DRIVER DROWSINESS DETECTION USING MACHINE LEARNING ALGORITHM

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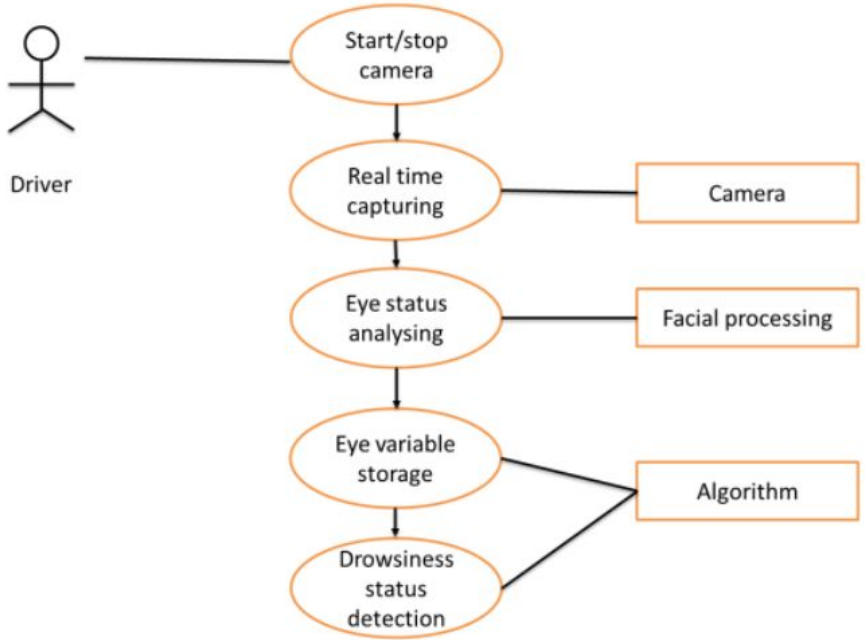
PROBLEM STATEMENT

- Drowsiness is one of the significant reasons for road accidents. Every year due to the above reason, the number of injuries and deaths are increasing globally.

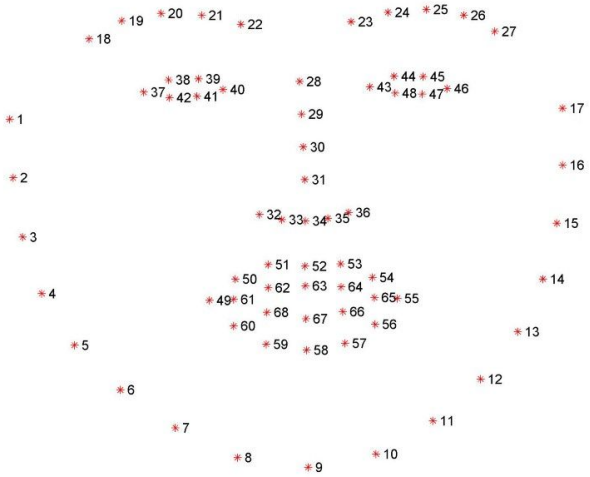
OBJECTIVE

- To create a ML based system that would detect drowsiness or fatigue by examining the the eye closing and yawning ratio of the driver.

PROJECT OVERVIEW



- In first step, camera will be turned on to capture video images of the driver. Then the driver's face area will be detected.
- To detect these each of the facial features like eyes, nose, mouth, etc. we use the pretrained landmark detector present inside the dlib library of OpenCV.
- It is used to estimate the location of 68 points which map to facial structures.



- Now calculate the Eye Aspect Ratio. This determines how closed is the eye. Similarly calculate Yawn threshold
- Then we will continuously monitor the eye aspect ratio to see if the value of the ratio is less than 0.3 for continuously 25 frames, thus implying that the eyes of the person has been closed.
- Now we will assume that the user is sleeping and to grab their attention an alarm we would sound an alarm.
- Similarly, we will be calculating the yawn threshold value for each frame, and if its value exceeds 30 then the driver is warned through the alarm.

CONCLUSION

- The proposed system is more efficient when compared to existing systems that uses expensive equipments including mobile Electrocardiography – that uses rhythm of heart to detect drowsiness.

THANK YOU