Design & Prototype of Plug and Play system and Driver Drowsiness Detection system

The Client & Industry

The client is Global Leading European OEM manufacturer

Project scope

The Requirement was to Design an Enclosure which will house a PCB with the battery, Sensor and Camera setup with different mounting holes that will be used as a plug & play standalone product based on the application of the user. And develops a drowsiness detection system by monitoring the eyes.

Input

- 3D CAD model & Physical Model of Raspberry Pie Electronic board & Specifications
- Product Functional requirement document
- Camera Module specs sheet
- Product Characteristics (Material, IP rating, Ports details, Mounting Options, Enclosure Type etc.)
- Current Manufacturing / End-user challenges and inputs for improvements

Our Solutions

- Prototype done for enclosure and validated 3D printed part was assembled with Driver Drowsiness Raspberry pie board and validated
- Design of the enclosure includes FEA analysis – Snap fit analysis for identifying the snap fit strength
- Advanced face recognition & stable AI logic implementation which is suitable for all skin types, even drivers with glasses day & night
- Real time video capturing and image processing Based on Driver Drowsiness Detection System
- Buzzer for alarm indication

Deliverables

Initial Concept Sketches / 3D CAD model / 2D manufacturable drawings / 2 Units of First batch for Testing / 3D printed prototype / Python OpenCV Algorithm for facial landmark detection