**1. INTRODUCTION**

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Driver fatigue is a significant factor in a large number of vehicle accidents. Recent statistics estimate that annually 1,200 deaths and 76,000 injuries can be attributed to fatigue related crashes. 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. The aim of this project is to develop a prototype drowsiness detection system. The focus will be placed on designing a system that will accurately monitor the open or closed state of the driver’s eyes in real-time. By monitoring the eyes, it is believed that the symptoms of driver fatigue can be detected early enough to avoid a car accident. Detection of fatigue involves a sequence of images of a face, and the observation of eye movements and blink patterns. The analysis of face images is a popular research area with applications such as face recognition, virtual tools, and human identification security systems. This project is focused on the localization of the eyes, which involves looking at the entire image of the face, and determining the position of the eyes by a self developed image-processing algorithm. Once the position of the eyes is located, the system is designed to determine whether the eyes are opened or closed, and detect fatigue.

With the ever increasing population and usage of automobiles, there is an increase in the number of fatalities as well. India, unfortunately, boasts of a very high number of 142,485 traffic-related fatalities [1]. There are a number of reasons that can be attributed to this astonishing statistic, a few of primary concern being Fatigue, Alcohol Consumption and Sleep Deprivation. Hence, we developed a method to test for the closing of eyes of a person driving an automobile and provide an alarm indication if the eyes are detected to be closed for more than a specified amount of time. MATLAB 2013a Image processing techniques are adopted to detect the closure of the eye by sectioning only that portion of the driver's face from a live video relay obtained using a front camera. 1. Processing a Static Image The method is based on the Viola-Jones algorithm [2]. The project started off with detecting the eyes of a static image stored in the computer. The first step involved storing the image in a variable mentioning the location and the type of image. From the given image, only the eyes are sectioned out and processed to detect for closure or fatigue. The image is processed only to detect the eye region of the image by giving the position, width and height of the region as inputs to the rectangle () function. The position, width and height are