**ABSTRACT**

The current technology in digital computer system allows researchers around the world to study the fatigue behavior. Although the current technology of drowsiness detector has been created, it is lack of efficient since the detection is used ordinary sensor. This project is to develop a driver drowsiness detection system by using image processing& histogram analysis. It is known that a driver is under drowsiness influences by looking at the eyelid. Based on the previous research, there is none used histogram for analysis. The result can be not accurate because histogram analysis analyzed the whole image. Therefore, if the analysis area is not specified, the result will be not accurate and efficient. The retina movement shows the fatigue level of the driver. For example, if the driver’s eyes are closed about more than 5 seconds in the last 60 seconds, the driver considered as drowsiness. Based on the fact that driver’s eye movement can be used to recognize the level of drowsiness, a sensor can be developing by using image processing analysis in MATLAB. The image processing analysis that will be used is histogram analysis. This system will be developing only on software part.

A Drowsy Driver Detection System has been developed, using a non-intrusive machine vision based concepts. The system uses a small monochrome security camera that points directly towards the driver’s face and monitors the driver’s eyes in order to detect fatigue. In such a case when fatigue is detected, a warning signal is issued to alert the driver. This report describes how to find the eyes, and also how to determine if the eyes are open or closed. The algorithm developed is unique to any currently published papers, which was a primary objective of the project. The system deals with using information obtained for the binary version of the image to find the edges of the face, which narrows the area of where the eyes may exist. Once the face area is found, the eyes are found by computing the horizontal averages in the area. Taking into account the knowledge that eye regions in the face present great intensity changes, the eyes are located by finding the significant intensity changes in the face. Once the eyes are located, measuring the distances between the intensity changes in the eye area determine whether the eyes are open or closed. A large distance corresponds to eye closure. If the eyes are found closed for 5 consecutive frames, the system draws the conclusion that the driver is falling asleep and issues a warning signal. The system is also able to detect when the eyes cannot be found, and works under reasonable lighting conditions.