Report on

‘Drowsiness Detection’

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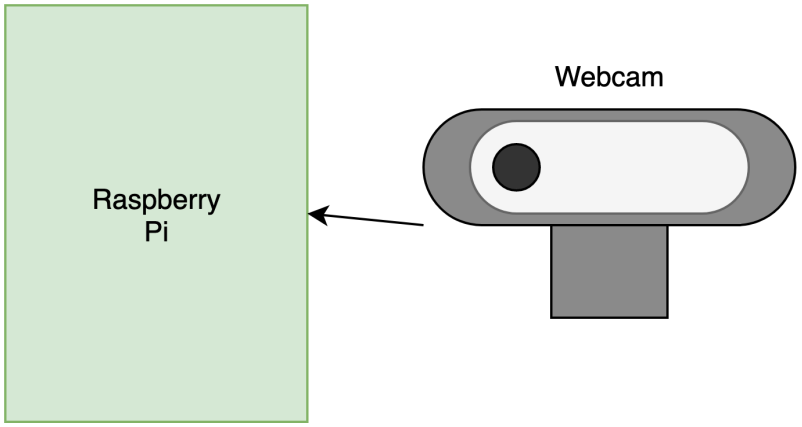
Objective:

To construct a drowsiness detection device that can alert the driver that he is drowsy and stop the vehicle.

Description:

This project is an implementation to detect a person who is drowsy while doing some work. There are more accidents that occur due to the carelessness of a diver, mainly feeling sleepy while driving vehicles. This device is used to provide a text message on the screen that he is drowsy. That text message can be altered and given output in the form of a speech or any sound form.

Block Diagram:



System Requirement Specification

Hardware Requirement:

- Raspberry Pi
- Webcam

Software Requirement:

- Python
    - Library: 1. cv2

- 2. dlib
- 3. time
- 4. Imutils
- 5. argparse
- 6. Numpy
- 7. scipy

Working Principle:

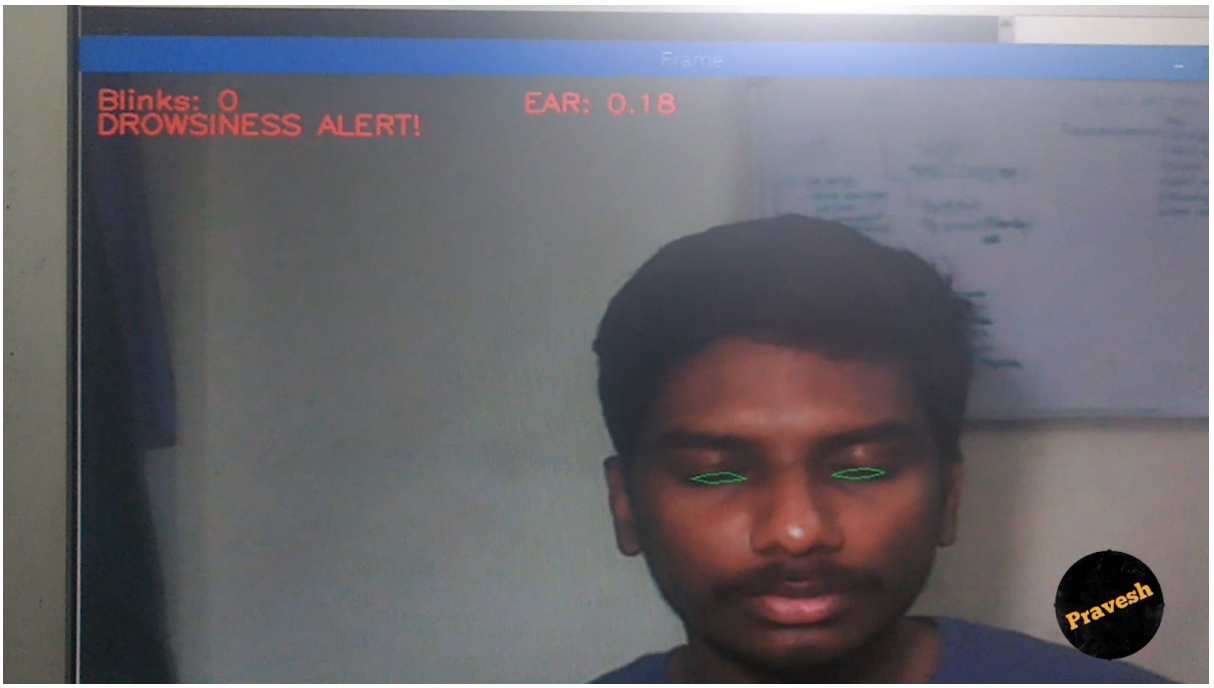
There is a camera used in this project which keeps on running. The raspberry pi uses OpenCV to detect face and eyes. It also detects how much the eye is open. That opening of the eyes is determined by the EAR(eye aspect ratio). Once the EAR is less than a threshold we get a message displaying drowsiness alert.

Circuit Connections:

- Connection of Raspberry pi to Webcam:
  - Connect Webcam to Raspberry pi USB port

Result:

The result of the project drowsiness detection is verified and it satisfied all my requirements without any exceptions.


Frame
Blinks: 0
DROWSINESS ALERT!
EAR: 0.18
Pravesh