A Review Paper on Apprehension for the Poses of Eye State &Head State for Non-Alert Driver

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Abstract

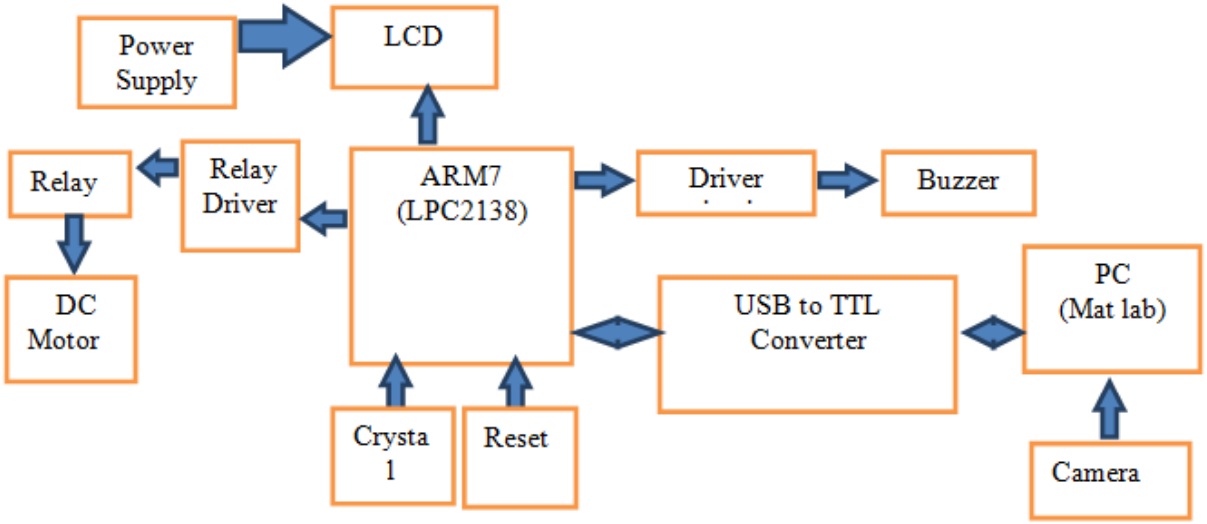
A driving is the basic need and activity in any persons common life, because of a various types of lifestyle activity will be consider in human life, so as they concern in our day to day life, we have very fast life and our need too , so at any condition due to of some work we need to reach place that we want but due to of that our body is not handle a situation and body resist all that things and it only want rest so if we drive a car or any vehicle when body want rest so then some chances of accidental issue is come to see and this chances called as non-alertness about drive , according to the poll is conducted by various NSF I.e. National Sleep Foundation and then it is concluded that various accidental issue is cause due to of sleepiness problem of non-alert ness of driver IDAS (Intelligent Driver Assistance Systems) is made in application for analysis of the eye state & head pose for the driver alertness. Several of the patterns reply based on either related on eye closure as well as head nodding angles with the continuous variation to determine the parameter of non-alerting the driver who drive the car for drowsiness or distraction level. So then proposed technique uses visual analysis of various features such as eye index parameter, pupil activity parameter, and HP parameter for extract critical information related to non-alertness of a vehicle driver. EI is used to find out various positions of eye. An as soon as the HP finds the amount of the driver's head are toward the various movements for count out the number of segments in video that concern a large number of deviation of three basic Euler angles of HP i.e., nodding & shaking, and last is tilting, from its normal driving position. Head pose i.e. HP provides most useful data or signal related on the lack of attention of head particularly when the driver's eyes are not in visible condition due to cause by large head movements.

Keywords: Importance of Driver Alertness Monitoring, detection of various Pose, system design, motivation, real time monitoring, Adaboost algorithm, 3D Position

I. INTRODUCTION

Drowsiness it is intermediate state of between the wake full-ness and sleep so has been defined a state of progressive awareness concern with a desire to sleep. In a practical, such as driving, drowsiness is released as significant risk factor that contributes with the increasing number of motor vehicle accidents issue in each year. So as the Critical conditional aspects of driving lifestyle impairments related with drowsiness are in slow as reaction times, due to some reduced vigilance & deficits in information data processing that lead to find out abnormal activity of driver. Driver drowsiness are usually used to interchangeably with the term driver fatigue behavior, all of the above term has its own meaning. Fatigue is concern as one of the important factors that can be lead to determine the drowsiness activity and also consequence factor of physical labor, and it is defined as a disinclination concern to continue the given task at hand. Driver fatigue factor is believed to account for 35%–45% of all vehicle accidental activity Non-alert driver accident i.e. drowsiness has been one of the major causes of car accidents. As per the problem of sleep-ness as per the 2012 poll is organize by the National Sleep Foundation, 1/5 pilots comment that they have been made a very serious error as concern as sleep problem, and 1/6 train drivers or operators and truck drivers has been said that they have had a make "near miss" due to problem of sleepiness. And as per 2008, the i.e. National Highway Traffic Safety Administration analyses that has one lack police reports on various types of vehicle crashes& accident so then direct resulting of driver drowsiness is a cause of accident . So as soon as Driver in attention might be the result of a lack of alertness when driving due to driver drowsiness.

A. Block Diagram A: System designing block diagram



II. LITERATURE REVIEW

Drowsiness detection can be categories into three main Based that is

1) Vehicle detection based.
2) Behavioral detection based.
3) Physiological detection based.

There are already few systems method are designed for the perform best with document images with simple data collection. Some systems are arises with standard technologies system. This based on existing techniques and methodology. Driving behavior information signal data based approaches that driver's calculate of the performance over a particular time period.

It has been suggested real-time application based on algorithm that approach for finding a distraction by detecting the driver eye movements & driving performance acquired data collected by using the vehicle information device of data. If a driver falls asleep on a straight road, such method may fail because the car would not provide any significant information of data [4].

It is suggested and proposed a driver drowsiness finding based system that is used to calculate the current status of the eye [5]. It is used to calculate the state of eye by creating the detailed templates of the shape and texture, size of the eyelid. It is accepted by widely as measure visual for drowsiness detection of data [6].

It has been suggested that applied support vector machines (SVMs), which has a data mining system, to developing the a real-time base approach for calculating & finding the cognitive distraction using the driver eye movements and also the driving performance data signal. The results show that the models were able to detect the driver distraction with the average accuracy is 81.1% [7].

It is proposed a gaze fixation based, stereo camera based system for find out the driver's according to their several level distraction in driving simulator device of data signal [8].

It is suggested that a method for 3D head tracking under varying illumination conditions of data. The head is modeled as a texture mapped cylinder, facial expressions analysis of system, lip reading, and eye tracking [23].

III. SYSTEM DESIGN

A. Objectives:

1) To find the problem & develop Accident Avoidance system or method. Like Eye blink or sleepy condition of Drivers in real time condition.
2) It will also find and check for head pose movement of driver at real time period.
3) In real time period if any of the above situations has been occur, it will automatically stop the vehicle and will alert driver.

B. Problem Definition:

The earlier available designed systems or method are heavy & high cost, so it is expensive to locate each vehicle, and as soon as their results are poor. Proposed system or method has low cost and it is portable.

C. *Motivation:*

Road traffic accidents are a major cause of death with over one million people losing their lives and a further fifty million seriously injured each year worldwide of country. As per poll 2012 conducted by the Foundation of national sleep i.e. NSF , 1/5 pilots admit that they have made a dangerous error, and one in 6 train operators and truck drivers say that they have had a make mistake and make "near miss" due to sleepiness problem. The National Highway Traffic Safety Administration calculate that 1lack police reports As per the problem of sleep-ness as per the 2012 poll is organize by the National Sleep Foundation, 1/5 pilots comment that they have been made a very serious error as concern as sleep problem, and 1/6 train drivers or operators and truck drivers has been said that they have had a make "near miss" due to problem of sleepiness. And as per 2008, the i.e. National Highway Traffic Safety Administration analyses that has one lack police reports on various types of vehicle crashes & accident so then direct resulting of driver drowsiness is a cause of accident . So as soon as Driver in attention might be the result of a lack of alertness when driving due to driver drowsiness.

1) Adaboost Algorithm for Pupil Activity of Driver:

According to various Pupil Detection Method and its usable various algorithm that is Ad boost having Detection Rate is 91.8% , Generalized Projection Function (GPF) having Detection Rate is 94.8%, Cumulative Distribution Function (CDF) having Detection Rate is 96.0%, Ad boost &Adaptive Thresholding having Detection Rate is 97.2%,having following table show the comparative analysis.

2) Elur Angle method for 3D Position:

Elur Angle method for 3D Position of head based on the Various parameters the obtained algorithm is coordinate the system to camera shown in fig 2 &3.Head Pose Estimation Method La Cascia et al. (2000) [19] its initialization is auto its tilting is 3.3 its shaking is 6.1 its nodding is 9.8 other method is Choi et al. (2008) [18] its initialization is manual.

Table – 1
According To Various Estimation Method Various Parameter Calculation & Their Comparison

Head pose Estimation Methods	*Initialization*	*Tilting*	*Shaking*	*Nodding*
La Cascia et al. (2000) [19]	*AUTO*	*3.3*	*6.1*	*9.8*
Choi et al. (2008) [18]	*MANUAL*	*3.92*	*4.04*	*6.71*
Prasad and Aravind (2010) [21]	*MANUAL*	*2.5*	*3.8*	*3.6*
DeMenthon and Davis (1995) [15]	*AUTO*	*5.27*	*6.00*	*6.23*
Proposed Method	*AUTO*	*3.94*	*5.15*	*5.31*

Its Tilting is 3.92 its shaking is 4.04 its nodding is 6.71 other method is Prasad and Aravind (2010) [21] its initialization is manual its tilting is 2.5 its shaking is 3.8 Its nodding is 3.6 other method is DeMenthon and Davis (1995) [15]its initialization is auto its tilting is 5.27 its shaking is 6.00 its nodding is 6.23 other method is Proposed Method its initialization is auto its tilting is 3.94 its shaking is 5.16 its nodding is 5.31 as shown in following table.Then the position of head poses and eye state is observed here we consider a 3D-based head model that aim at syn- thesizing head appearances.

Fig. 3: Estimatiosn of 2D - 3D (a) Polygonal face region of frame (b) Delaunay Triangulation

IV. CONCLUSION

This review paper has presented comparative analysis of several existing algorithm work on the basis of visual analysis of ES and HP I.e. using a camera for continuous monitoring of non-alert ness of a driver of data image. The proposed system is extracts the visual features from the eyes and also head movements of non-alertness of driver in real time outdoor driving conditions of data. The proposed method extracts visual features from the eyes and head movements of a driver in real outdoor driving conditions of data. Eye index (EI) measures eye closures, pupil activity (PA) detect dynamic motion of the eye, and head pose (HP) calculates all directional head movements. The combined result of eye state and head pose given by controller is used to alert the driver and which gives comprehensive driver drowsiness detection to avoid accidents of vehicle. Analysis of eye state and HP using a single camera for continuous monitoring of alertness of a vehicle driver. The proposed method extracts visual features from the eyes and head movements of a driver in real outdoor driving conditions of image data. EI measures eye closures, PA dynamic motion of the eye, and HP estimate all directional head movements. An SVM classifier was then used to identify the alertness level of each driver

for many every video segment of 4 s. The classification results indicate that combining eye and head data information achieves the highest classification accuracy.

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