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A Driver Sleep Detection and Alarming System Based on Sensors or Monitoring Technology

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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 loses control when he falls asleep which leads to an 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 an important cause for most accidents related to the vehicle's crashes. Driver fatigue resulting from sleep deprivation or sleep disorders is an important factor in the increasing number of accidents on today's roads. A drowsy driver warning system can form the basis of the system to possibly reduce the accidents related to driver's drowsiness. This project can generate a model which can prevent such accidents. To prevent this, we outlined a very simple and economical system which deals with this issue. In this project, when a driver falls asleep, an alarm is raised to warn the driver and the alarm continues until the driver wakes up so that the driver gets ready to steady the vehicle he drives. Thus, we can control major accidents.

I. INTRODUCTION

Sleep or drowsiness was a contributing factor in 3.9% of all accidents, as reported by drivers who were at fault for the accident. This factor was strongly overrepresented in night-time accidents (18.6%), in running off the road accidents (8.3%), accidents after driving more than 150 km on one trip (8.1%), and personal injury accidents (7.3%). Accidents in the machinery occur due to negligence of employees who work at night shift in companies. Tesla has introduced auto pilot system for accident due to sleeping in car but we need a solution for accident due sleeping in all areas. A device needs to be developed to avoid accident in the roads as well as in the companies. So we produced a spectacle with sensor to detect sleeping when working or driving. This spectacle is low cost and it protects our eyes from dust and Rechargeable. The goal of this project is to develop a system that can accurately detect sleepy driving and make alarms accordingly, which aims to prevent the drivers from drowsy driving and create a safer driving environment.

II. EXISTING METHOD

One of the major problems in dealing with crashes and road safety is the difficulty in detecting driver drowsiness. Drowsiness is different from other road safety problems that can emanate from changes in the driver's functional state, such as alcohol or drugs, which can be detected comparatively readily by measuring their content in the body. Drowsiness measurement is a significant problem as there are few direct measures, with most measures being of the outcomes of drowsiness rather than of drowsiness itself. However, it is probable that one very important aspect of fatigue, namely drowsiness, is related to some physiological measures such as eye blink behavior, brain wave changes (EEG measures) and face muscle changes (Johns et al., 2003, Wierwille and Muto, 1981).

III. PROPOSED SYSTEM

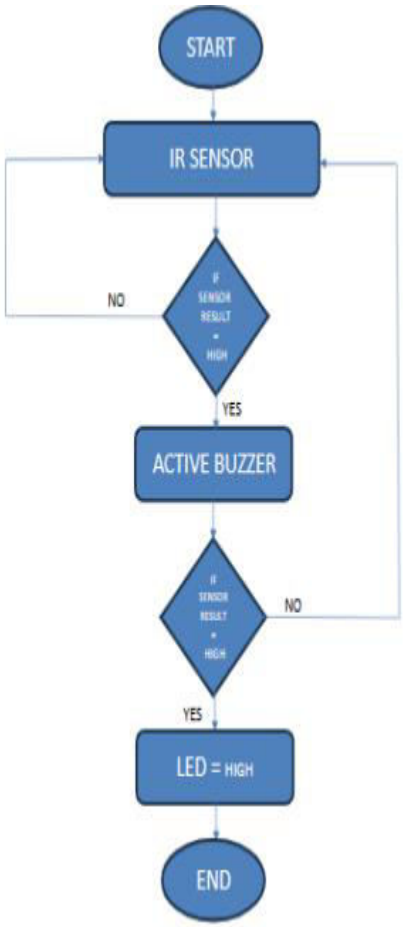
A review of commercial and experimental driver drowsiness detection systems presently available was undertaken. Since most of the devices were based on computer vision techniques, most of the investigation is related to these topics. The majority of systems used eye tracking and blink related methods. Most eye tracking devices are based on computer vision imaging systems, yet some are based on other means of detection. For instance, one technique is based on fixed

items such as a tiny mirror engraved on a head mounted unit; the reflections of eye images from these mirrors serve as detectable points for a tracker CCD camera or even a single photo detector, (Beach et al., 1998). Other items such as induction coils have been embedded within contact lenses to give a signal when the user is exposed to a high electromagnetic field. Another method detects the changes in the electrical potential of the skin around the eye (described in section 2.5.3), since an electrostatic field rotates along with the eye.

IV. BLOCK DIAGRAM

Use case modeling and description is a technique used to capture and organize the requirements for a system. In the context of a driver anti-sleep alarm system project, use case modeling could be used to identify the different ways in which the system might

be used and to specify the steps and interactions involved in each use case. A use case is a description of a specific scenario or interaction between a user (in this case, the driver) and the system. Each use case typically includes a set of steps, known as "use case steps," that describe the interactions between the user and the system.



V. EXPRIMENTAL RESULT

VII. FUTURE SCOPE

One area for further development is in the accuracy and reliability of the system. Currently, many anti-sleep alarm systems rely on indicators such as eye movement and head position to detect drowsiness, but these indicators are not always accurate and can be affected by factors such as eyeglasses or headwear. Developing more accurate and reliable methods for detecting drowsiness, such as using brainwave or physiological data, could improve the effectiveness of the system.

Another area for further development is in the user interface and usability of the system. Many anti-sleep alarm systems require drivers to manually activate the alarm or to manually reset it when they become alert again. Developing more intuitive and user-friendly interfaces, such as voice-activated systems or systems that automatically adjust the alarm frequency based on the driver's level of alertness, could make the system more convenient and easier to use for drivers.

VIII.CONCLUSION

An anti-sleep alarm system for drivers is a technology that has the potential to improve road safety and reduce the number of accidents and fatalities on the roads. By alerting drivers when they are becoming drowsy, the system can help to keep them awake and alert at the wheel, reducing the risk of accidents due to fatigue.

There are several potential ethical considerations that should be considered when developing and implementing an anti-sleep alarm system for drivers, including the potential impact on individual privacy, the potential for the system to create an expectation that drivers should always be alert and awake while driving, and the potential for the system to be used as a tool for monitoring and controlling the behavior of drivers.

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