



**CHAROTAR UNIVERSITY OF SCIENCE &
TECHNOLOGY**

**DEVANG PATEL INSTITUTE OF ADVANCE TECHNOLOGY
AND RESEARCH**



WEEKLY REPORT - 2

Project ID: 19	Semester: 6
From Date: 22/12/25	To Date: 26/12/25
Student ID: 23DCE091, 23DCE092, 23DCE093	

Work done in last week (Attach supporting Documents):

This week, we focused on the manual implementation of drowsiness detection.

The following tasks were successfully completed:

1. Camera and Face Detection Setup
 - Integrated webcam using OpenCV
 - Implemented face landmark detection using MediaPipe Face Mesh
2. Eye Aspect Ratio (EAR) Implementation
 - Extracted eye landmarks from the face
 - Calculated Eye Aspect Ratio (EAR)
 - Fixed threshold values to distinguish between:
 - Eyes open
 - Eyes closed
 - Drowsy state
3. Drowsiness Logic
 - If EAR remains below a fixed threshold for a certain time, the driver is marked as DROWSY
 - Otherwise, the driver is marked as ALERT
4. Real-Time Testing
 - Tested the system under different eye conditions:
 - Normal open eyes
 - Closed eyes
 - Prolonged eye closure
5. Result Visualization
 - Displayed real-time values on screen:
 - EAR value
 - Eye state

- Final driver status

Results

The system was able to:

- Correctly detect eyes open → ALERT state
- Correctly detect eyes closed for longer time → DROWSY state
- Show stable EAR values in real-time
- Run smoothly on a live webcam feed

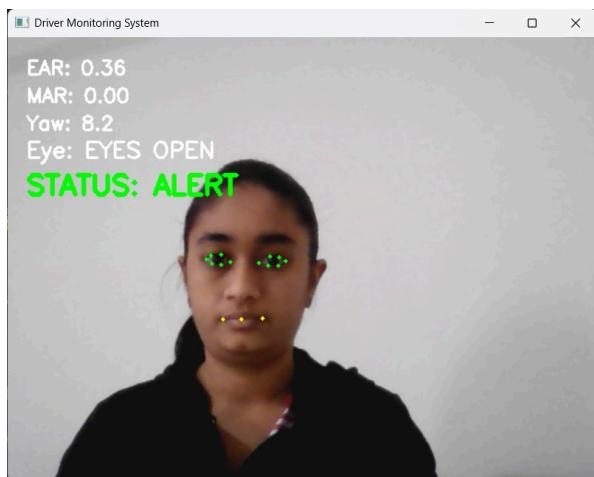


Fig 1: ALERT state



Fig 2 : DROWSY state

Plans for next week:

In the next week, the following tasks will be performed:

- Implement Mouth Aspect Ratio (MAR) for yawning detection
- Integrate yawning detection with the existing system
- Test combined conditions:
 - Drowsiness + yawning
 - Normal + yawning
- Begin preparation for machine learning-based eye state classification

References:

1. <https://www.kaggle.com/datasets/serenaraju/yawn-eye-dataset-new>
2. Kumar, S. and Tomar, C.S., 2025, March. Driver Drowsiness Detection and Alert System Using Computer Vision. In *2025 3rd International Conference on Disruptive Technologies (ICDT)* (pp. 548-553). IEEE.
3. Karthigavani, N., Christober, S., Dhanesh, S. and Dhanush, P.S.R., 2025, July. A hybrid accident prevention framework towards Driver Fatigue and Distraction Detection using YoloV10 architecture. In *2025 2nd International Conference on New Frontiers in Communication, Automation, Management and Security (ICCAMMS)* (pp. 1-6). IEEE.

4. Karthigavani, N., Christober, S., Dhanesh, S. and Dhanush, P.S.R., 2025, July. A hybrid accident prevention framework towards Driver Fatigue and Distraction Detection using YoloV10 architecture. In *2025 2nd International Conference on New Frontiers in Communication, Automation, Management and Security (ICCAMS)* (pp. 1-6). IEEE.
5. Kurian, A.T. and Soori, P.K., 2023, March. AI-Based Driver Drowsiness and Distraction Detection in Real-Time. In *2023 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)* (pp. 13-18). IEEE.
6. Nasser, M., Rashid, T., Ghanem, A., Saeedi, H. and Mahasneh, H., 2025, January. Design and Implementation of a Driver Drowsiness Detection System to Prevent Accidents Using Machine Vision. In *2025 IEEE International Conference on Consumer Electronics (ICCE)* (pp. 1-3). IEEE.

Signature of Student

Signature of Mentor