

## ABSTRACT

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*Apples are one of the fruits that are in great demand by humans, the vitamins contained in apples are also good for health. Among the many benefits of apples that humans are interested in, we often find obstacles when choosing apples. But now there is technology that is able to classify the quality of fruit, namely fresh and rotten. With this technology, humans are greatly helped in sorting and getting the best quality apples. This system will bring convenience to humans in determining the quality of apples, avoiding rotten fruit, and maximizing the benefits of the latest technology. The result of testing the apple quality detection system using computer vision is that the system is able to detect the quality of apples, and is able to detect more than one apple. From a series of tests that have been carried out, the results show that the pre-trained CNN model is able to detect well, obtained the results of training accuracy of 90.43% and validation accuracy of 81.03%. The YOLOv3 model is also able to distinguish apples from other objects. And the test results show that the system is able to detect the quality of apples using computer vision with the object detection method, with the average result of a confidence score of 52.09%.*

*Keywords: Detection system, Apple, YOLOv3, CNN, Computer Vision.*