UNIVERSITI TEKNOLOGI MARA

SAFE DRIVING SYSTEM (SDS) FOR DRUNK DRIVERS WITH BLINDSPOT

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ABSTRACT

Modern technology has revolutionized many industries, most notably driving safety. By using cutting-edge technology to provide early warnings and enable prompt responses to possible road hazards, the alcohol and blind spot detection system helps prevent accidents. The two main factors that lead to traffic accidents are blind spot collisions and drunk driving. Effective safety measures are essential due to the rising number of vehicles on the road and the growing concern over traffic accidents. The proposed safe driving system incorporates ultrasonic sensors and an MQ-3 Gas Sensor breathalyser as input ports. Through controlled tests and user sessions, it establishes a smart hardware system that identifies areas for improvement and assesses system accuracy, efficacy, and user acceptance. To alert the driver, the output port of the system uses an LCD, a buzzer and LEDs. The software part involves circuit simulation using Proteus 8, to ensure the output align with system requirement. The project targets two key safety concerns, aiming to minimize overall traffic accidents. The importance of proactive driver safety measures can change transportation environment. A successful execution is anticipated to heighten driver confidence, lower accident rates, and improve road safety, with the system consisting of both software and hardware components. Future recommendation includes exploring features to enhance driver safety and refining the system based on feedback from user.

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INTRODUCTION

1.1 Introduction

The emergence of cutting-edge technology has cleared the door for ground-breaking solutions in a variety of fields, including driver safety. Exploring and putting into practise technologies that can efficiently detect possible dangers and minimise risks has become essential due to the rising number of cars on the road and the growing concern over traffic accidents. The creation of an alcohol and blind spot detection system, which intends to address two crucial issues of driver safety, is the subject of this thesis [1].

The two main contributors to traffic accidents globally are intoxication and collisions involving blind spots. This project intends to give drivers early warnings by integrating real-time monitoring and alert systems, enabling them to make educated judgements and take necessary steps to avert accidents. The innovative technologies used by the alcohol and blind spot detection system include ultrasonic sensors, an alcohol sensor, LEDs, a buzzer, an LCD display, and a vibration motor [2],[3]. These elements operate together to recognise items in the blind spot region and detect alcohol levels over a set threshold. The technology produces visual and aural alerts when it spots a possible threat to get the driver's attention and encourage an immediate reaction [4],[5].

The goals of this project include developing an effective and dependable system, putting the required hardware and software in place, and rigorously verifying the system's performance. The construction of this system is built on top of the widely used and versatile Arduino microcontroller platform [6]. This technical report will give comprehensive information on the system's architecture, component selection, circuit connections, and programming in addition to an outline of the project's goals [7],[8]. Additionally, the report will go into the testing procedures used to gauge the system's responsiveness, accuracy, and dependability [9]. This project intends to add to the body