Applied Machine Learning Final Project Proposal - Team 12

1) Problem statement - this section defines the machine learning problem.

We want to develop a real time drowsiness detection system with computer vision models to reduce car accidents by keeping track of their eyes movements and alert them when they are detected as drowsy.

2) Description of data set - this part identifies the source of training data set (provide URL link to the data set if it is from Internet)

https://www.kaggle.com/datasets/prasadvpatil/mrl-dataset

https://www.kaggle.com/datasets/dheerajperumandla/drowsiness-dataset

We will use these data sets, which contain eyes open, closed, and yawn images, for our model training.

3) Implementation plan - this section briefly describes the tentative plan for implementation, milestones and timeline.

- Data preprocessing
- Identify the best algorithm to detect the region of interests which in our case is the face and specifically the eyes and the mouth
- Identify the three algorithms and build corresponding models for drowsiness detection with the region of interests as input
- Compare the results from all three algorithms
- Final project report and presentations

Milestone	Timeline
Final Project Proposal	10/19/2022
Data Preprocessing	10/26/2022
Region of Interests Detection	11/9/2022
Mid-stage Report	11/16/2022
Implement drowsiness classifier with chosen three algorithms	11/30/2022
Compare the results of all three algorithms	12/7/2022
Final project report and presentation	12/14/2022

4) Team members & task allocation - this section list names of all team members and defines tasks for each member.

Team members:

Hsin-Hung Wu (CWID : 20016267)

Aman Sandal (CWID : 20011102)

Monish Kanna Suresh (CWID : 20012129)

Tasks	Responsible
Final Project Proposal	Hsin-Hung, Aman, Monish
Data Preprocessing	Hsin-Hung, Aman, Monish
Region of Interests Detection	Hsin-Hung, Aman, Monish
Mid-stage Report	Hsin-Hung, Aman, Monish
Implement drowsiness classifier and report result for algorithm 1	Hsin-Hung
Implement drowsiness classifier and report result for algorithm 2	Aman
Implement drowsiness classifier and report result for algorithm 3	Monish
Compare the results of all three algorithms	Hsin-Hung, Aman, Monish
Final project report and presentation	Hsin-Hung, Aman, Monish