

ABSTRACT

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DEVELOPMENT OF A REAL-TIME FISH IDENTIFICATION SYSTEM USING YOLOV8

Thesis. Master of Management Information Systems, Faculty of Technology and Engineering, Gunadarma University, 2023.

Keyword: YOLOv8, Object Identification, Fish, Waterfall, Deep Learning

(xiv + 102 + attachment)

Preservation of the aquatic environment through the introduction of fish species is urgently needed for the preservation of fish species in the aquatic environment, the problem encountered in identifying fish species is the problem of accuracy in recognizing and distinguishing visually similar fish species. This study proposes a method to identify fish species. In this research, a real-time fish species identification system was designed using the YOLOv8 method as an object identification method and system development using the Waterfall method which consists of the stages of analysis, design, implementation, testing and maintenance. the YOLOv8 model works to quickly and accurately identify fish species. The fish species identification system developed identified 21 fish species using a custom dataset, normalized the size of images, annotated data, provided bounding boxes and augmented 2500 data, then trained the data and then evaluated the model. The YOLOv8 model trained with 200 epochs produces a precision value of 94%, recall of 93%, F1-score of 93.4%, mAP50 of 97% and mAP50-90 of 94%. The loss value at each epoch shows a decrease, meaning that the model created can identify properly. This study proves that YOLOv8 has a good performance in identifying fish species. The test results on 21 types of fish have an average accuracy of 96%. The results of the black box test on the fish species identification system stated that the system was running well.

References (2018-2023)