

Driver Drowsiness Detection

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Introduction

- Fatigue and Microsleep
- Real-time system for monitoring driver vigilance
- DDD System in Controlled Environments

Existing System

- No Such Alert Systems Present Now
- Can Awake Driver by Co passengers
- Sensors are Not Used

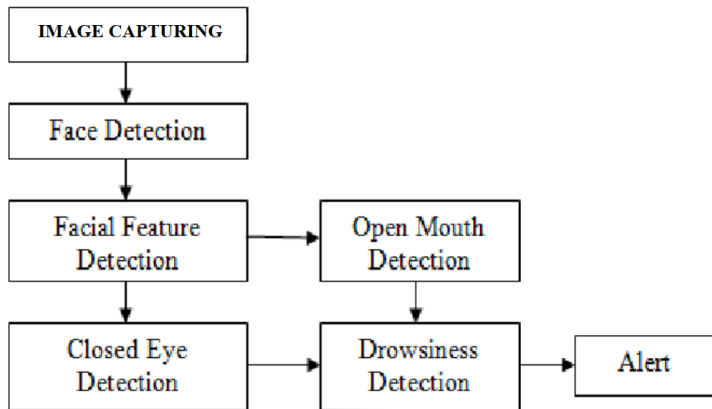
Proposed System

- This is a Software based on Eye Aspect Ratio (EAR), yawning detection and detect drowsiness by comparing its instantaneous value with a previously configured value
- We propose a generalised approach using Convolution Neural Networks (CNN), Support Vector Machine (SVM) and Hidden Markov Model (HMM) in this project
- Our project tracks the driver's eyes and feeds it into a pre-trained that predicts the state of the eye
- The main components of our system include a camera, for real time image acquisition, a processor for running algorithms

Proposed System

- To process the acquired image and an alarm to warn the driver when the symptoms are detected in order to avoid. potential accidents.

System Design



Modules

- 1.Image Capturing Module
- 2.Face Detection Module
- 3.Feature Extraction Module
- 4.Feature Analysis Module
- 5.Classification Module

Modules...

- Video Capturing Module
 - This is the stage where image frames are taken from a fixed camera.
 - The image frames are taken in such a manner that only the face of the driver is captured.

Modules...

- Face Detection Module :
 - The second stage typically aims to detect the face in the image frames.
 - From the image frames, the face is detected first.
 - Convolutional Neural Network (CNN) feeds the whole image to a network that has multiple filters and the face features are extracted from this network

Modules...

- Feature Extraction Module :
 - If face detection is applied, features are usually extracted using different methods such as landmark localization, Histogram of oriented gradients (HOG), and Local Binary Patterns (LBP).
 - This step simplifies the image by extracting useful information and discarding irrelevant information
 - Eyes detected by pixel difference, or by using Sobel vertical edge operator.

Product Backlog



SL NO	DESCRIPTION	PRIORITY
1	Data Set Collection	1
2	Installation of Packages	2
3	Model Building	3
4	Model Training and Learning	4
5	Cross Validation And Back Propagation	5
6	Model Testing and Matching	6



Sprint Backlog

SL NO	SPRINT	DATE	SPRINT GOAL	STATUS
1	1	11-4-21	Find Out Suitable Project Topic	Completed
2	2	12-4-21 To 13-4-21	Topic discussion and Data Collection	Completed and in Progress
3	3	13-4-21 To 14-4-21	Discussion About Modules	Completed
4	4	-	Prepare Product Backlog	Partially Completed
5	5	-	Prepare Sprint Backlog	Partially Completed
6	6	-	Discussion About Database	Partially Completed

Hardware and Software Specifications

- Hardware Specifications

- Processor : i3,1.8 GHz
- RAM : 4GB MB (or greater)
- Harddisk Drive :30GB
- Video :800*600,256 Colors

- Software Specifications

- Operating System :Windows7 and Above
- Front End;Python
- Platform : Anaconda(Snyder)/Colab

GIT

The screenshot shows a web browser displaying the GitHub repository page for user `akhil07ak` and repository `AKHIL`. The page is titled "Commits on Apr 2, 2021" and lists three recent commits:

- ABSTRACT** (Verified) by `akhil07ak` committed 10 hours ago. Commit hash: `b58b6f9`.
- Delete ABSTRACT.pdf** (Verified) by `akhil07ak` committed 10 hours ago. Commit hash: `e9f42f9`.
- PROJECT PRESENTATION** (Verified) by `akhil07ak` committed 10 hours ago. Commit hash: `f591340`.

Below these, the page shows "Commits on Mar 31, 2021" with two commits:

- Add files via upload** (Verified) by `akhil07ak` committed 3 days ago. Commit hash: `471297b`.
- Initial commit** (Verified) by `akhil07ak` committed 3 days ago. Commit hash: `770b4f3`.

At the bottom of the commit list, there are buttons for "Newer" and "Older".

Conclusion

- Introduce a Realtime Alarm System
- Which is Cheap and Consistent

THANK YOU...