ABSTRACT

The development of technology in the presence system is very rapid. There are several technologies for presence that have been implemented in many public facilities, such as fingerprint and RFID, but there are still some shortcomings in these technologies. Weaknesses in the existing presence system, among others, Fingerprint can be a medium of transmission of COVID-19, RFID cannot be used if you do not carry a card or chip.

Based on these problems, face recognition is the solution to the current presence problem. In this study, a face recognition system has been designed using the YOLOv5x algorithm which will be used as a presence system which will later be integrated with the website, using YOLOv5x faces will be detected quickly and accurately. With the dataset that has been prepared, the data training process will be carried out first in order to get the best weight from the model. After the training process is obtained, direct testing is carried out by taking photos based on predetermined test specifications.

The results of this study are the YOLOv5x model can recognize faces and provide a confidence score for each test that has been carried out. The test aims to determine the maximum ability of the model in detecting faces by testing the brightness, distance, slope angle, confidence score, accessories, and the type of camera used. From this study, it is known that the model can detect faces with a maximum distance of 160 cm, a slope angle of 60°, the highest confidence score obtained by the Naufal class with a confidence score of 0.97, all accessories attached to the face can be detected, and the best type of camera in the face detection process. is to use a cellphone camera with a confidence score of 0.97 in the Naufal and Aryo classes.

Keywords: YOLO, YOLOv5, Presence, object detection, face recognition.