

ABSTRACT

Bank Indonesia is an institution that has the authority to issue and circulate rupiah currency as legal tender in the territory of the Republic of Indonesia. Money is a medium of exchange for transactions between buyers and sellers. In the process of direct transactions, there is a transfer of money from one hand to another with the conditions received are not always in perfect condition. The condition of money that is received back by the community tends to be torn, shabby, full of stains, and others. So it must be given to get the money that is worth circulating. The exchange process takes time because the money will be tested first using either a machine or a laboratory test, depending on the condition of the money. Based on this, this research was conducted to create a system using deep learning with sequential methods and the CNN algorithm to test how the system can recognize the nominal image of banknotes in a damaged condition with a high level of accuracy, the parameters used are 2016 issued rupiah banknotes with nominal value. Rp 2000, Rp 5000 and Rp 10.000 with a total of 600 images. In the CNN model with a kernel size of 3x3 and a decent learning rate of 0.0001, the total number of parameters is 618.307. In this model, a loss value of 0.0028 and a 100% accuracy value is also achieved with 250 epochs used and a decent batch size of 5.

Keywords: CNN, Damaged Rupiah Banknotes, Money Exchange.