ABSTRACT

Based on census data, many urban and rural residents in Indonesia experience hearing loss, in addition to the high number of deaf people in Central Java. From here various problems arise, one of which is problems in communication with the deaf-speech impaired, such as limited infrastructure and a lack of understanding of sign language in the community, which is the basis for this research to support and improve communication and sign language learning. The aim of the research is to create a system using CNN and Python to help hearing people learn sign language and find out the system's accuracy value. The research focus is on developing a system that is able to classify sign language quickly, by utilizing CNN, and can be implemented in the Python programming language. The research flow or method includes literature study, system design, testing, analysis, conclusions and suggestions. The system designed uses several parameters, such as resize and rescale for image preprocessing, use of dropout layers, relu activation function, and use of the Adam optimizer with a learning rate of 0.001 and 80 epochs for training. The results of the research answer the existing problem formulation, a classification system can be created and can classify according to class by utilizing the CNN deep learning method using the Python language. For the system accuracy level, the overall accuracy was 94,4% (excellent classification category). Meanwhile, the accuracy for each class is 90% and above with the highest accuracy being in the "Terimakasih" classes with an accuracy value of 100% and the lowest in the "Aku" class with 97,2%. The conclusion of the research is that the system can classify the sign language used by utilizing deep learning CNN uses the Python language to create the system.

***Keywords**: CNN, Sign language classification, Learning, Python, Deaf-mute*