SISTEM DETEKSI DAN KLASIFIKASI JENIS PAKAIAN UNTUK TATA TERTIB BERBUSANA MENGGUNAKAN METODE YOLO (*YOU ONLY LOOK ONCE*)

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ABSTRACT

Every institution and formal education institution must have regulations that must be obeyed for each element in it. There are several regulations in formal educational institutions such as universities, one of which is the attributes that may be worn in the campus environment. Attributes that are not allowed in the campus environment include T-shirts, shorts or mini skirts, and sandals—however, many students violate these rules. So we need a system that can recognize the type of attribute used and then give a warning directly. Currently, the development of research that studies artificial intelligence, one of which is Object Detection, can help classify clothing types. In this study, the author uses the YOLO (You Only Look Once) method to classify clothing types in real-time. The stages of system design used include the stage of collecting image data from the camera, google image, Open Image Dataset v6, and Unsplash, the stage of labeling image data with LalbeImg, the stage of training the dataset with Google Collaboratory, and the stage of installing the package on a local computer. The dataset collected was 12,492 images with 9 objects detected, namely t-shirts, collared shirts, suits, jackets, trousers, sandals, and shoes. The YOLO model used is YOLOv5s, and the training dataset process produces an mAP value of 45.3% with a confusion matrix calculation getting an accuracy value of 89.8%, precision 76.3%, recall 53.7%, and F-Score 62.8%. The success rates in detecting objects on testing using a webcam with a distance of 2-3 meters are 98.3%, a distance of 3-5 meters is 100%, a distance of 5-6 meters is 88.3%, with an average detection speed of 0.4 seconds per frame. The results of the sound notification test are 100% successful if objects in the form of t-shirts, shorts, and sandals are detected.

Kata Kunci: Object Detection, YOLO, Colab, Realtime