Real-Time Sleep vs Awake Detection with MediaPipe & OpenCV

This project uses a webcam to monitor a person’s eye activity in real time and determine whether they are awake or sleeping, using MediaPipe Face Mesh and the Eye Aspect Ratio (EAR) method. It’s lightweight, runs locally, and is perfect for drowsiness detection systems or personal productivity tools.

Features

* 🧠 Detects if a person is awake or asleep based on eye openness
* 🎯 Utilizes MediaPipe Face Mesh for accurate facial landmarks
* 📷 Real-time webcam support using OpenCV
* 🚀 Calculates EAR (Eye Aspect Ratio) to identify closed eyes
* 💻 Clean visual display with live face mesh and status overlay
* 🔒 Runs entirely offline – no data is sent anywhere

Technologies Used

* Python
* MediaPipe
* OpenCV
* NumPy

Working

1. Captures frames from your webcam
2. Detects facial landmarks using MediaPipe’s Face Mesh
3. Extracts key eye landmarks for both eyes
4. Computes EAR (Eye Aspect Ratio) for each eye
5. Compares EAR against a threshold to determine if the eyes are closed
6. Displays “Awake 😄” or “Sleeping 😴” status on the video feed

**Output**

* Live webcam feed with face mesh overlay
* Status text: “Awake” or “Sleeping” shown on screen

