

ABSTRACT

Unmanned Aerial Vehicle (UAV) is a flying machine technology that can be operated without human control in it. However, this technology poses a threat to public and private security such as in restricted areas or areas with high security. Therefore, anti-drone technology is urgently needed to overcome these problems. With the Deep Learning algorithm, an anti-drone system can detect UAVs based on image data and acoustic/sound data. By applying the MFCC method as sound feature extraction and Transfer Learning as image feature extraction. So a Deep Learning model based on Artificial Neural Network can classify data, based on 3 categories, namely "Drone", "Helicopter" and "Thunderstorm". This research uses 3703 acoustic data and 1539 image data with each type divided into training data and validation data. In the process of training acoustic data and image data, the model is able to achieve 98% accuracy. The results of the acoustic data classification test showed that the accuracy achieved was only 75%, while the image data classification test achieved an accuracy of above 98%. Meanwhile, the test of Combined Models to predict acoustic data and image data is able to produce an accuracy of 93%.

Keywords: *UAV, Classification, MFCC, Artificial Neural Network, Transfer Learning.*