ABSTRACT

The fisheries industry in Indonesia has an important role in the national economy and people's welfare. However, the fish sorting process is still often done conventionally by relying on visual observation, which is prone to errors and less efficient. These conventional observations can result in decreased product quality as well as significant economic losses as non-fresh fish may pass through the sorting process. Therefore, a solution is needed that can improve the accuracy and efficiency of fish freshness assessment.

As a solution to the problem, FishQ was developed, a deep learning method-based application that uses the YOLOv8 model to detect and classify fish freshness. FishQ is designed to be accessible to various stakeholders in the fisheries supply chain. The application integrates object detection technology to automatically analyze fish images and provide an accurate assessment of the freshness of the fish.

The results showed that the FishQ application was able to identify the freshness of skipjack in both frozen and not frozen conditions with a mAP value of 94,7% for frozen fish and 91,3% for not frozen fish. Based on testing of fish images, FishQ managed to detect up to 91% of fish images correctly. Based on the results of system usability testing conducted by 103 respondents, the FishQ application gets a total SUS (System Usability Scale) score of 86.87 with grade A which indicates that the application can be accepted and used by users with the Android operating system. The use of this application is expected to speed up the freshness assessment process compared to conventional methods.

Keywords: FishQ, fish freshness, deep learning, YOLOv8, object detection.