ABSTRACT

Sign language is the language used to communicate using body parts, one of which is hand gestures. In Indonesia itself there are two languages that have been recognized and agreed to be used to exchange information, the two languages are the Indonesian Sign Language System (SIBI) and also the Indonesian Sign Language (BISINDO), while the language that is often used to communicate is BISINDO. Indonesian (BISINDO) is the language used for everyday language for some people with disabilities, especially a deaf person. But there are still many normal people who can't and don't understand the previous language, to overcome this problem an effort is made to design a translator system so that it can be understood by the general public.

In this final project, a system for translating Indonesian sign language vowels per character has been designed using the Convolutional Neural Network method with the VGG-19 architecture based on image processing using the python programming language. The data taken are pictures of hand gestures of vowels in sign language which are divided into three, namely 100 BISINDO images, 150 new BISINDO images, and 250 BISINDO mix images which are used as an introduction to detect this translator system, which will then be processed to run the language translator program. this per-character cue becomes an audio.

Based on the test results from 2 scenarios, namely 100 images for testing and training, and 150 images for data validation from the results of testing and training, the highest accuracy level is 100% using an epoch value of 14 and a batch size of 4. This system can translate letters Indonesian sign language vowels BISINDO with an average translation process time of 2.1 seconds for the letter A, 1.3 seconds for the letter E, and 1.6 seconds for the letters I O and U.

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