Lokmanya Tilak College of Engineering, Navi Mumbai

Computer Engineering

Mini Project Presentation
TE Sem - VI

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DeDrowse Application

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Outline

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Problem Statement:

To build a Drowsiness Detection Application that will monitor the eyes using a camera and by developing a model, we can detect symptoms of drowsiness in a person and alert them via alert beeps and messages on-screen.

MOTIVATION

- To prevent a person from entering a state of sleepiness by alerting them, save the system resources and allow the person to rest.
- This system can be used on various platforms.
- This has been a great reason to motivate us to work on this project

OBJECTIVE

- To take an input image of a person and provide a model to predict that person's level of drowsiness
- To differentiate between normal eye blink and drowsiness
- To implement deep learning, Convolution Neural Network, and Transfer Learning using Python

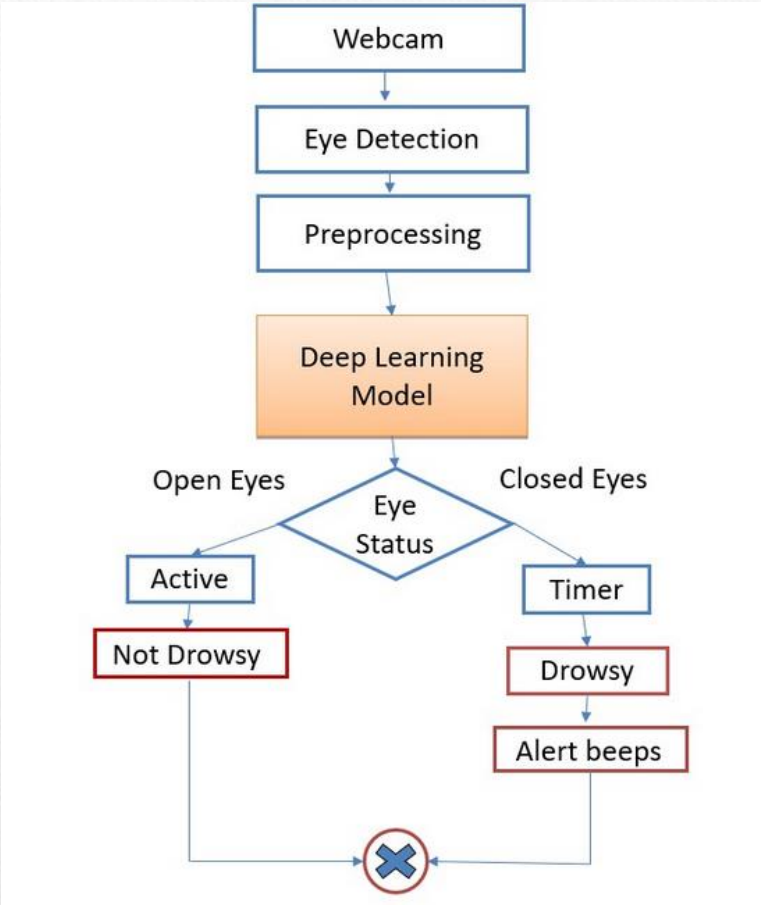
LITERATURE SURVEY

- Facial Features Monitoring for Real Time Drowsiness Detection - IEEE/2016 by Mr. B. N. Manu.
- Driver Drowsiness Detection System in Automotive Vehicles - IJERT/2017 by the Dept. of ISE of VVIET, Mysore.
- Smart Alarm System (DDS review paper) - IJRASET/2021-12 by C.Bhatt, U.Belim, Taha Bhatia, Jinil patel, Parul University.

REQUIREMENTS SPECIFICATION

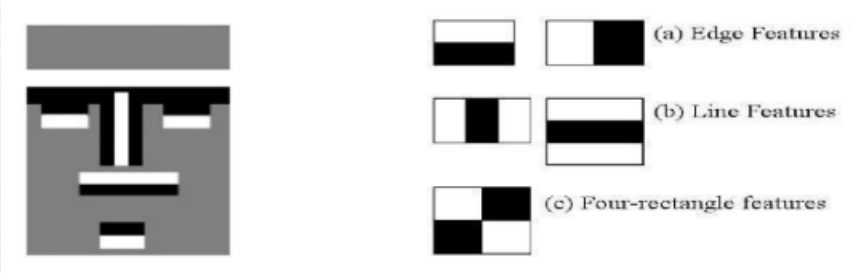
- Google Colab
- Python
- Anaconda Navigator
- Nitro Nividia GTX GPU 1050
- CUDA libraries
- Web Camera
- Web Form: Browser google, mozilla firefox
- Software application: Windows OS

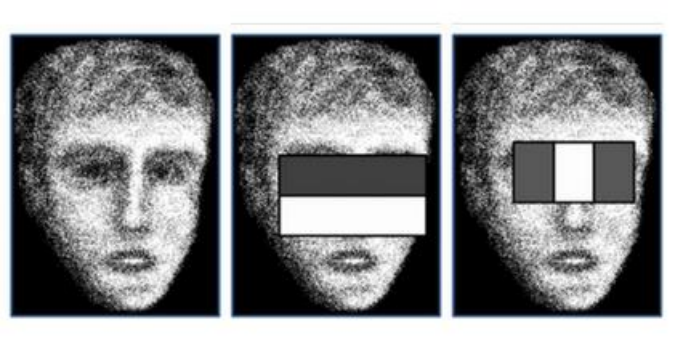
DESIGN OF THE SYSTEM



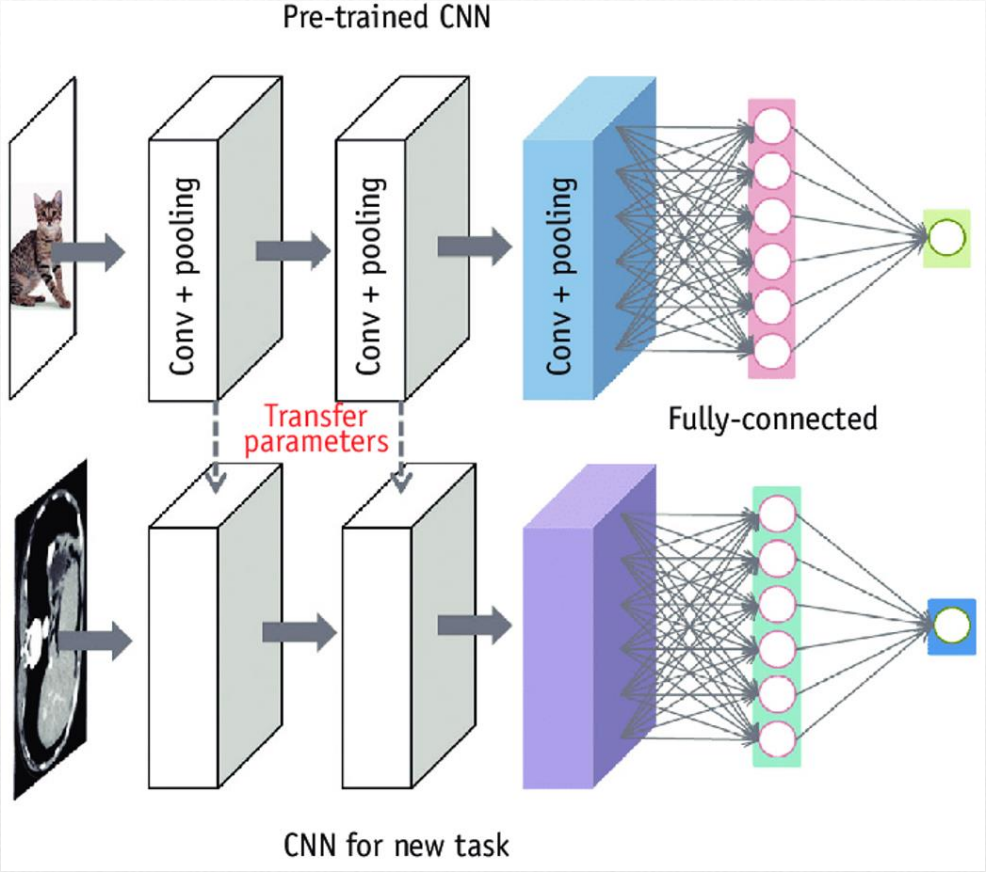
Haar Classifier Algorithm

- Image is divided into different kinds of **sub-windows** and multiple **Haar-like features.**
- Features = sum(pixels in the black area) - sum(pixels in the white area)



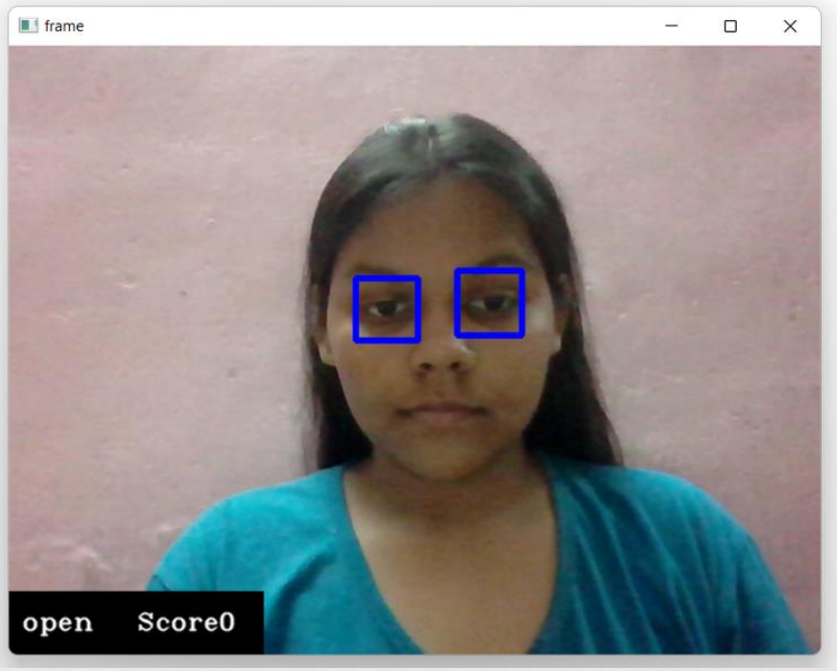


Transfer Learning



RESULTS

- We are expecting a model which can effectively detect the Drowsiness of a person.
- Prediction should be fast and accurate.



FUTURE SCOPE

- We may focus on the utilization of outer factors such as sleeping hours analysis and improvement in fatigue management.
- We can also include login and database for storing user data of previous sessions.

CONCLUSION

- This project enhance health lifestyle energy efficient and can be used anywhere
- Predicts the person's drowsiness on the basis of continuous eye moments
- This system will be portable, scalable, reliable

REFERENCES

1. https://www.academia.edu/68103211/Smart_Alarm_System_Drowsiness_Detection_System_Review_Paper
2. https://www.ijert.org/a-deep-learning-approach-to-detect-driverdrowsiness
3. https://www.tensorflow.org/api_docs/


THANK YOU