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ijirset@gmail.com



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Smart AI Alert System for Vehicle Drivers

Jagruti Ramsing Pardeshi¹, Nikita Rajendra Baviskar², Himanshu Gurudatta Pandhare³,
Rahul Dilip Bhoi⁴

U.G. Student, Department of Computer Engineering, SSBT's College of Engineering and Technology, Bambhori,
Jalgaon, India¹

U.G. Student, Department of Computer Engineering, SSBT's College of Engineering and Technology, Bambhori,
Jalgaon, India²

U.G. Student, Department of Computer Engineering, SSBT's College of Engineering and Technology, Bambhori,
Jalgaon, India³

U.G. Student, Department of Computer Engineering, SSBT's College of Engineering and Technology, Bambhori,
Jalgaon, India⁴

ABSTRACT:-Drowsiness and fatigue are one of the main causes leading to road accidents. According to the expert's studies, around one quarter of all serious motorway accidents are attributable to sleepy drivers in need of a rest, meaning that drowsiness causes more road accidents than drink-driving. They can be prevented by taking effort to get enough sleep before driving, drink tea or energy drink, or have a rest when the signs of drowsiness occur. The popular drowsiness detection method uses complicated methods. And this methods has high accuracy for its measurement but it need to use contact measurement and it has many limitations on driver fatigue and drowsiness monitor. Thus, it is not comfortable to be used in real time driving. This project proposes a way to detect the drowsiness signs among drivers by measuring the eye closing rate and yawning. We have develop a software which detect drowsiness of any human and issue a timely warning in form of audio and send email containing host device name, IP address, drivers real time drowsy image and date-time. The system monitor the driver's face using a camera and by deploying an algorithm we detect symptoms of driver fatigue early enough to avoid the person from sleeping. So, this project will be helpful in detecting driver drowsiness in advance

KEYWORDS:- Computer vision; big data analysis; sensors

I. INTRODUCTION

In day-to-day life, driving is an everyday activity and with time, the number of vehicles is continued to grow leading to increasing road accidents. These accidents produce a state of worry to the individuals over the globe, influence the major life component which is the human, and wear out the material resources. We need to identify issues that lead tottraffic accidents, one of the core issues that lead to the traffic accidents incident is driver's drowsiness. Thus, it is necessary to track drowsiness detection and alert the driver at the same time to prevent accidents. Such systems are present only in a few high-end cars which are very expensive. While on the other hand our system is cheap, efficient and can be easily used by each and every person.

II. RELATED WORK

A large amount of research is being carried out in the domain of accident avoidance and accident alarms by a large number of researchers and practitioners. In order to avoid accidents, many approaches are utilized to enhance safety. For ease of reference, the literature on accident detection and avoidance is separated into three approaches: stand-alone, cooperative, and hybrid. Stand-alone approaches use sensors, such as radar and light detection and ranging (LiDAR), for accident avoidance and detection, whereas cooperative approaches rely on V2X technology, and hybrid approaches combine the two methods.

The work in this paper is divided in two stages. 1) Face Detection 2)Final Result. Mental Health Detection, What if there will be insurance to one reach this destination safely. Unfortunately, this isnot a case every year the lives of

approximately 1.35 million people are cut short as a result of a road traffic crash. Between 20 and 50 million more people suffer non-fatal injuries, with many incurring a disability as a result of their injury. Road traffic injuries cause considerable economic losses to individuals, their families, and to nations as a whole. Road accidents cost most countries 3% of their gross domestic product. As vehicles on the road are increasing day by day, the damage caused by road accidents is also increasing with the time. The majority of accidents happen due to the drowsiness of the driver. So, to prevent these accidents one solution would be to build a system which will alert the driver when he feels sleepy.

III. METHODOLOGY

The process of losing alertness at the wheel due to fatigue can be characterized by a gradual progression of facial features: Changes relating to the direction of the gaze of the driver, Changes in the position of the eyelids or the size of the eyes, Rapid changes in rate of blinking and orientation and position of the head. The new system is drowsiness detection system for automobile. Driver drowsiness will be determined from several symptoms that manifest in drowsy driver's face. Through analysis of the eye states, the system will be able to tell a drowsy driver from a normal driver. A video stream will be continuously obtained from the driver's faces and feed into a microcontroller for processing. Classifiers will then be used to classify the state of the driver's eye. If a drowsy driver is detected an alarm will be raised, until the system notices the driver is alert.

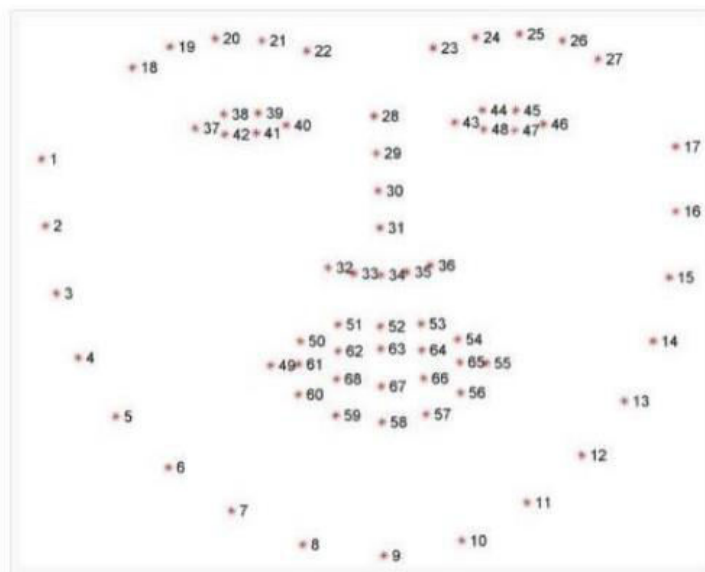
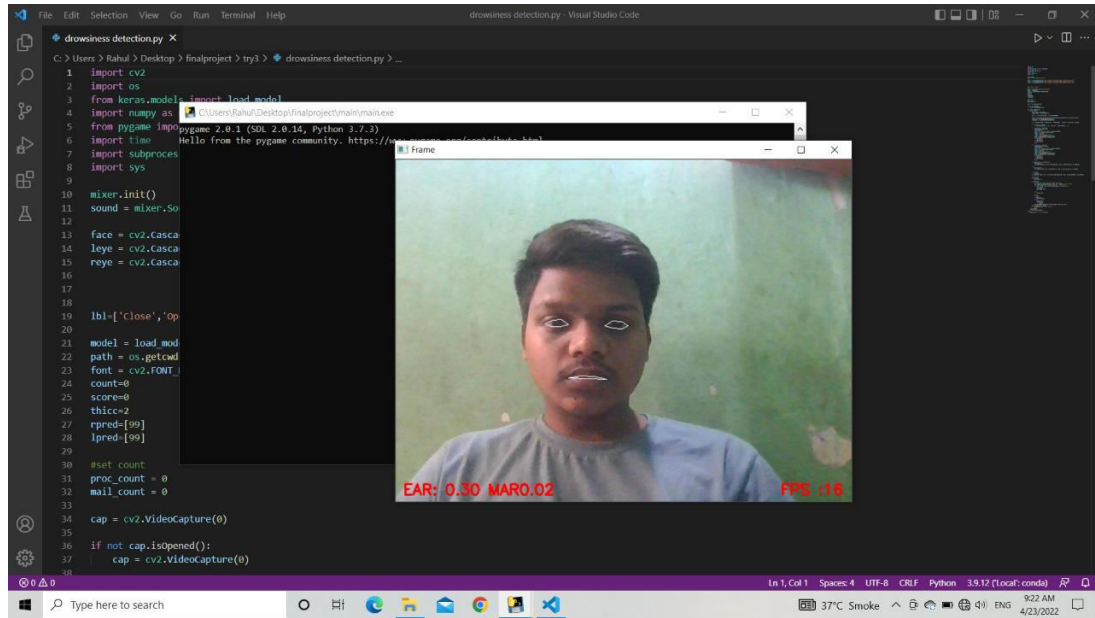


Figure-1: 68 Facial Landmark Model

IV. EXPERIMENTAL RESULTS

Figures shows the results of our project . Figs. (a) shows the facial detection



V. CONCLUSION

This research provides a robust method for detecting drowsiness of drivers and collision impact (severity) system in the present time. This method generally combines two different systems in one integrated system. But, the existing techniques are based on psychological or vehicle-based approach to detect drowsiness of drivers and also, the severity of collision is separately measured, but such technique is highly intruding as well as fully turns on the physical environment. So, the proposed system is used to construct a no intruding technique for measuring drowsiness of the driver with severity of collision due to braking or mishap.

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