ABSTRACT

The rise of two-wheeled vehicle crime cases is partly recorded by CCTV. Perpetrators are often aware of the presence of CCTV and use face coverings and cover license plates to avoid recording. However, CCTV has a limited viewing angle, which is not able to monitor a large area. This makes the community restless and feel disadvantaged by the actions of these individuals. Motorcycle theft cases are increasing in various parts of Indonesia. Ironically, perpetrators often use stolen motorbikes when committing theft in groups or pairs. This makes it difficult for the authorities to identify the perpetrators. Law enforcement officers need sound recordings from two-wheeled vehicles used by perpetrators in the form of 2-stroke and 4-stroke engines to facilitate identification.

In detecting 2-stroke and 4-stroke engine vehicles can be done through the sound method produced by the engine. The use of the Mel¬Frequency Ceptral Coefifcients (MFCC) method plays a role in extracting data characteristics. Furthermore, the data characteristics will be classified using the K-Nearest Neighbor (KNN) algorithm. The input training data is then extracted in MFCC. The voice data characteristics will be stored in the database file and will be used for further processing. After completing the input in the feature extraction process, the voice data will be classified by KNN using the data characteristics that have been stored. The result of this system is to bring up the accuracy value and computation time.

This research will process voice recording data using the Matlab application. Matlab is used to find feature extraction using MFCC and find classification using KNN. Then enter the data processing process as much as 71 training data and 20 test data as a calculation and simulation process. The result of the accuracy value obtained from the identification of motorcycle types based on characteristics with the MFCC and KNN methods is 95.00%. Also obtained the results of computation time worth 38.2914 seconds with parameters worth Frame size 0.025, MFCC Koef 20 and K3.

***Keywords**: Mel-Frequency Ceptral Coefifcients, K-Nearest Neighbor, Motorcycle, Theft, 2-stroke, 4-stroke.*