



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## Driver Drowsiness Alarm System

Mavale Ravindra, Bhosale Abhishek, Bhosale Aksha, Bhosale Dnyaneshwr, Prof. Priyanka Halle

Department Of Computer Engineering,

SKN Sinhgad Institute of Technology & Science, Lonavala Pune.-410401

**Abstract:** A Drowsy Driver Detection System has been developed, employing a non-intrusive machine Vision primarily based ideas. The system uses a tiny low monochrome security camera that points Directly towards the driver's face and monitors the driver's eyes so as to notice fatigue. In Such a case once fatigue is detected, a alert is issued to alert the driving force. This Report describes the way to realize the eyes, and additionally the way to confirm if the eyes area unit open or Closed. The algorithmic rule developed is exclusive to any presently printed papers, that was a Primary objective of the project. The system deals with victimisation data obtained for the Binary version of the image to search out the sides of the face, that narrows the realm of wherever the Eyes might exist. Once the face space is found, the eyes area unit found by computing the horizontal Averages

within the space. Taking under consideration the data that eye regions within the face gift nice intensity changes, the eyes area unit settled by finding the many intensity changes within the face. Once the eyes area unit settled, activity the distances between the intensity changes within the eye space confirm whether or not the eyes area unit open or closed. an outsized distance corresponds to Eye closure. If the eyes area unit found closed for five consecutive frames, the system attracts the Conclusion that the driving force is falling asleep and problems a alert. The system is additionally ready to notice once the eyes can't be found, and works below affordable lighting Conditions.

**Keywords:** Drowsy detection, Face detection, Alcohol detection, Location Tracking.

The aim of this project is to develop a epitome temporary state detection system. the main target are going to be placed on planning a system that may accurately monitor the open or closed state of the driver's eyes in period. By observance the eyes, it's believed that the symptoms of driver fatigue may be detected early enough to avoid a automobile accident. Detection of fatigue involves a sequence of pictures of a face, and also the observation of eye movements and blink patterns.

The analysis of face pictures could be a well-liked analysis space with applications

### I. INTRODUCTION :

Driver fatigue could be a vital think about an oversized variety of car accidents. Recent statistics estimate that annually one,200 deaths and seventy six,000 injuries may be attributed to fatigue connected crashes. the event of technologies for sleuthing or preventing temporary state at the wheel could be a major challenge within the field of accident turning away systems. owing to the hazard that temporary state presents on the road, strategies ought to be developed for counteracting its affects.

like face recognition, virtual tools, and human identification security systems. This project is targeted on the localization of the eyes, that involves staring at the complete image of the face, and deciding the position of the eyes by a self developed image- processing algorithmic rule. Once the position of the eyes is found, the system is meant to work out whether or not the eyes area unit opened or closed, and find fatigue.

like changes in lightweight, shadows, reflections, etc.

## 2. Paper Name: A Drowsy Driver Detection System For Heavy Vehicles

Author: Richard Grace, Vicky E. Byrne, Vicky E. Byrne, Jean-Michel Legrand

Description: Driver drowsiness/fatigue is a very important reason for combination-unit truck crashes. Drowsy driver detection ways will kind the premise of a system to probably cut back accidents associated with drowsy driving. Authors report on efforts performed at the Carnegie financier Driving center to develop such in vehicle driver observation systems. business car truck drivers were studied in actual fleet operations. The drivers operated vehicles that were equipped to live vehicle performance and driver diseased person physiological information. supported this work, 2 temporary state detection ways square measure being thought-about. the primary could be a video-based system that measures PERCLOS, a scientifically supported live of temporary state related to slow eye closure. The second detection technique is predicated on a model to estimate PERCLOS supported vehicle performance information. A non-parametric (neural network) model was accustomed estimate PERCLOS mistreatment measures related to lane keeping, wheel movements and lateral acceleration of the vehicle.

## 3. Paper Name: Face And Eye Tracking Algorithm Based On Digital Image Processing

## II. LITERATURE SURVEY:

### 1. Paper Name: Eye-Tracking for detection of Driver Fatigue

Author: Martin Eriksson, Nikolaos P. Papanikolopoulos

Description: In this paper, author describe a system that locates and tracks the eyes of a driver. the aim of such a system is to perform detection of driver fatigue. By mounting alittle camera within the automotive, author will monitor the face of the motive force and appearance for eye- movements that indicate that the motive force isn't any longer in condition to drive. In such a case, a signal ought to be issued. This paper describes a way to realize and track the eyes. Authors conjointly describe a way that may verify if the eyes area unit open or closed. the first criterion for the winning implementation of this technique is that it should be extremely nonintrusive. The system ought to begin once the ignition is turned on while not having the motive force initiate the system. Nor ought to the motive force be to blame for providing any feedback to the system. The system should conjointly operate despite the feel and therefore the color of the face. It should even be able to handle numerous conditions,

Author: Claudio A. Perez, Alvaro Palma, Carlos A. Holzmann And Christian Pera

Description: A non-invasive interface to trace eye position mistreatment digital image process techniques is beneath development. data regarding head and eye position is obtained from digital pictures. the target is to develop Associate in Nursing interface to sight eye position based mostly solely on digital image process algorithms, freed from electrodes or alternative electronic devices. during this paper Authors propose a way for eye pursuit engineered into 5 stages. These embrace, coarse and fine face detection, finding the eyes region of most likelihood, map of the pupil/iris location and pupil/iris detection. mistreatment frontal face pictures obtained from a information, the likelihood maps for the eyes region were engineered. solely grey levels ar thought-about for this computation (8 bits). The algorithms for face and eye detection were assessed on 102 pictures from the Purdue information and on 897 pictures from a video sequence.

#### 4. Paper Name: Monitoring Driver Fatigue Using Facial Analysis Techniques

Author: Singh, Sarbjit and Papanikolopoulos

Description: during this paper, author describe a non-intrusive vision based mostly system for the detection of driver fatigue. The system uses a color video camera that points directly towards the driver's face and monitors the driver's eyes so as to notice micro-sleeps (short periods of sleep). The system deals with skin-color data so as to

look for the face within the input house. when segmenting the pixels with skin like color, author perform blob process so as to see the precise position of the face. Author cut back the search house by analyzing the horizontal gradient map of the face, taking under consideration the data that eye regions within the face gift a good amendment within the horizontal intensity gradient. so as to seek out and track the situation of the pupil, here they use grey scale model matching, and additionally use an equivalent pattern recognition technique to see whether or not the attention is open or closed. If the eyes stay closed for Associate in Nursing abnormal amount of your time (5-6 sec), the system attracts the conclusion that the person is falling asleep and problems a signaling.

#### 5. Paper Name: Development Of Drowsiness Detection System

Author: Ueno H., Kanda, M. and Tsukino

Description: The development of technologies for preventing sleepiness at the wheel could be a major challenge within the field of accident rejection systems. Preventing sleepiness throughout driving needs a way for accurately police investigation a decline in driver alertness and a way for alerting and refreshing the driving force. As a detection methodology, the authors have developed a system that uses image process technology to research pictures of the driver's face infatuated a video camera. Diminished alertness is detected on the premise of the degree to that the driver's eyes area unit open or closed.

This detection system provides a noncontact technique for judgment varied levels of driver alertness and facilitates early detection of a decline in alertness throughout driving.

### III. EXISTING SYSTEM:

Possible techniques for police work somnolence in drivers is usually divided into the subsequent categories: sensing of physiological characteristics, sensing of driver operation, sensing of auto response, observation the response of driver. Among these strategies, the techniques that are best supported accuracy are those supported human physiological phenomena. This method is enforced in 2 ways: menstruation changes in physiological signals, like brain waves, heart rate, and eye blinking; and menstruation physical changes like lax posture, leaning of the driver's head and also the open/closed states of the eyes. The primary technique, whereas most correct, isn't realistic, since sensing electrodes would ought to be hooked up directly onto the driver's body, and therefore be annoying and distracting to the motive force. Additionally, while driving would lead to perspiration on the sensors, decreasing their ability to watch accurately. The second technique is well matched for world driving conditions since it is non-intrusive by victimization optical sensors of video cameras to notice changes

#### DISADVANTAGES:

- It is not realistic.
- The sensing electrodes attached directly onto the driver's body, and

hence be annoying and distracting to the driver.

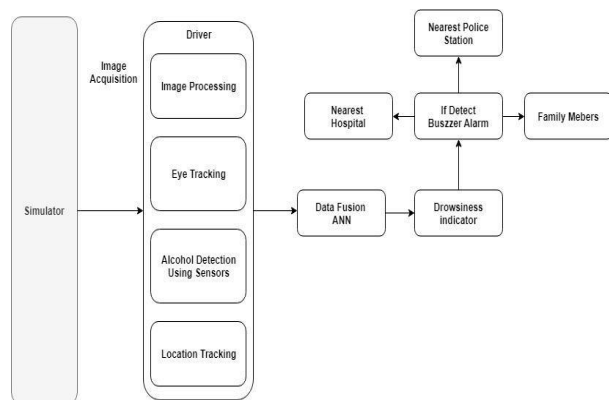
### PROPOSED SYSTEM:

Since this style may be a model, a controlled lighting space was originated for testing. Low close lightweight (ambient light) is additionally necessary, since the sole important lightweight illuminating the face ought to come back from the drowsy driver system. If there's loads of close lightweight, the impact of the sunshine supply diminishes. The testing space enclosed a black background, and low close lightweight (in this case, the ceiling lightweight was physically high, and thence had low illumination). This setup is somewhat realistic since within a vehicle, there's no direct lightweight, and therefore the background is fairly uniform. The drowsy driver detection system consists of a CCD camera that takes pictures of the driver's face. The camera is placed before of the driving force, roughly thirty cm faraway from the face. The camera should be positioned specified the subsequent criteria square measure met: The driver's face takes up the bulk of the image. The driver's face is roughly within the centre of the image.

#### ADVANTAGES:

- Most Efficient
- Distraction of the driver not possible because we don't use sensing electrodes.

## V. SYSTEM ARCHITECTURE:



## VI. SYSTEM REQUIREMENTS:

### Software Requirements:

- Operating system: Windows OS7,8,10
- Language: Java, Python
- Professional Environment: Eclipse, Anaconda
- Database: MySql, Xamp Server

### Hardware Requirements:

- Camera: CCD camera
- System Type: 64-bit or 32-bit
- Processor: Intel core i5, 2 GHz
- Random Access Memory (RAM): 8 GB
- Storage Capacity: 1 TB
- IO device: mouse and keyboard
- Device Name: Laptop or Computer

### CONCLUSION:

Here we tend to conclude that data regarding the top and eyes position is obtained through numerous self-developed image process algorithms find correct position of eyes.

throughout the observance, the system is ready to make your mind up if the eyes square measure opened or closed. once the eyes are closed for too long, a signal is issued. additionally, throughout observance, the system is ready to mechanically find any eye localizing error which may have occurred. just in case of this kind of error, the system is ready to recover and properly localize the eyes. we tend to use sensors that sense the driving force drunk or not. Our System additionally find the alcohol and placement chase. If any emergency occur then user location mechanically share to his relations further as nearest station and hospital.

### REFERENCES:

- [1] Davies, E.R. "Machine Vision: theory, algorithms, and practicalities", *Academic Press*: San Diego, 1997.
- [2] Dirt Cheap Frame Grabber (DCFG) documentation, file dcfg.tar.z available from <http://cis.nmclites.edu/ftp/electronics/cookbook/video/>
- [3] Eriksson, M and Papanikolopoulos, N.P. "Eye-tracking for Detection of Driver Fatigue", *IEEE Intelligent Transport System Proceedings* (1997), pp 314-319.
- [4] Gonzalez, Rafel C. and Woods, Richard E. "Digital Image Processing", *PrenticeHall*: Upper Saddle River, N.J., 2002.
- [5] Grace R., et al. "A Drowsy Driver Detection System for Heavy Vehicles", *Digital Avionic Systems Conference, Proceedings, 17th DASC. The AIAA/IEEE/SAE, I36/1-I36/8* (1998) vol. 2.
- [6] Perez, Claudio A. et al. "Face and Eye Tracking Algorithm Based on Digital Image

Processing”, *IEEE System, Man and Cybernetics 2001 Conference*, vol. 2 (2001),pp1178-1188.

[7] Singh, Sarbjit and Papanikolopoulos, N.P. “Monitoring Driver Fatigue Using Facial Analysis Techniques”, *IEEE Intelligent Transport System Proceedings* (1999), pp 314-318.

[8] Ueno H., Kanda, M. and Tsukino, M. “Development of Drowsiness Detection System”,*IEEE Vehicle Navigation and Information Systems ConferenceProceedings*, (1994), ppA1-3,15-20.

[9] Weirwille, W.W. (1994). “Overview of Research on Driver Drowsiness Definition and Driver Drowsiness Detection,” *14th International Technical Conference on Enhanced Safety of Vehicles*, pp 23-26.

