

## ABSTRACT

Driving safety is a behavior of driving a vehicle, especially a car, prioritizing the safety of yourself and other road users. One of main causes of accidents caused by human itself.

In this final project a driver's facial expression recognition system is designed using Principal Component Analysis (PCA) for feature extraction method and Linear Discriminant Analysis (LDA) as the classifier. The PCA method as feature extraction aims to reduce the information without eliminating main information from the data, the information that reduced is eliminated so that the system performance is get faster and more accurate. LDA classifier has advantages that are willing to maximise the between-class scatter matrix and minimize the within-class scatter matrix to maintain the separation between classes.

The results of this study is a facial expression recognition systems that are able to detect a facial expressions and classify them into two types, they are drowsiness and tidak mengantuk expressions using data from Yawning Detection Dataset (YawDD). This dataset have 400 datas and divided into 100 test datas and 100 train datas for dashboard also 100 test datas and 100 train datas for mirror. The performance generated from the system are 97% accurate using the Principal Component Analysis (PCA) method with eigenfaces parameter as feature extraction and Linear *Distance* Analysis using Bayes Prior *distance* as the classification.

Keywords: Facial Expression, PCA, Eigenfaces, LDA, YawDD, Bayer Prior.