TED UNIVERSITY

CMPE491

Senior Project I

DROWSINESS DETECTION & ALERTING SYSTEM

Project Proposal

15.10.2023

SUPERVISOR:
Yücel ÇİMTAY

JURY MEMBERS:
Gökçe Nur YILMAZ
Venera ADANOVA

Team Members:

Başak DEĞERLİ basak.degerli@tedu.edu.tr

Özge AYDIN ozge.aydin18@tedu.edu.tr

Büşra Tombak busra.tombak@tedu.edu.tr

Kemal GEVGİLİ kemal.gevgili@tedu.edu.tr

PROJECT URL:

https://safeawake.github.io/

PROJECT SUBJECT:

In our senior project, we focused on the issue of "drowsy driving", which is frequently encountered in daily life and can lead to traffic accidents, injuries, and even fatal consequences. Driver drowsiness refers to the state of feeling tired, exhausted, or sleepy, which impairs the ability to concentrate while driving and the ability to react quickly to changing road conditions. A research conducted by the **AAA Foundation for Traffic Safety** revealed that drowsiness plays a role in approximately 9.5% of all accidents and 10.8% of accidents that resulted in airbag deployment, injury, significant property damage, or death. Therefore, the main purpose of our project is to increase road and passenger safety by reducing the risks associated with drowsy driving.

In this project, we will develop an advanced "Drowsiness Detection And Alerting System" by using Raspberry Pi. This system aims to accurately detect signs of drowsiness by monitoring the driver's facial expressions and eyelid movement using "image processing" techniques and "machine learning" algorithms. The Raspberry Pi will serve as the central processing unit, seamlessly integrating input from a camera and using real-time analysis to detect drowsiness. When signs of drowsiness are detected, the system will warn the driver with audible alarms, thus reducing the potential for accidents that may occur due to drowsy driving. In this way, our project will contribute to drivers having a safer driving experience and preventing traffic accidents.

REFERENCES

https://aaafoundation.org/prevalence-drowsy-driving-crashes-estimates-large-scale-naturalistic-driving-study/