** GEETHANJALI COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous)**

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**DEPARTMENT OF CSE -EA**

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**MINI PROJECT LITERATURE REVIEW**

**IV B.Tech. I SEM INTERNET OF THINGS SECTION**

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| **BATCH NUMBER:06** | **Mini Project** | **Academic Year:**  **2023-2024** |

**PROJECT TITLE: DROWSINESS DETECTION ALARM (using AI)**

**TEAM MEMBERS:**

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**LITERATURE REVIEW**

**A Review of Recent Developments in Driver Drowsiness Detection Systems**

Albadawi, Yaman, Maen Takruri, and Mohammed Awad. "A review of recent developments in driver drowsiness detection systems." Sensors 22.5 (2022): 2069.

An updated evaluation of the driver sleepiness detection technologies put in place during the previous ten years is presented in this research. The paper discusses and displays current systems that track and identify drowsiness using various metrics. Every system fits into one of four groups, based on the data utilized. Each system described in this paper has a comprehensive detailed explanation of the features, classification methods, and datasets used. Additionally, a judgment in terms of the final classification accuracy, sensitivity, and precision of these systems is described. Additionally, the paper outlines current issues with driver sleepiness detection, outlines some of the upcoming trends in the area and talks about the viability and dependability of each of the four system types.

**Driver Drowsiness Detection by Applying Deep Learning Techniques to Sequences of Images**

Magán, Elena, et al. "Driver drowsiness detection by applying deep learning techniques to sequences of images." Applied Sciences 12.3 (2022): 1145.

In order to prevent traffic accidents, this paper describes the construction of an ADAS (advanced driving assistance system) that is specifically focused on driver sleepiness detection. In a driving scenario, fatigue detection must be carried out in a non-intrusive manner so that the driver is not troubled by alarms when they are not essential. Our method for solving this open challenge makes use of image sequences that last 60 s and are captured in a way that makes it possible to see the subject's face. Two different approaches are developed, concentrating on reducing false positives, to determine if the driver exhibits sleepiness symptoms or not. The second option uses deep learning to extract numerical information from photos, which are then added to a fuzzy logic-based system, whereas the first uses a recurrent and convolutional neural network. Both systems achieve similar levels of accuracy: about 65% accuracy over training data and 60% accuracy over test data. The fuzzy logic-based system, on the other hand, stands out since it doesn't issue erroneous alerts and achieves a specificity of 93% (percentage of videos where the driver is not sleepy that are correctly identified). Although the rates of the acquired outcomes are not particularly excellent, the recommendations offered in this work are encouraging and can be used as a strong foundation for other efforts.

The main objective of this research is to come up with non invasive, cost effective and efficient drowsiness detection system that can easily be implemented in driver monitoring system of any actual vehicle. Unlike many other previous research works and commercially available behavioral measuring methods that focuses on eye closure only, our project will include other facial motions and behavioral changes that might be giving more reliability to the system. Also our project will explore different ways of integration and input processing techniques and optimize the different system parameter to maximize the accuracy and the speed of detection. By accepting the stream of images of the driver’s facial movement and the system can determine the status of the drivers as drowsy or non-drowsy.

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