

DRIVER DROWSINESS AND YAWN DETECTION WITH SPEED BASED ALERTS

A PROJECT REPORT

Submitted by,

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Under the guidance of,

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In partial fulfilment for the award of the degree

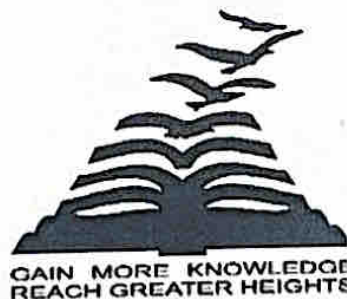
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BACHELOR OF TECHNOLOGY

IN

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At



PRESIDENCY UNIVERSITY

BENGALURU


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PRESIDENCY UNIVERSITY
SCHOOL OF COMPUTER SCIENCE ENGINEERING
CERTIFICATE

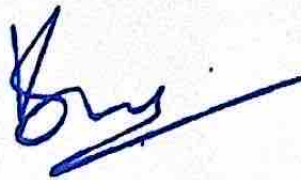
This is to certify that the Project report "DRIVER DROWSINESS AND YAWN DETECTION WITH SPEED BASED ALERTS" being submitted by "SYED FUZAIL, ZUBIYA SADAF, ASIMA SIDDIQUA, SYED AZAM HUSSAIN" roll number(s) "20211CST0089, 20211CST0047, 20211CST0093, 20211CST0113" in partial fulfilment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Technology is a Bonafide work carried out under my supervision.



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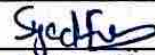
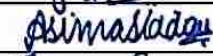
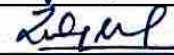
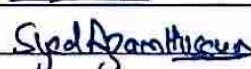
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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled DRIVER DROWSINESS AND YAWN DETECTION WITH SPEED BASED ALERTS in partial fulfilment for the award of Degree of Bachelor of Technology in Computer Science and Technology, is a record of our own investigations carried under the guidance of Mr .Lakshmisha S K, Assistant Professor, School of Computer Science Engineering Presidency University, Bengaluru.

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

| Name(s) | Roll No(s) | Signature(s) |
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ABSTRACT

A safety-focused project called "Driver Drowsiness and Yawn Detection with Speed based alerts" aims to improve road safety by lowering the dangers related to driver weariness. Because weariness impairs a driver's reaction time, judgment, and general awareness, drowsy driving is a major contributor to collisions. By creating a web-based application that employs cutting-edge machine learning algorithms and sensor data to identify indicators of driver alertness and drowsiness in real time, our project aims to address this pressing problem. The device lowers the risk of fatigue-related accidents by helping drivers stay vigilant through prompt warnings and interventions.

The application's primary goal is to use computer vision and facial recognition algorithms to track important markers of driver weariness, such as head posture, blink rates, and eye movements. The system analyzes the driver's physical condition and behavior by processing data from in-car cameras and sensors. It looks for signs of tiredness, like head nodding, delayed eye closure, or frequent blinking. When the system detects possible indicators of tiredness, it notifies the driver via visual or auditory cues to take a break or perform restorative activities to stay focused. Python and TensorFlow are used in the application's backend to build the machine learning model, which analyzes and trains data to increase its accuracy over time. The design of the system is appropriate for incorporation with current in-vehicle technology since it can operate in real time with little computing overhead. React was used to create the user interface, which gives drivers clear visual feedback about their current level of attention and suggests remedial activities.

In addition to improving driver safety, this project seeks to increase public awareness of the value of drivers' well-being while driving. The "Driver Drowsiness and Alertness Detection" system helps minimize accidents by offering a simple tool for tracking and enhancing alertness levels, especially during late-night or long-distance travels when weariness is more prone to set in. To further its efficacy, the system can also be extended to incorporate functions like customized sleep and rest suggestions, interaction with car telematics, and ongoing learning from actual driving data. In the end, this project helps achieve the objectives of improving overall road safety, lowering the negative social and economic effects of sleepy driving, and developing safer, smarter transportation networks. Using state-of-the-art technology to identify and reduce In order to reduce driver tiredness and to save lives on the road, the project encourages safer, more attentive driving.

ACKNOWLEDGEMENT

First of all, we are indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

We express our sincere thanks to our respected dean **Dr. Md. Sameeruddin Khan**, Pro-VC, School of Engineering, and Dean, School of Computer Science Engineering, Presidency University for getting us permission to undergo the project.

We express our heartfelt gratitude to our beloved Associate Deans **Dr. Shakkeera L** and **Dr. Mydhili Nair**, School of Computer Science Engineering & Information Science, Presidency University, and **Dr. Saira Banu Atham**, Head of the Department, School of Computer Science Engineering, Presidency University, for rendering timely help in completing this project successfully.

We are greatly indebted to our guide **Mr. Lakshmisha S.K** and Reviewer **Dr. Harish Kumar** School of Computer Science Engineering, Presidency University for his inspirational guidance, and valuable suggestions and for providing us a chance to express our technical capabilities in every respect for the completion of the project work.

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We thank our family and friends for the strong support and inspiration they have provided us in bringing out this project.

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