

ABSTRACT

Dashcam is a camera stored in a vehicle. This tool serves to record all events in front of the vehicle. Security and safety have become a major concern in various sectors, including transportation and public security. On the highway, traffic accidents caused by the driver's ignorance of objects around the vehicle are still a serious problem.

In this study, the development of a simple dashcam built from an edge computer was carried out by combining the number of cameras. Image stitching is applied to combine images that have been collected by each camera. Next, object detection is carried out on the images that have been collected. The object detection system approach is carried out using YOLOv8 which is the latest variant of the YOLO series. This research is expected to be one step in the development of an Intelligent Transportation System that is in accordance with traffic conditions in Indonesia.

The results obtained in the test used a system made using a configuration of 78000 datasets, 3332 data validation with 8 epochs, batch size 32, linear learning rate and SGD optimization. The best results with real testing were obtained in the morning with an accuracy of 72.8% of detectable objects. In addition, further research may involve an in-depth analysis of factors contributing to the accuracy results found, such as the impact of lighting variations, camera position, as well as the characteristics of detected objects.

Keywords: Dual Camera, Image Stitching, Object Detection, YOLOv8