obtained by using the Vision class in MATLAB. The built in object detector function Cascade Object Detector is used to detect the eyes. The Eye Detect object is given as input to the step function along with the image and the values returned correspond to the X-Coordinate, Y-Coordinate, Width and Height of the eye region. The image is then cropped using the imcrop () function with one input as the n\*4 matrix and the other being the image itself. The RGB image thus obtained is first converted to its equivalent grayscale form using the rgb2gray() function. This is followed by converting the thus obtained gray scale image to its black and white form using the im2bw () function. The BW image thus obtained is then dilated to get only the eyes. The purpose of performing the dilation function is to enhance the foreground features. IM2 = imdilate (IM,SE) dilates the grayscale, binary, or packed binary image IM, returning the dilated image, IM2. SE is a structuring element object, or array of structuring element objects, returned by the STREL function. The basic effect of the operator on a binary image is to gradually enlarge the boundaries of regions of foreground pixels (white pixels). Thus areas of foreground pixels grow in size while holes within those regions become smaller.

A Real-Time accident prevention system has been proposed in which the drowsy condition of the driver can be detected and appropriate action will be performed for each condition automatically. In this paper, a vehicle driver drowsiness warning system using image processing technique. The proposed system is based on facial images analysis for warning the driver of drowsiness or inattention to prevent traffic accidents. The facial images of driver are taken by a video camera which is installed on the dashboard in front of the driver. The results indicated that the proposed expert system is effective for increasing safety in driving. The various methods available to determine the drowsiness state of a driver. But because of the various definitions and the reasons behind them were discussed there is no universally accepted definition for drowsiness, all works discuses about the various ways in which drowsiness can be manipulated in a simulated environment as shown in Fig.1. The various measures used to detect drowsiness include the subjective, vehicle-based, physiological and behavioral measures. The accuracy rate of using physiological measures to detect the drowsiness is high. These measures are highly intrusive. The intrusive nature can be resolved by using contactless electrode placement. 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. To overcome these researchers developed lots of techniques like a prototype drowsiness detection system. The focus was placed on designing of system that was accurately monitoring the open or closed state of the driver’s eyes in real-time. The symptoms of driver fatigue can be detected by monitoring the eye movement. It helps to avoid the accidents. Detection of fatigue involves the sequences of images of a face. It also observes the eye movements and blink patterns.

**1.2 Necessity**

More than 20% of highway traffic accidents are caused as a result of driver fatigue. So, it is need to reduced that occurrence of accidents.

This project is focused on the localization of eyes, which involves looking at the entire images of the face, and determining the position of eyes by a self developed image-processing algorithm. Once the position of eyes is located, the system is designed to determine whether the eyes are opened or closed, and detect fatigue.

**1.3 Objective**

Objective of the project is to a vehicle driver on safe driving. To enhance the driving, and thereby safety, our approach consists in using a driver assistance system based on informing drivers about the drowsy and fatigue they have committed and control of vehicle by using eye and face detection. This approach may contribute to help drivers become more aware about their driving attitude and may persuade them to change their driving styles and, therefore, prevent them from committing unnecessary infringements. For the proposed work our objectives are: Introduce the novel approach for preventing driver drowsiness.

* Accurately measures are the symptoms of drowsiness like:
* Case when the driver’s head is tilted.
* Finding the top of the head correctly.
* Finding bounds of the functions.

Implement the novel approach in simulation environment

**1.4 Theme**

The requirements for an effective drowsy driver detection system are as follows:

• A non-intrusive monitoring system that will not distract the driver.

• A real-time monitoring system, to insure accuracy in detecting drowsiness.

• A system that will work in both daytime and nighttime conditions.

The above requirements are subsequently the aims of this project. The project will consist of a concept level system that will meet all the above requirements.

This Project presents the drowsy driver detection system which detect eye and head position and alert signal whenever eyes are close. The receiver unit placed in the vehicle receives the messages and sends to the microcontroller. When eyes are open then the LCD displays driver in normal mode if eye are closed it displays on LCD driver in drowsy mode and the warning signal or alarm or buzzer will be on.



Figure 1.1: Driver in driving mode

**1.5 Organization**

Chapter 1: Introductory part of the project has been stated first following Literature Survey. Chapter 2: Literature survey explains studies that have been done before on this concept as well as actual implementation of the system. Chapter 3: System development describes hardware and software part of the project. Chapter 4: Performance analysis states actual working of the project. Last part includes the advantages, disadvantages, future scope and conclusion following references that this paper has used.