



Driver Distraction Detector

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Project Statement

- Drowsy and distracted driving causes accidents and injuries.
- Existing solutions for detecting drowsiness are limited and expensive.
- **Our goal:** Create an innovative, cost-effective, real-time solution for detecting asleep or distracted drivers.



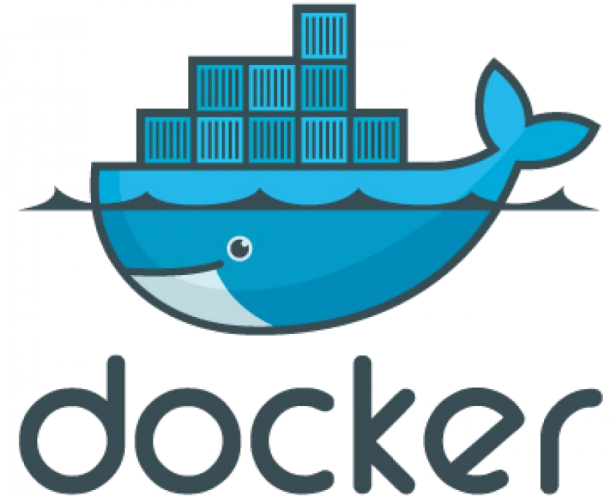
Solution Overview

- Our solution: AI-powered driver monitoring system.
- Uses computer vision and deep learning for real-time analysis.
- Tracks eye movements.
- Provides alerts to prevent potential accidents.



Integration

- We used the basic teaching modules and integrated opencv.
- Loaded the app in sleep_module.py



[image source](#)

LEVELS OF DRIVING AUTOMATION



0

NO AUTOMATION

Manual control. The human performs all driving tasks (steering, acceleration, braking, etc.).



1

DRIVER ASSISTANCE

The vehicle features a single automated system (e.g. it monitors speed through cruise control).



2

PARTIAL AUTOMATION

ADAS. The vehicle can perform steering and acceleration. The human still monitors all tasks and can take control at any time.



3

CONDITIONAL AUTOMATION

Environmental detection capabilities. The vehicle can perform most driving tasks, but human override is still required.



4

HIGH AUTOMATION

The vehicle performs all driving tasks under specific circumstances. Geofencing is required. Human override is still an option.



5

FULL AUTOMATION

The vehicle performs all driving tasks under all conditions. Zero human attention or interaction is required.

THE HUMAN MONITORS THE DRIVING ENVIRONMENT

THE AUTOMATED SYSTEM MONITORS THE DRIVING ENVIRONMENT



Example Parameters

Threshold: 78

Time offset: 5s

Time Units: Seconds

image



threshold (000/255)



```
Driver Concetrated.  
Driver Concetrated.  
Driver Concetrated.  
Driver Concetrated.  
Driver Concetrated.  
Driver Concetrated.  
Driver Concetrated.
```



image



threshold (000/255)



```
Driver Distracted for: 2.1834120750427246  
Driver Distracted for: 2.225677013397217  
Driver Distracted for: 2.266364336013794  
Driver Distracted for: 2.3042807579040527  
Driver Distracted for: 2.341937303543091  
Driver Distracted for: 2.3803112506866455  
Driver Distracted for: 2.421088695526123
```


image



threshold (000/255)



```
Driver Distracted for: 5.404972791671753
ALERT: Driver Distracted!
Driver Distracted for: 5.43981409072876
ALERT: Driver Distracted!
Driver Distracted for: 5.47579550743103
ALERT: Driver Distracted!
Driver Distracted for: 5.511536121368408
```

█

image



threshold (000/255)

```
Driver Distracted for: 5.921569347381592
ALERT: Driver Distracted!
Driver Distracted for: 5.959652423858643
ALERT: Driver Distracted!
Driver Distracted for: 5.999145269393921
ALERT: Driver Distracted!
Driver Distracted for: 6.832970985303955
```

image



threshold (000/255)



```
Driver Asleep for: 6.164039134979248
ALERT: Driver Asleep!
Driver Asleep for: 6.200237989425659
ALERT: Driver Asleep!
Driver Asleep for: 6.235152721405029
ALERT: Driver Asleep!
Driver Asleep for: 6.27047872543335
```

□

Future Scope

- Enhanced Road Safety: Reduces accidents caused by drowsiness and distractions.
- Scalability: Integration with advanced driver assistance systems.
- Social Impact: Contributing to safer roads and responsible driving.





Thank you for your time!