ABSTRACT

Sign language is the language used to communicate using body movements and/or facial expressions. The meaning or meaning of body movements in sign language has also been agreed so that it can be used to exchange information. This sign language is commonly used by deaf and hard of hearing people to exchange information with normal society in general. This makes it difficult for normal people to communicate because not all understand the meaning of sign language. Thus, to overcome this problem, efforts were made to design a translation system so that it could be understood by the general public.

In this Final Project, a sign language translator system has been designed per character using the Convolutional Neural Network method with a VGG-19 architecture based on image processing using the python programming language. Data in the form of a dataset of hand gesture images in sign language which is divided into three, namely 520 BISINDO images, 520 BISINDO NEW images, and 1040 BISINDO MIX images will be collected and used as a reference for recognition objects for the detection of this translation system, which will then be processed to run this sign language per character translator program into a text.

Based on the test results, from 2 scenarios, namely 520 images for testing and training, and 520 images for data validation from the test and training results obtained the highest accuracy rate of 100% using an epoch value of 20 and a batch size of 8. The system can translate BISINDO sign language from letters A-Z and 10 words with an average of the translation process time is 15.6 seconds for 3 characters, 16.4 seconds for 4 characters, 21 seconds for 5 characters, 23 seconds for 6 characters, and 87 seconds for 26 characters (alphabet).

Keywords: *Convolutional Neural Network, BISINDO, VGG-19.*