Real-Time Detection of Indonesian Language Sign System (SIBI) Letters Using the YOLOv2 Method

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ABSTRACT

Deaf and hard of hearing are two conditions that can affect a person's ability to communicate. The Indonesian Sign Language System (SIBI) is one of the communication media used by the speech and deaf community. SIBI is also used in learning at Special Schools (SLB). SIBI is a sign language that is formalized in Law No.2 of 1989 and officially used in learning in special schools in accordance with the rules of good and correct Indonesian language which has been regulated in the regulation of the Minister of Education of the Republic of Indonesia number 0161/U/2994. This research uses 26 SIBI alfabets as its object and the method is used to detect in real-time. It works by using a camera on a laptop device that will detect movement and the prediction results will be displayed. The dataset used is 780 image data with 30 data each alfabet. The best performance configuration results in this study with a distribution of 90% training data, 10% test data, 157 epochs, 8 batch sizes, and 0.00001 learning rate which produces an mAP value of 36% at a threshold of 0.01. Tests using User Acceptance Testing (UAT) of this website show a success rate of 88% where this website can be accepted quite well by users.

Key words: Indonesian Sign Language System (SIBI), You Only Look Once (YOLO), Real-Time, Detection.