DROWSINESS DETECTION SYSTEM

ABSTRACT

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

APPLICATIONS

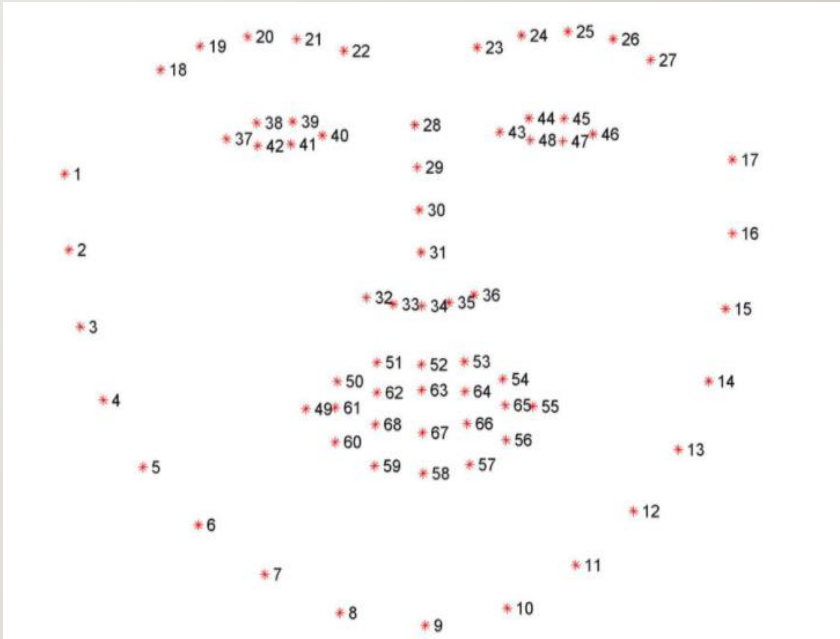
- IN CARS TO DETECT FATIGUE
- IN OFFICE MEETINGS
- IN ZOOM MEETINGS

WHAT ARE THE OUTCOMES?

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

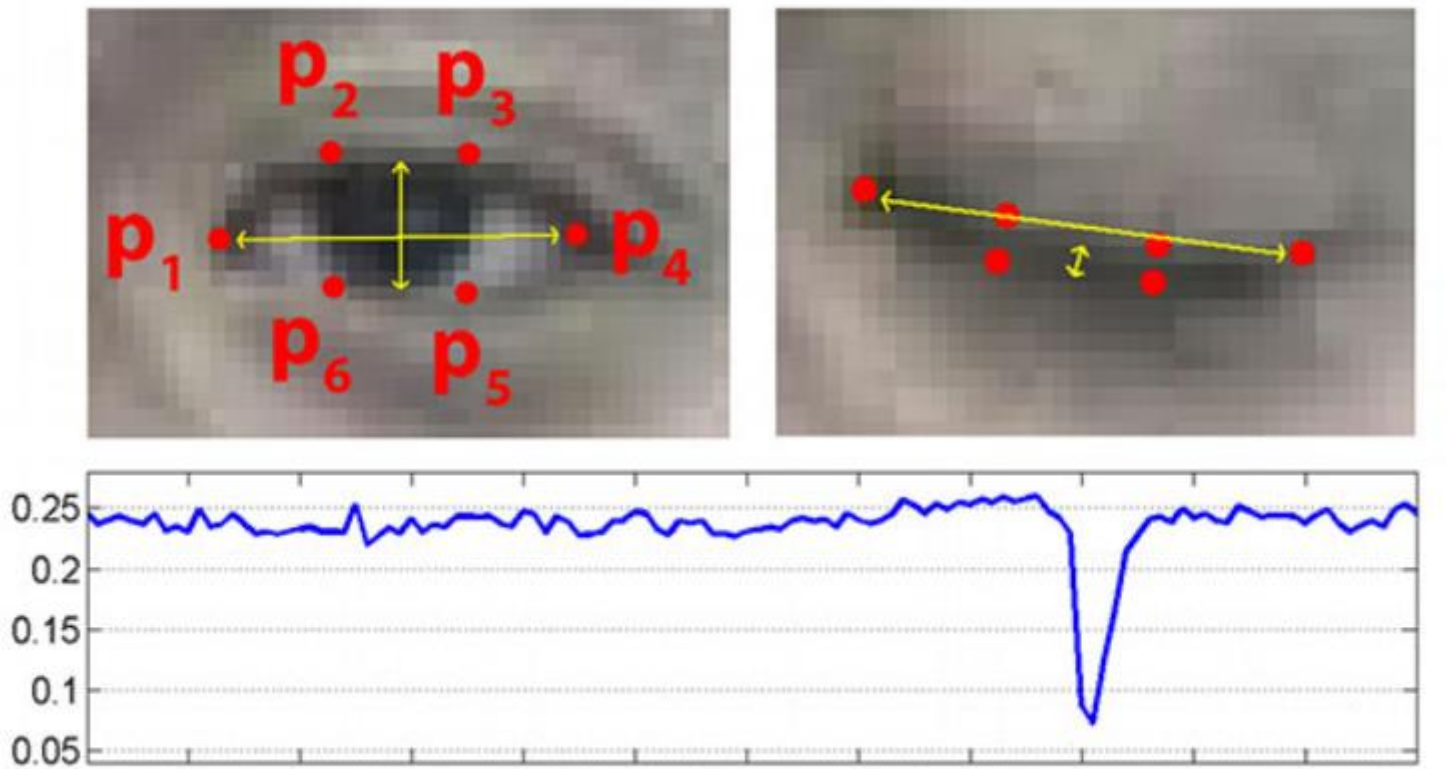
HOW WILL IT WORK?

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



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

Figure 4: The eye aspect ratio equation.


p2
p3
p1
p4
p6
p5
0.25
0.2
0.15
0.1
0.05

REQUIREMENTS

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

THANK YOU