision prevention Integrate highly effective and reliable anti-collision warning systems, utilizing the best sensors available, with proven effectiveness on the road. Raise public awareness of anti-collision warning systems. Car accidents can be prevented. Develop affordable pricing packages. Provide a professional and friendly installation service. Participate in the ongoing battle to reduce car accidents and the resulting fatalities, injuries.

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