

ABSTRACT

The development of the times and the advancement of science and technology, especially in In the field of computer vision, the concept of automation has begun to be applied by machines without the need for human labor. The need for a security system which can be monitored and capable of giving warning signals remotely at all times. relatives increased. This security system is almost unnecessary in every way things, one of which is room security, both property rooms, offices, or other. Due to the conventional home security system that using a physical key is still vulnerable to being broken into, handed over, or even duplication.

This final project is designing a smart door system that applies 2-Step verification or verification layered with the first step is facial recognition and the second step is the detection of finger pose sequences. This tool is also equipped fire the notification system if a stranger is detected and when the door has been open, so it can help keep the property safe. This tool uses use the Convolution Neural Network (CNN) with the MobileNetV2 method which will useful for detecting the finger pose and face of the property owner.

Based on the tests that have been carried out, testing the accuracy of the recognition of face with a distance of 50 cm - 150 cm from the camera get the average total accuracy reached 90.5%, the average precision was 87.3%, and the recall average was 86.2%. While testing the accuracy of the finger poses, the average accuracy reaches 82.2%, the test was carried out at a distance of 50 cm from the camera. For testing the system as a whole gets an average time of 30.85 seconds and gets accuracy of 100%. In testing notifications and finger pose sequences got average accuracy of 100% for both tests.

Kata Kunci : *Smart Door System, 2-Step verification ,Computer Vision, Mobile-NetV2., Convolution Neural Network (CNN).*