ABSTRACT

Indonesia is a huge Islamic country with a population of hundreds of millions. In general, Indonesians love to consume cattle. Cattle are usually kept on farms far from residential areas. Cattle farms usually have different types of cage. If the cattle farm has a large cage, it must have a large population of livestock, this makes supervision more difficult and time consuming, especially when the cows are released in the shepherd's field, there will be a risk in terms of losing livestock, such as stealing until the cow runs away from the location. The purpose of this research is to develop a cow detection system with UAV video and images, so that it can help farmers in monitoring cow activities on farms, as well as in herding fields.

This research was conducted by taking photo data in the form of many cattle animals to train artificial intelligence systems. Artificial intelligence used in this research is using computer vision, where computer vision can study and analyze an image on a computer. The detection system algorithm used in this research is SSD (Single Shot Detector) MobileNet FPN, which is assisted by drones to monitor and detect cows remotely on farms and outside farms.

This experiment was carried out in two stages, namely flying the drone still with a certain angle and height, and flying the drone straight past the object with a certain height. The results of this study are at an altitude of 5 meters with an average accuracy of 94.45%, then an altitude of 10 meters with an average accuracy of 91.67%, and the last at an altitude of 15 meters with an average accuracy of 75%. There are also test results of drones running at a speed of 0.1 m/s, where the 5 meters results average 100% accuracy. Furthermore, the results of 10 meters average 25% accuracy, and the last 15 meters average 50% accuracy.

Keyword: *SSD (Single Shot Detector), Cattle, Computer vision, Drones.*