ABSTRACT
HANDWRITING RECOGNITION USING KERAS
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On the practice of fieldwork in SOLUSI247 Yogyakarta project creation is handwriting recognition for recognize every handwriting in an image or photo. Handwriting recognition support REST API service which will be integrate with Chanthel program for support indexing and contenting. The programming language used is Python. Library or module used for prediction is Keras and Tensorflow. Next, OpenCV is for image processing. Then microframework Flask used to make web application that is frontend and REST API.

The dataset used is around 280,372 data, which 70% as data training, and 30% others as data testing. The Model used is Convolutional Neural Network (CNN) with the accuracy result is around 79%. Handwriting recognition have several stages to predict such as starting from load model, load image for test, and then image processing for improving image quality such as convert image to grayscale, sharpen image with threshold, increase the edge line of image with dilation, and finding contours in image to split sentences, words, and characters. And then do predict which will be result of the prediction shown in JSON format.

With the accuracy of the model is around 79%, this handwriting recognition program is enough to predict every handwriting character in an image or photo. There is mistakes in prediction especially recognize the same character with other character. This happens because less variation in dataset make program can't predict character perfectly. Then microframework Flask is suitable for making REST API service. Besides the convience and many features offered, Flask is so fast for making prediction and sending responses to client where the time needed is less than one second, just 859 miliseconds. And Image processing is very helpful in prediction process, especially on improving image quality.

Keywords: Handwriting Recognition, Deep Learning, CNN, Keras, Flask, REST API, JSON