ABSTRACT

Rice is one of the most important food needs, especially for the people of Indonesia. Rice seeds that have good quality will also produce high yields. One way to find out the good quality of rice seeds is to use vigor tests on rice seeds by measuring the size of prospective roots and plumules in the development of rice seeds. Vigor is the strength of a rice seed to keep growing in actual field conditions with optimum or not optimum climate.

In this final project, the authors designed a system using the Mask R-CNN algorithm with a dataset of 1000 sintanur rice seed development for 14 days obtained from the Center for Supervision and Certification of Food Crops and Horticulture Seeds (BPSBTPH) Bandung district. This research was carried out by the Bandung district (BPSBTPH) to be able to calculate the size of the development of rice seeds automatically and not to measure them manually.

The parameters used in this study are mAP, MAPE and loss. There are 2 test scenarios, namely real image data and image data that has been inverted color with epoch 20, 50 and 100 tests. From the tests that have been carried out, the best results are obtained using invert color image data at epoch 100, with a mAP value of 82%, and MAPE of prospective roots and plumula on the 3rd, 5th, 7th and 14th days had an average error value below ≤ 20% and loss train model 1.73, model validation 1.26, class train 30% , 24% class validation, 34% bounding box train, 21% bounding box validation, 31% train mask and 22% mask validation.

Keywords: Rice seeds, Measurement of Seed Development Objects, Image Processing.