Drowsiness Detection using YOLO

What is the problem?

- Drowsiness when performing vital jobs like driving or operating heavy machinery can result in serious accidents and injuries.
- So, identifying drowsiness is critical in order to avoid such incidents.

What has been done earlier?

- Behavioural Monitoring:
  - These devices observed behaviours such as eye closure and head tilt.
- Physiological Monitoring:
  - These systems used physiological signals like heart rate, skin conductance, etc.
- CNNs:
  - CNNs were used to analyse facial expressions to detect drowsiness.

Bighnaraj Mohapatra, B421019

What are the remaining challenges? What novel solution proposed by the authors to solve the problem?

- Real time detection: One of the major challenges was to process the data quickly in order to detect drowsiness as soon as possible. It required a balance between speed and accuracy.
- Adapting to various environments: The system should be able to adapt to different environments like different weather conditions, daytime, nighttime, etc.
- YOLO (You only look once) model is used to tackle these problems. It is the latest technology used for object detection. It is known for its speed and accuracy.
- It processes the entire image in a single pass, making it suitable for real time detection systems.
- Some preprocessing steps to handle different environments and post-processing steps like filtering out false positives was implemented in order to improve the accuracy of the model.