EyeOnDriver - ADAR 1.0

Project Description:

EyeOnDriver is a real-time AI and IoT-based driver safety system designed to reduce road accidents caused by human errors such as drowsiness, phone distractions, unauthorized access, alcohol influence, and underage driving. It integrates OpenCV and MediaPipe for facial and gesture recognition, and ESP32 microcontroller to control external hardware (buzzer, LCD, relay lock, etc.).

Core Features:

- Drowsiness detection using eye aspect ratio
- Phone usage & talking detection using facial and hand landmarks
- Alcohol detection via MQ-3 sensor on ESP32
- Face recognition for authorized driver unlock
- Age verification prototype via Aadhaar-based simulation
- Real-time voice alerts through TTS (pyttsx3)
- Hardware control via ESP32 for buzzer, LCD, relay
- Planned: SOS GPS alerts, mobile app, driver scoring

Applications:

- Personal cars, school buses, logistics fleets, public transport

Technologies: Python, OpenCV, ESP32, Arduino IDE, pyttsx3, MediaPipe, MQ-3 Sensor