

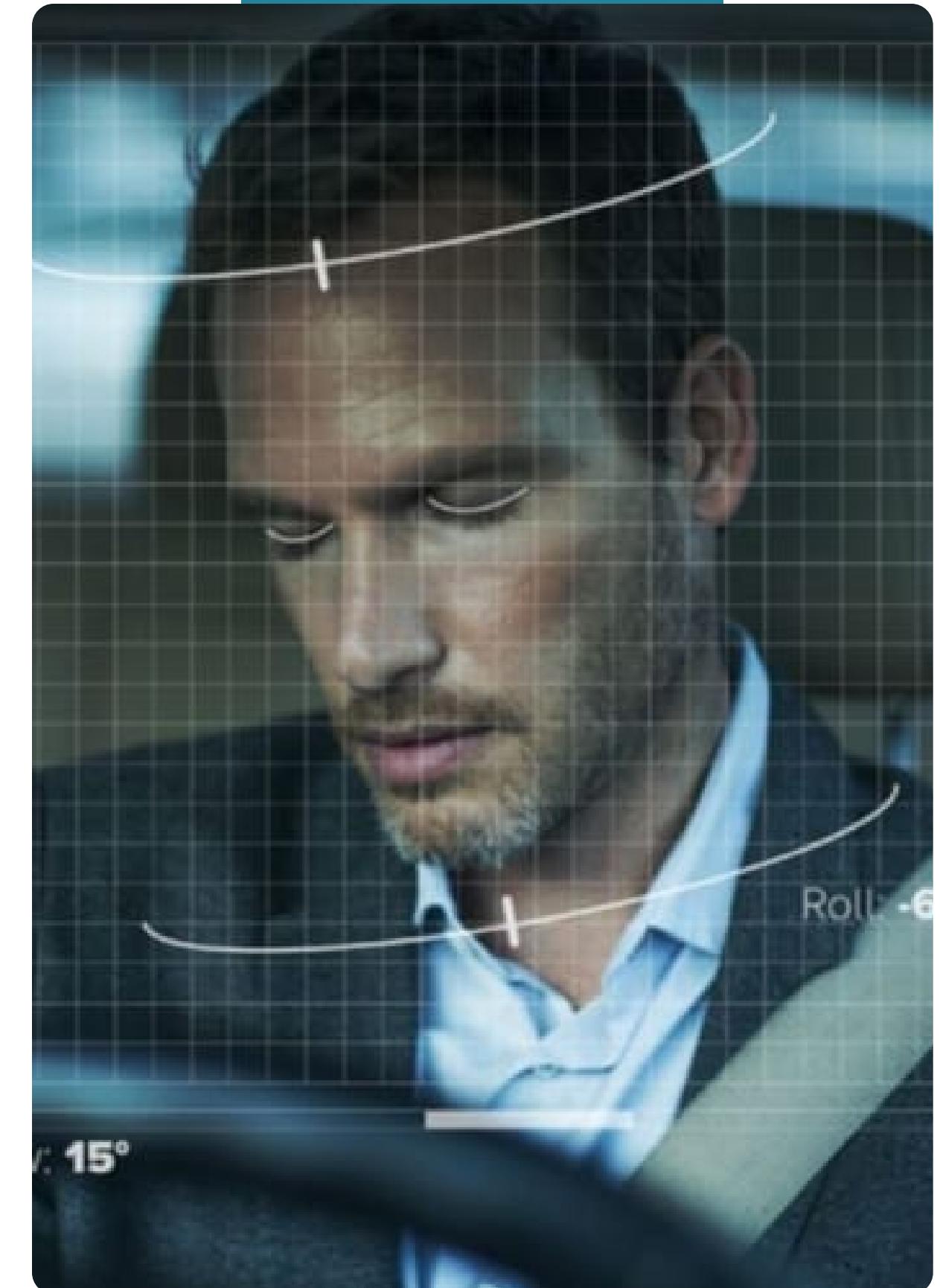
RANDOM BUILDERS

IEEE IC HACKS 2.0

# DROWSINESS DETECTION



<https://github.com/srijitt/drowsiness-detection>



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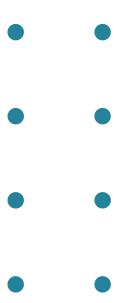
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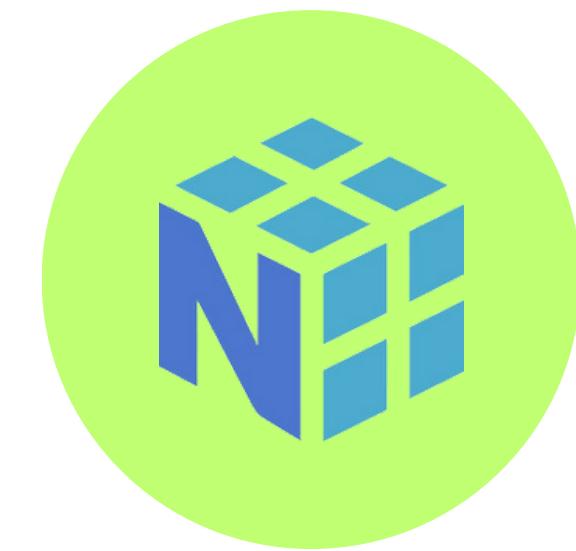
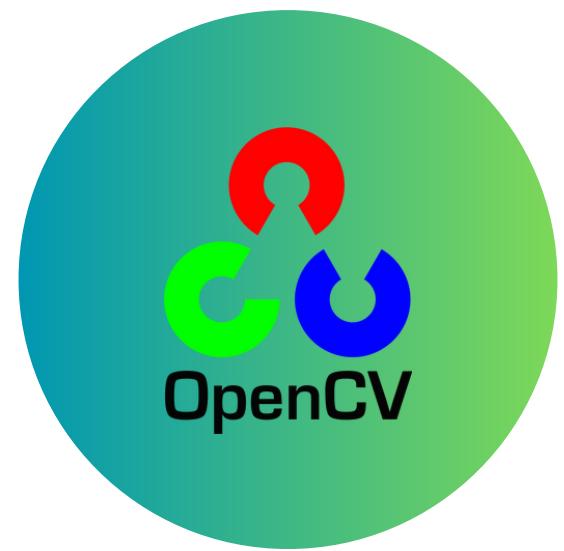
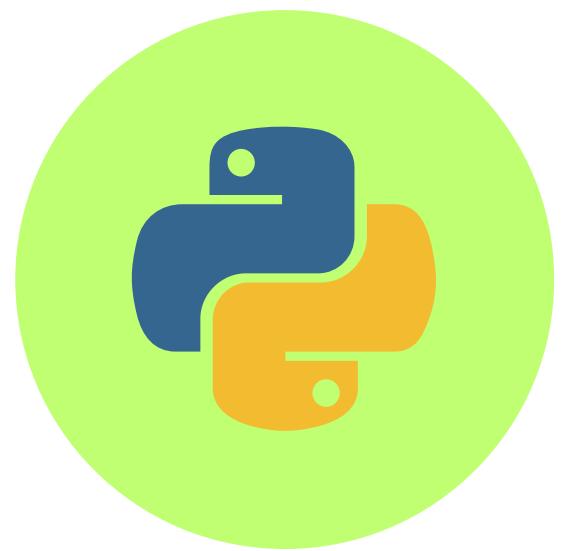
Non Drowsiness



# INTRODUCTION

This Drowsiness Detection System is a Python-based project using dlib and OpenCV to detect drowsiness in real-time from a video stream or camera feed. It can be used in various scenarios, such as monitoring the alertness of drivers or individuals operating heavy machinery - such as automobiles. Various studies have suggested that around 20% of all road accidents are fatigue-related, up to 50% on certain roads. Our project aims to reduce the risk of such fatalities.

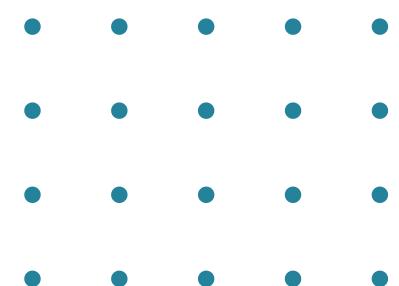
# REQUIREMENTS





## Statistics

Each year, drowsy driving accounts for about 100,000 crashes, 71,000 injuries and 1,550 fatalities, according to the National Safety Council (NSC). Drowsiness was a contributing factor in up to 10.8 percent of all crashes



# FEATURES

Real-time drowsiness detection.

Easy integration with existing systems.

## DROWSINESS DETECTION

Face and eye tracking for accurate detection.

Can be implemented with an alarm system, in say, automobiles.

# Working

01

We use a feature landmark model from 'dlib' library which returns a facemap indicating all the landmarks of our face. We then convert it into a sorted array, consisting of 68 landmarks.

02

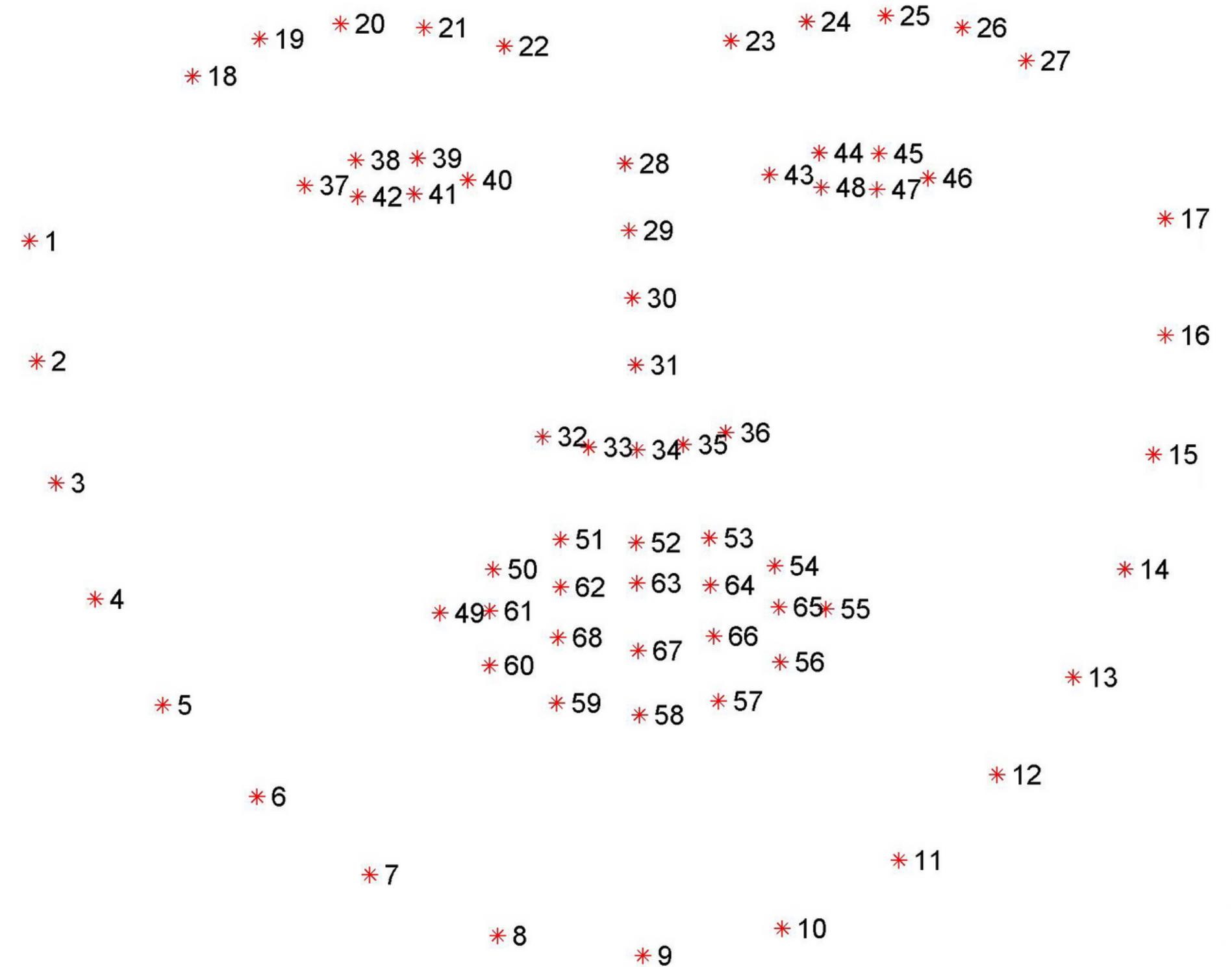
Then based on the landmarks of the left and right eye, we decide whether the eye is open, closed, or drowsy.

03

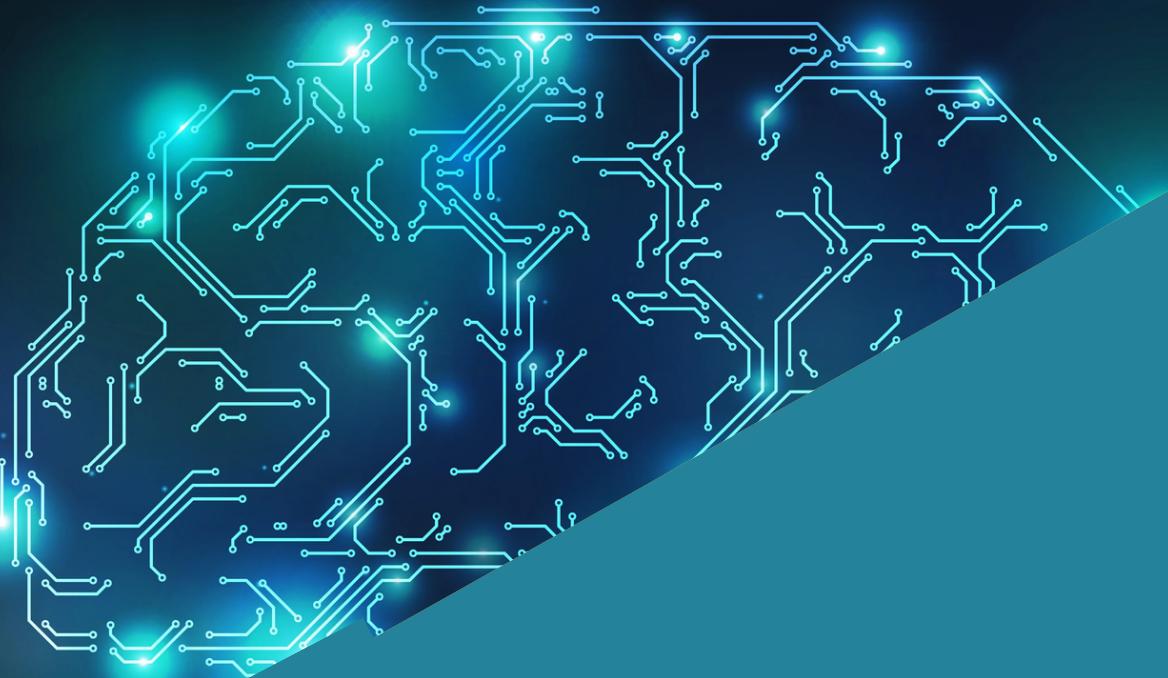
We calculate a certain ratio, which is standardised to 0.25 for an open eye.

04

Based on this landmark feature map, we change our status parameters from ACTIVE, DROWSY, or SLEEPING



# APPLICATIONS



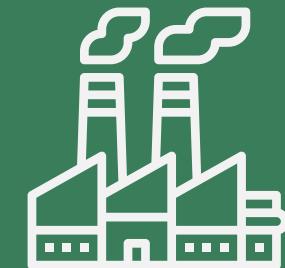
**DRIVER MONITORING  
SYSTEM (DMS)**



**HEALTHCARE**



**SECURITY AND  
SURVEILLANCE**



**INDUSTRIAL SAFETY**



# INSTALLATION

1. **Clone the repository**  
**git clone**

```
https://github.com/yourusername/drowsiness-detection.git
```

2. **Install the required dependencies:**

```
pip install opencv-python dlib  
numpy
```

3. **Run the Drowsiness Detection System:**

```
python  
drowsiness_detection.py
```

# LIMITATIONS

Limited Field  
of View

False Positives/  
Negatives

Lighting  
conditions, the  
quality of  
cameras

## **Consumer Electronics**

**Integrating drowsiness detection technology  
into wearable devices like smartwatches or  
fitness trackers.**

## **Sports and Athletics:**

**Utilizing drowsiness detection to monitor the alertness  
and reaction times of athletes during training or  
competitions.**

## **Education:**

**Employing drowsiness detection in classrooms or  
online learning environments to monitor student  
engagement and alertness.**

# **FUTURE APPLICATIONS**

# RANDOM BUILDERS



SRIJIT  
CHAKRABORTY



SAMYA DUTTA



SOURABH DEY

RANDOM BUILDERS

**THANK YOU**