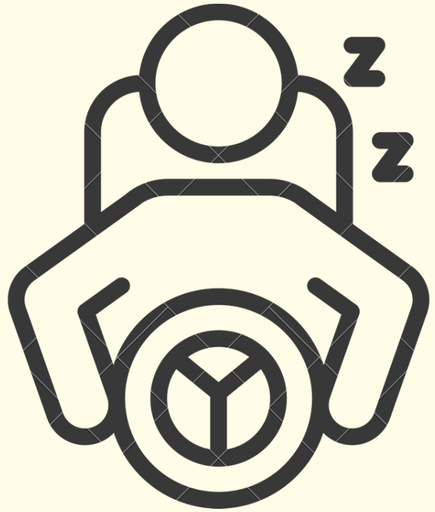
Driver Drowsiness Detection System

Workflow



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Problem:

Solution:

We can help to prevent these accidents, by build a drowsiness detection system. First, it will detect that person’s eyes are closed for a few seconds.Then it will alert the driver once drowsiness is detected.

Dataset description

→ Source: kaggle

→ Size:

Train dataset:2517 images

Test dataset:418 images

→ Type:
Image Closed eyes dataset
Image Open eyes dataset

→ Sample:

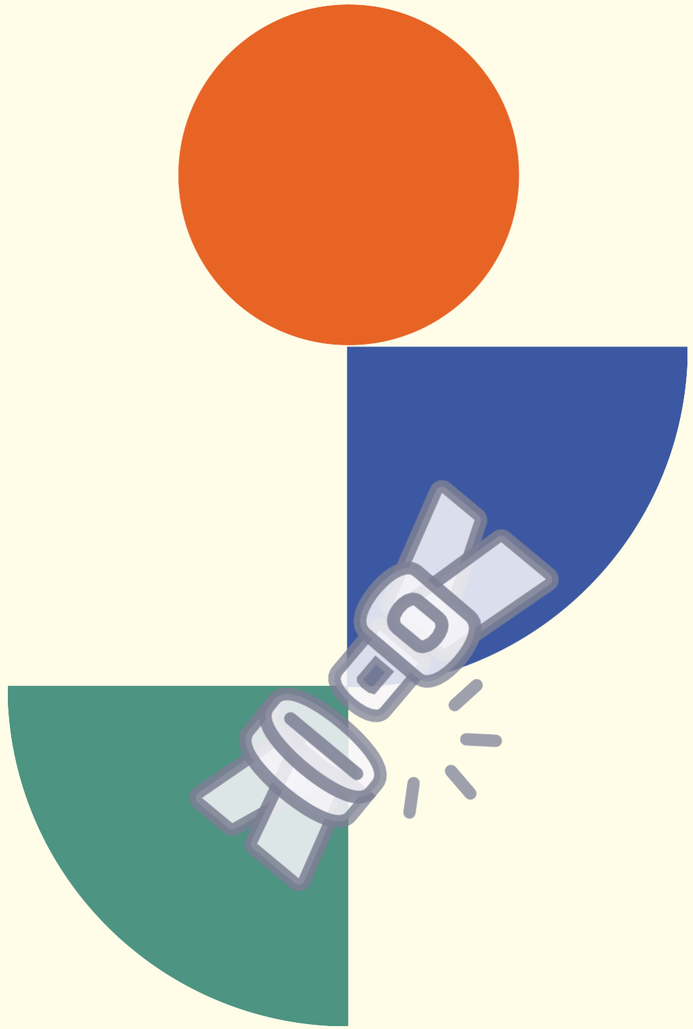
Hardware and Software requirements

1. Hardware Required

- PC
- Webcam

2. Software Required

- Google Colab and Jupiter Environment
- OpenCV Face Eye Detection
- Tensorflow-Keras uses To build our Classification Model
- Pygame-to play alarm sound



Model Architecture

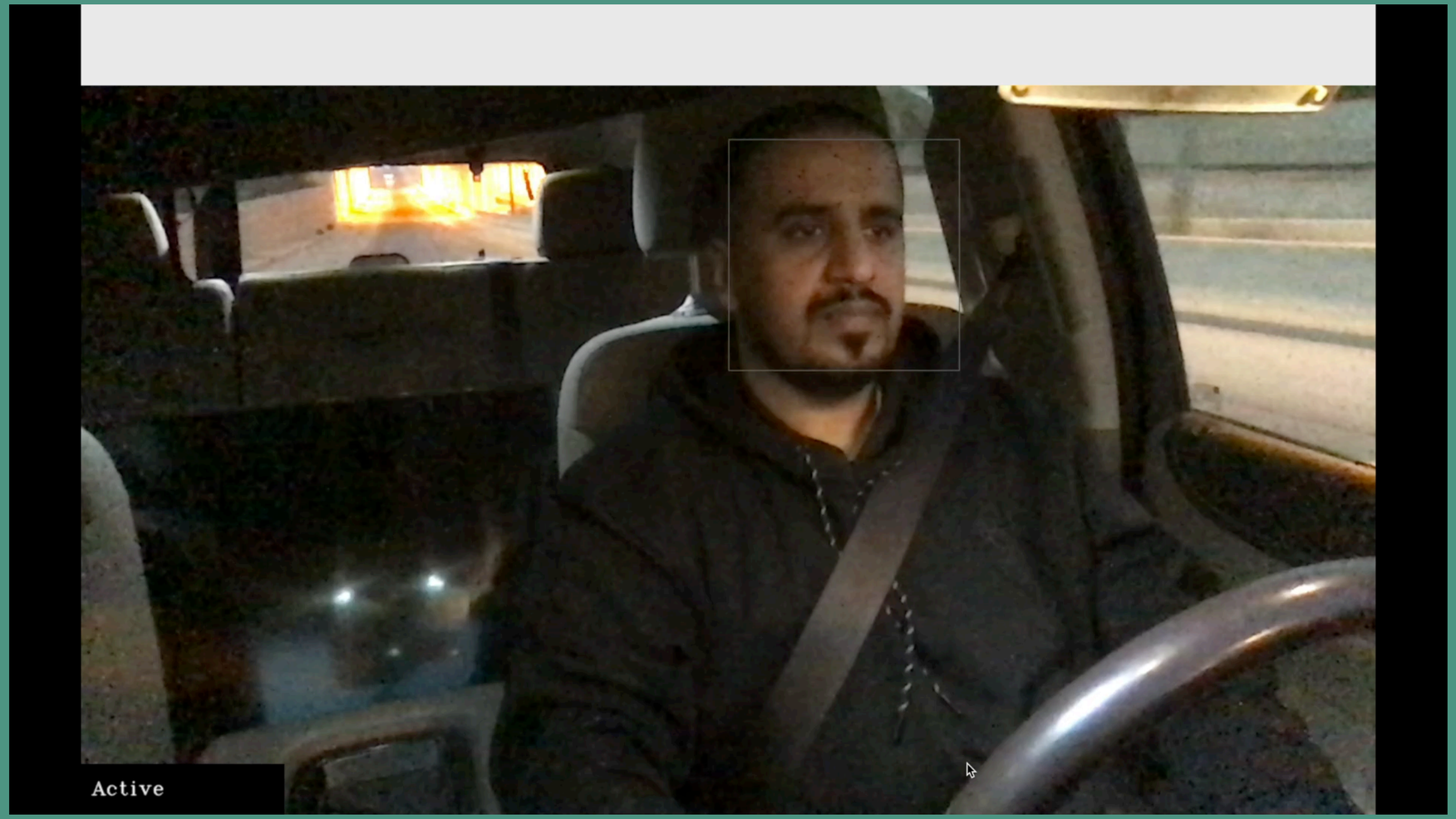
Model: "sequential"

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 22, 22, 32)	320
max_pooling2d (MaxPooling2D)	(None, 22, 22, 32)	0
conv2d_1 (Conv2D)	(None, 20, 20, 32)	9248
max_pooling2d_1 (MaxPooling2D)	(None, 20, 20, 32)	0
conv2d_2 (Conv2D)	(None, 18, 18, 64)	18496
max_pooling2d_2 (MaxPooling2D)	(None, 18, 18, 64)	0
dropout (Dropout)	(None, 18, 18, 64)	0
flatten (Flatten)	(None, 20736)	0
dense (Dense)	(None, 128)	2654336
dropout_1 (Dropout)	(None, 128)	0
dense_1 (Dense)	(None, 2)	258

Results

Epoch 10	Train data	Accuracy	99%
		loss	0.0243
	Test data	Accuracy	94%
		loss	0.2196

Demo Test



Future Aspects

- considering vibration mode in future works for driver seat or car steering wheel.
- Study facial expressions of the driver like eyes blinking and head movements to detect driver drowsiness.

Thank you!

Presented by…

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