

ABSTRACT

Indonesia's vast waters give it an advantage in the fisheries and marine sector. The process of sorting or checking the quality of fish is an important step in export preparation. Especially for skipjack, sorting involves observing various aspects, such as physical appearance, skin condition, eyes, texture and meat elasticity. The problem faced today is that the fish sorting process still relies on manual methods with the use of human senses, resulting in a lack of efficiency in sorting and taking quite a long time.

This paper proposes an Android application to classify fish quality using deep learning algorithms. The model is implemented on a cloud computing service, so that it can classify fish quality based on images captured by the device's camera. The fish image is sent to an API in Google Cloud Platform (GCP) to run the deep learning process, and through the same API, the application receives fish quality predictions based on the results of the process. The deep learning system used includes the YOLOv7 object detection model to detect the body and eyes of the fish which then becomes the input for the EfficientnetV2S-based classification model.

Mobile application testing to identify fish quality was conducted on 20 fish images with two categories, namely "accepted" and "rejected". The average processing time of 4.02 seconds was obtained from testing 10 accepted fish images, while the processing time of 3.15 seconds was obtained from testing 10 rejected fish images. Factors that can affect processing time are network quality, image size, server specifications and deep learning model optimization. The results on usability testing show that the aspects asked to 14 respondents get a score above 4 out of 5. In performance testing, it was found that CPU usage varied between 4% to 47%, but then decreased and remained stable below 5%. In addition, memory usage was 71 MB to 120 MB. Furthermore, in compatibility testing and installation testing, it can be concluded that the application can run well on Android devices that have different versions. This proposed application utilizes deep learning to identify fish quality, and provides an effective solution to help operations in the fishing industry.

Keywords: Android, Classification, Deep Learning, Fish, Quality