A

PROJECT SYNOPSIS

ON

“Driver Drowsiness Detection System”

SUBMITTED TO THE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

KIT'S COLLEGE OF ENGINEERING, KOLHAPUR

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Synopsis

1. **Title:** Driver drowsiness detection system

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❖ ABSTRACT

This document is a review report on the research conducted and the project made in the field of computer engineering to develop a system for driver drowsiness detection to prevent accidents from happening because of driver fatigue and sleepiness.

The report proposed the results and solutions on the limited implementation of the various techniques that are introduced in the project. Whereas the implementation of the project give the real world idea of how the system works and what changes can be done in order to improve the utility of the overall system.

Furthermore, the paper states the overview of the observations made by the authors in order to help further optimization in the mentioned field to achieve the utility at a better efficiency for a safe road.

❖ INTRODUCTION

One of the major causes behind the casualties of people in road accidents is driver's drowsiness. After continuous driving for long time, drivers easily get tired resulting into driver fatigue and drowsiness. Developing technology for detecting driver fatigue to reduce accident is the main challenge most of the traditional methods to detect drowsiness are based on behavioral aspects while some are intrusive and may distract drivers, while some require expensive sensors.

The system is capable of detecting facial landmarks, computes Eye Aspect Ratio (EAR) and Eye Closure Ratio (ECR) to detect driver's drowsiness based on adaptive thresholding. Machine learning algorithms have been employed to test the efficacy of the proposed approach.

❖ OBJECTIVE

- Driver drowsiness detection is a car safety technology which helps to save the life of the driver by preventing accidents when the driver is getting drowsy.
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- The main objective is to first design a system to detect driver's drowsiness by continuously monitoring retina of the eye and face.

❖ SYSTEM WORKFLOW

- Image will captured by a camera installed in front of driver.
- face recognition.
- Eyes are especially detected for the drowsiness.
- Classify the eye into either open or closed.
- The time duration of the eye closed(set time=0.25) is calculated to predict the drowsiness of the driver.
- Based on result alert will be given.

❖ PRODUCT SCOPE

There are many products out there that provide the measure of fatigue level in the drivers which are implemented in many vehicles. The driver drowsiness detection system provides the similar functionality but with better results and additional benefits. Also, it alerts the user on reaching a certain saturation point of the drowsiness measure.

❖ TECHNOLOGY USED

- **PYTHON -** Python is an interpreted, high-level, general-purpose programming language. Python is dynamically typed and supports multiple programming paradigms, including procedural, object-oriented, and functional programming.

- **MACHINE LEARNING -** Machine learning is the scientific study of algorithms and statistical models that computer systems use in order to perform a specific task effectively without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence.