VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

A PROJECT REPORT ON

"DRIVER'S DROWSINESS DETECTION SYSTEM USING RASPBERRY PI 3B"

Submitted in partial fulfillment for the award of Degree of,

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE &ENGINEERING

By

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CERTIFICATE

This is to certify that the project entitled **"DRIVERS DROWSINESS DETECTION SYSTEM USING RASPBERRY PI 3B"** has been successfully completed by

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the bonafide students of **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2018–2019. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Drowsiness and Fatigue of drivers are amongst the significant causes of road accidents. Every year, they increase the amounts of deaths and fatalities injuries globally. It describes a machine learning approach for visual object detection which is capable of processing images extremely rapidly and achieving high detection rates. Face detection is employed to locate the regions of the driver's eyes, which are used as the templates for eye tracking in subsequent frames. Finally, the tracked eye's images are used for drowsiness detection in order to generate warning alarms. The proposed approach has three phases: Face, Eye detection and drowsiness detection. The role of image processing is to recognize the face of the driver and then extracts the image of the eyes of the driver for detection of drowsiness. The Haar face detection algorithm takes captured frames of image as input and then the detected face as output. It tracks eyes from the detected face. If the eyes are closed for a predefined period of time the eyes of the driver will be considered closed and hence an alarm will be started to alert the driver. The proposed system was tested on a Raspberry pi 3 Model B with 1GB RAM with use of Logitech HD Webcam C270. The system could reach more than 15 frames per second for face and eye tracking, and the average correct rate for eye location and tracking could achieve 99.0% on some test videos. Thus, it can be concluded that the proposed approach is a low cost and effective solution method for a real-time of driver drowsiness detection.