IMPLEMENTATION OF A CONVOLUTIONAL NEURAL NETWORK ALGORITHM TO DETECT OBJECTS IN THE HOME TO HELP HUMANS WITH MIGHTY EYES

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ABSTRACT

A house is an important basic human need, being a place to live for a family for a certain period. However, some individuals in the home may experience vision problems such as nearsightedness which can limit daily activities. With the increasing development of technology and the popularity of using gadgets, especially during the COVID-19 pandemic, the risk of vision problems, such as myopia, increases. This research aims to implement and evaluate the accuracy of the Convolutional Neural Network (CNN) algorithm in detecting objects in the house to help individuals with vision problems, such as nearsightedness. The method used is YOLOv5, which is one of the algorithms in CNN. CNN is a type of neural network architecture that consists of an input layer, a convolutional layer, an activation layer, a pooling layer, and a fully connected layer. In the YOLOv5 implementation, it consists of convolution layers to extract features from images, a batch normalization layer, and an output layer that produces predictions of objects detected in the image. The research results show that with 100 epochs and a batch size of 16, the proposed system managed to achieve an accuracy of 95% based on mean Average Precision (mAP).

Keywords: Convolutional Neural Network, Yolov5, Accuracy, Objects in the House, Myopic Eyes.