

DEEP LEARNING BASED PERSON DETECTION AND RECOGNITION WITH MASTER SLAVE CONFIGURATION

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ABSTRACT

Technological developments are growing rapidly, such as the Raspberry Pi which is also known as the Single Board Computer (SBC). In its development, many people use computing and digital technology to work, solve problems, and express themselves. Speed, accuracy, and quantity of work must be met in every work process. So it is necessary to increase the work of new technology by using Raspberry Pi based on Deep Learning. Face detection and recognition are now dominated by deep learning techniques, such as CNN. However, this technique has a weakness, namely high computational. If you use slave nodes that are spread to many points using low energy consumption devices, then Deep Learning is a process that consumes a lot of energy. This study tries to accommodate a low-spec Raspberry Pi that does not support the Deep Learning library to detect and recognize a certain person's face and then use a buzzer as an indicator of whether or not that person's face is identified. This research utilizes the Raspberry Pi as a slave node to capture images and sends the image to the master node to be identified using Deep Learning. Based on the test, the accuracy is 98.486% for the three-layer CNN architecture with 32 filters, 98.5405% with 64 filters, and 98.376% with 128 filters. Finally, it can be concluded that the Raspberry Pi can detect and recognize a person's face accurately using a USB Camera tool, find a Deep Learning solution that does not support the Raspberry Pi using Google Colab, and the Raspberry Pi can detect and recognize a person's face with a time span of 0.712458 seconds. to 0.806990 seconds.

Keywords: detection and recognition, deep learning, configuration *Masterslave*, and *Raspberry Pi*.