DROWSINESS DETECTOR

Online Meeting Apps

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Description

Our Project is based on the fact that now a days in online classes students feels drowsy and they take power nap or sometimes just go to sleep, also some students just turn on class and does their own work.

Implementations

There are many implementations of our product other than using it in online classes, some are as follows: -

Online Classes

Students now a days are attending online classes and while attending lots of time they go to sleep. Teacher will not able to know that a particular student is sleeping or not.

Office Employees

Office employee also sometimes feels drowsy while doing continuous work. If our product will be applied in offices than we can have a watch on employees and the boss can warn them.

Drowsy Driving

A 2014 AAA Traffic Safety Foundation study found that 37 percent of driver's report having fallen asleep behind the wheel at some point in their lives. An estimated 21 percent of fatal crashes, 13 percent of crashes resulting in severe injury and 6 percent of all crashes, involve a drowsy driver.

System Requirements

Recommended System Requirements

Processors: intel® Core™ i5 processor

RAM Required: 4 GB

Disk space: 2 to 3 GB

Operating systems: Windows® 10, macOS*, and Linux*

Working webcam

Minimum System Requirements

Processors: Intel® Core™ i3 processor

RAM Required: 2 GB

Disk space: 1 GB

Operating systems: Windows 10 Working webcam

Software Dependencies

Main:

Python 3.6.0

PyCharm

Optional :

Microsoft Teams

ZOOM

Google Meet

Library Used

Opencv-python

Dlib

Scipy

Playsound

Os

Time

distance

FEATURES IMPLEMENTED:

$$EAR = \frac{\|p_2 - p_6\| + \|p_3 - p_5\|}{2\|p_1 - p_4\|}$$

Figure 4: The eye aspect ratio equation.

- Real time image processing using webcam
- Face Detection and Face Landmark Detection
- Detection of person's drowsiness with use of EAR ratio
- Play alarm when person is drowsy
- If person is drowsy for some duration then online meeting apps will be closed
- If student is not present in front of screen then turn off online meeting apps

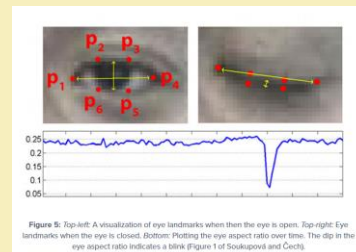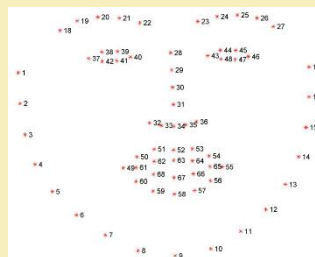**Figure 5:** Top-left: A visualization of eye landmarks when then the eye is open. Top-right: Eye landmarks when the eye is closed. Bottom: Plotting the eye aspect ratio over time. The dip in the eye aspect ratio indicates a blink (Figure 1 of Soukupová and Čech).

SUGGESTIONS TO BE IMPLEMENTED:

- Implementing file handling
- If student is not present in front of screen then turn off online meeting apps
- If eye is just blinking then alarm should not be triggered
- To calculate and detect Yawn
- To find dlib alternate