

Driver Drowsiness Detection with Deep Learning

By:

Sultanah aldossari

Rawan Alharbi

Objectives Outline:

- Introduction
- Problem Statement

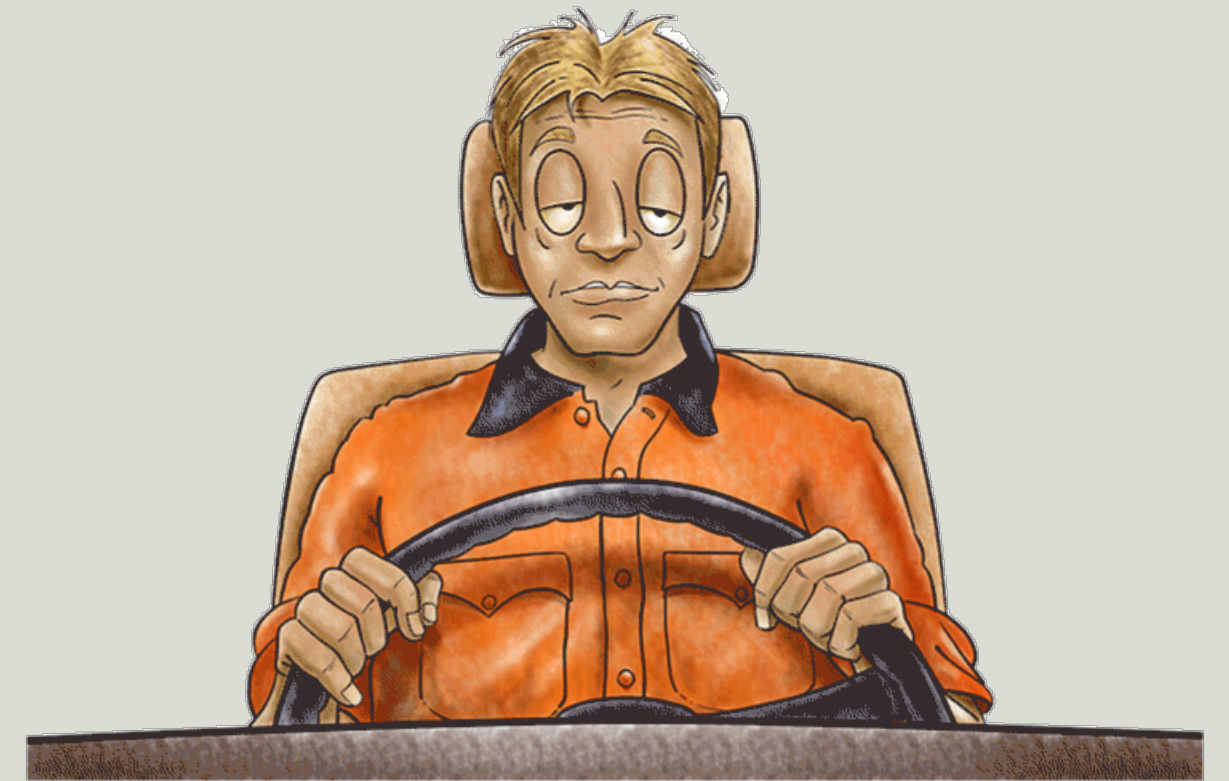
- Drowsiness
Detection Dataset
- Data
Preprocessing

- Model Building
- Model
Performance

- Conclusion
- Future Work

Problem Statement:

- Accidents due to drivers getting drowsy or sleepy account for around 20% of all accidents
- The project uses a CNN model to predict whether a person feels drowsy or not based on whether the eyes are closed or open or the person is yawning or not.



Dataset Description

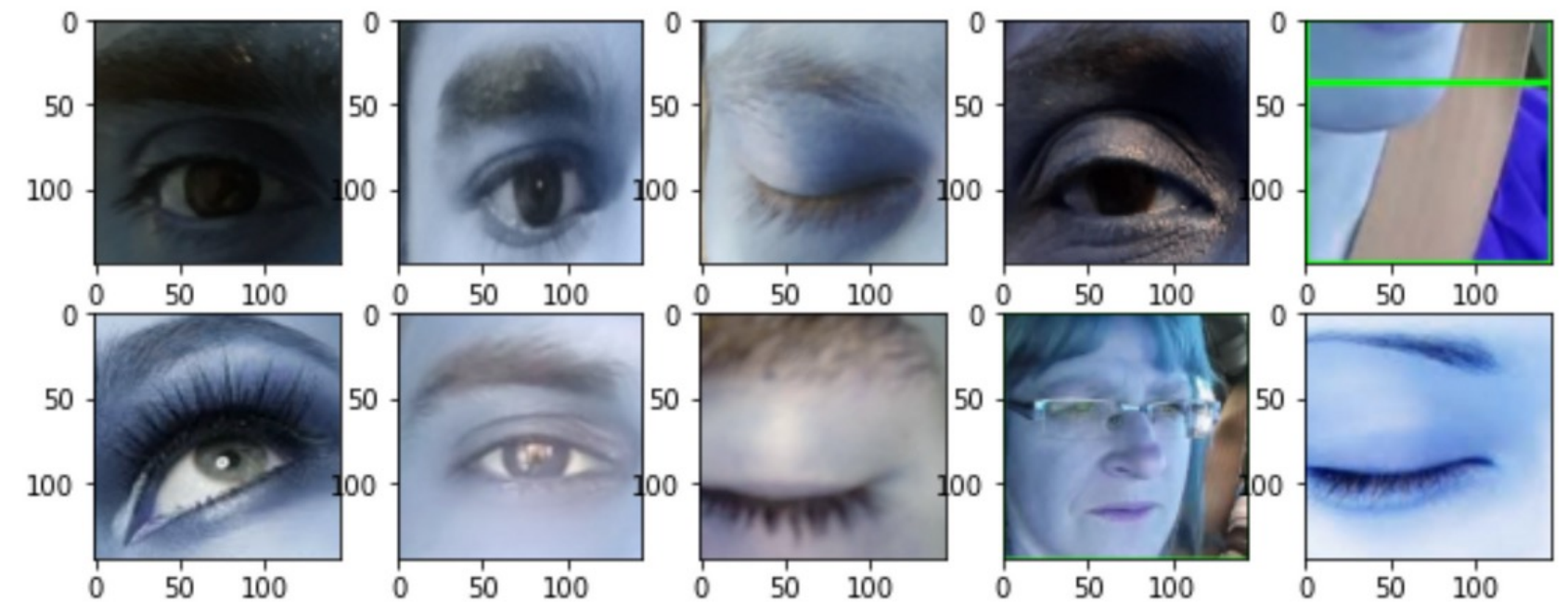
- The project uses the Drowsiness dataset present on the Kaggle.
- The dataset contains a total of 4799 images in four categories.
- Class Labels — ‘Open Eye’, ‘Closed Eye’, ‘Yawning’ and ‘Not yawning’,
- Class Labels were encoded such that 0 represents Yawning and 1 illustrates Not yawning, 2 illustrates Closed Eye and 3 represents Open Eye.

Data Pre-processing

- Detect the eyes and mouth
- Assign an index for each class
- Label binarize
- Data augmentation

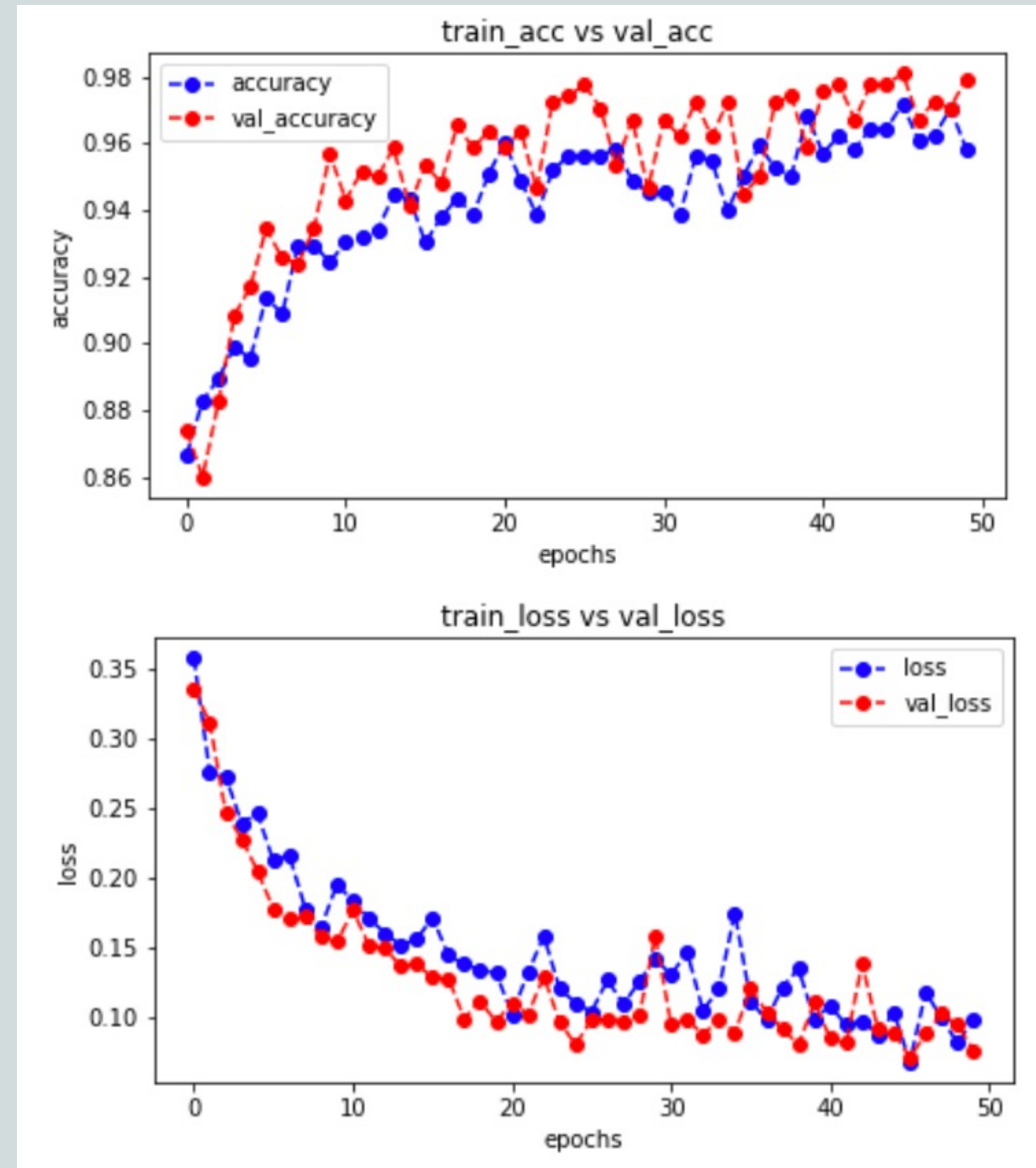


Some examples of images of the dataset

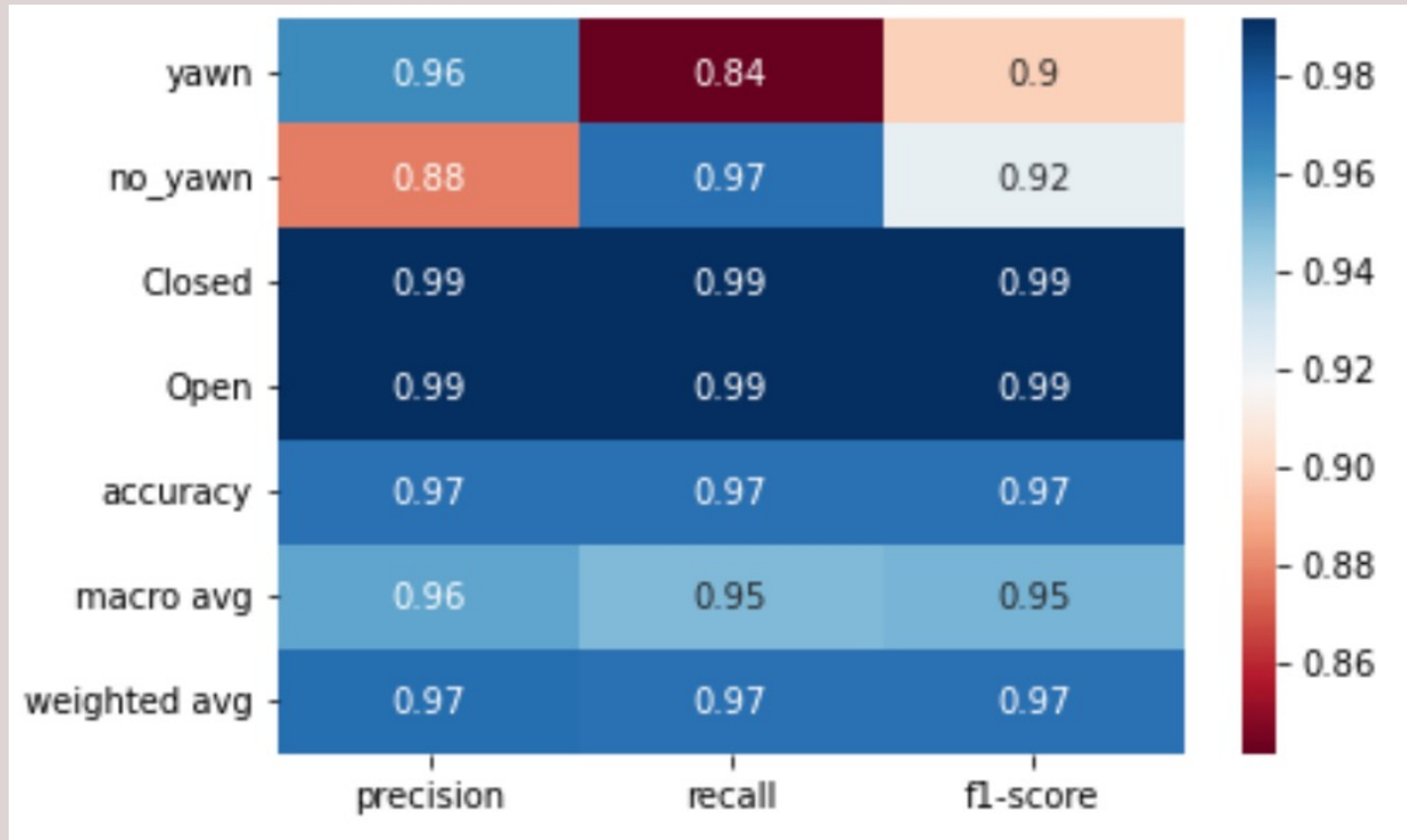


CNN Building

- 4 Convolutional layers with Max Pooling
- Adam optimizer were used
- LeakyRelu activation function with Accuracy of 97% and MSE Score 0.07



Classification Result



Model Deployment

Drowsiness Image Classification

Choose the image to feed into the model

Choose...

Future work

Create an IoT product that can detect the drowsiness

Improve the model to detect real-time photos
immediately from the camera



THANK YOU

Congratulations our fellows Data Scientists

We will always be T5C05

