

# **Final Year Project Report**

Study and design of driver drowsiness using raspberry pi



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## Declaration of Originality

I hereby declare that this report entitled **“Study and Design of Driver Drowsiness Detection Using Raspberry PI”** has been developed by me. The report had never been acknowledged for any degree and has never been submitted ever as requirement for any degree or other awards.

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**Study and design of driver drowsiness  
detection using raspberry pi**

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## **DEDICATION**

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# ABSTRACT

In Pakistan, driver carelessness and errors contribute in massive number of accidents nowadays drowsy driving is one of them. A Survey (traffic) demonstrates that the driver tiredness might be a great reason by up to 20% of all road accidents.

The main aim for this planned system is to decrease the number of mishaps due to driver's Sleepiness to increase the moving safety. The projected system realized with 5-megapixel digital camera braced with rooted system board Raspberry-pi installed with Raspbian-OS, Open-CV embedded in Python, LED's and a Buzzer to give a cautioning message. The Raspberry-pi board relates to Camera and Buzzers. This will perform some task like the alarm notification.

## **Key Words:**

- Raspberry pi,
- Eye tracing,
- Python,
- Yawning,
- Image processing,
- Driver Drowsiness.

# Contents

- Introduction ..... 9
  - 1.1: Over View ..... 9
  - 1.2: Problem Statement ..... **Error! Bookmark not defined.**
  - 1.3: Solutions ..... **Error! Bookmark not defined.**
- 2. METHODOLOGY ..... **Error! Bookmark not defined.**
  - 2.2.1 Capturing:..... **Error! Bookmark not defined.**
  - Detection: ..... **Error! Bookmark not defined.**
  - Identification:..... **Error! Bookmark not defined.**
- 3. SYSTEM HARDWARE AND SOFTWARE CONFIGURATION ..... **Error! Bookmark not defined.**
  - 3.1 Hardware:..... **Error! Bookmark not defined.**
  - Raspberry Pi 3 Pin Mapping: ..... **Error! Bookmark not defined.**
  - 3.3: SOFTWARE CONFIGURATION ..... **Error! Bookmark not defined.**
- 4. Algorithm:..... **Error! Bookmark not defined.**
  - 4.1 ALGORITHM BASICS..... **Error! Bookmark not defined.**
- 5. RESULTS ..... **Error! Bookmark not defined.**
  - 5. Product Cost..... **Error! Bookmark not defined.**
  - 7. Project Performance..... **Error! Bookmark not defined.**
- 8: CONCLUSION AND FUTURE WORK ..... **Error! Bookmark not defined.**
- References..... **Error! Bookmark not defined.**

# Chapter 1

# Introduction

## 1.1: Over View

This project is designed to struggle narcolepsy and drowsy condition. Micro sleep is a stage which strikes quickly and a person is unable to perform any task consciously. One probably don't even recognize that he/she falls asleep, and almost certainly he/she didn't notice that they were blinking for longer than normal. Sleep alert uses camera to observe the blinking aggregate and capture frames, then picture frame is processed by algorithm operated in Raspberry Pi. Algorithm implemented on Raspberry Pi using Python. Eye blinking detection is determined by a Haar cascade classifier technique and it takes several images and performs several contrasts from a file of similar and divergent images and place a rectangle over the selected area like face or eyes. Eye blinking is noticed after every five intervals, and if the blinking crosses the threshold value that we have set for it, then Raspberry pi sends a warning message to its LED's or buzzer to blink or ring respectively. Like in drowsiness state if the eye blink longer than usual, then this platform lets you know that a sleep is looming. Study indicates that this is one of the most active ways to predict impending micro sleep [1].