

A large, irregular blue ink splash or blotch serves as the background for the text. The splash is centered and has a textured, painterly appearance with various shades of blue and white. The text is white and centered within the splash.

DROWSINESS DETECTION SYSTEM

ABSTRACT

WHY DROWSINESS DETECTION SYSTEM? HOW WILL IT MAKE A DIFFERENCE?

APPLICATIONS

- IN CARS TO DETECT FATIGUE
- IN OFFICE MEETINGS
- IN ZOOM MEETINGS

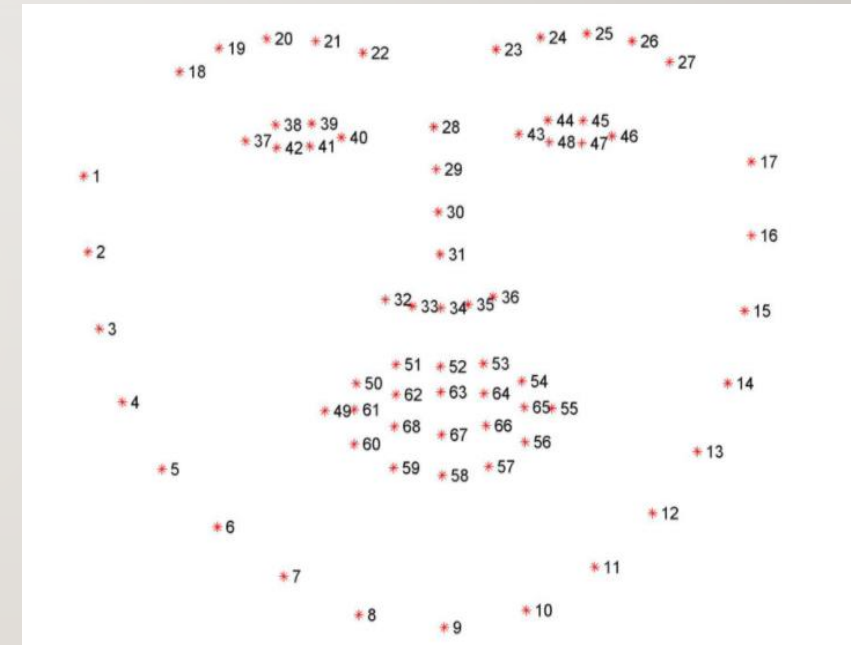
WHAT ARE THE OUTCOMES?

- WARN DRIVERS TO AVOID ROAD-ACCIDENTS
- DETERMINE A PERSON'S BEHAVIOUR IN MEETINGS



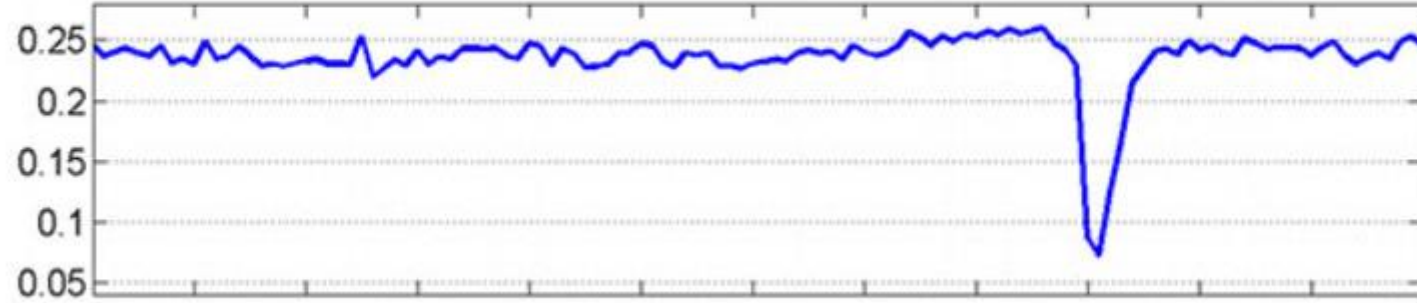
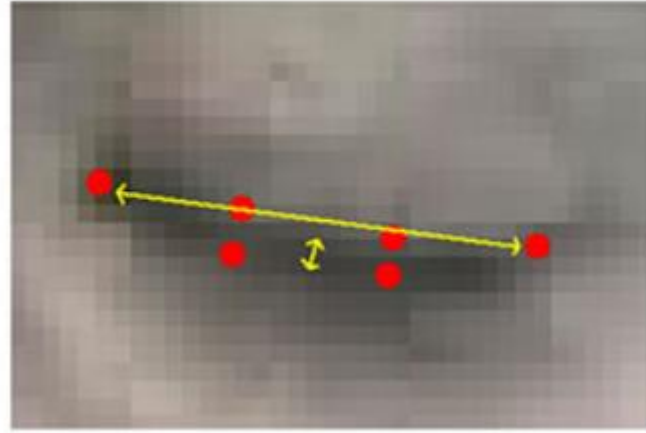
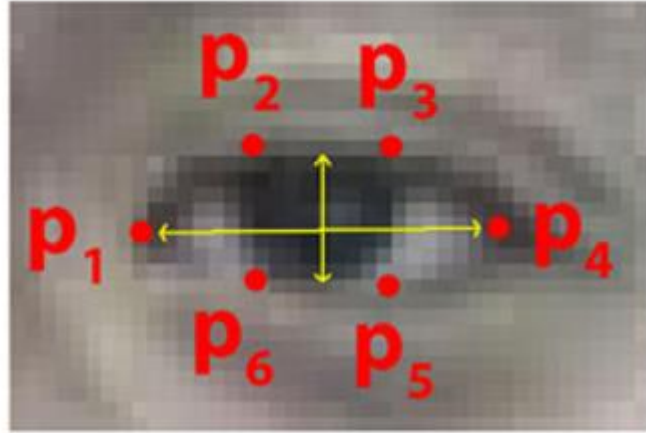
HOW WILL IT WORK?

- 1) FACIAL LANDMARK DETECTION
- 2) EXTRACT EYES STRUCTURE(i.e. 37-48)
- 3) DETERMINE THE EYE-ASPECT-RATIO(EAR)
- 4) IDENTIFY THE BLINKS
- 5) DIFFERENTIATE A NORMAL BLINK FROM A DROWSY EYE BLINK



$$EAR = \frac{\|p_2 - p_6\| + \|p_3 - p_5\|}{2\|p_1 - p_4\|}$$

Figure 4: The eye aspect ratio equation.



REQUIREMENTS

- OpenCV FOR OBJECT DETECTION
- imutils FOR IMAGE PROCESSING FUNCTIONS
- dlib FOR FACIAL LANDMARK DETECTION
- SciPy FOR CALCULATIONS
- WORKING WEBCAM

THANK YOU