ABSTRACT

Today in the era of globalization, technological developments are advancing rapidly, making it easier in the security and safety sector without reducing effectiveness. Object tracking robot is one of the most developed technologies in this era of globalization. Object tracking robot is a robot that can follow the movement of a certain object. The objects in question here have many kinds ranging from balls, means of transportation, even human faces are also included in it.

In this final project, an object tracking robot that can follow human faces will be made. Human face detection in this final project uses the face recognition method. So that the robot that will be made can only follow the face of certain people, and when the robot detects the face of an unknown person, the robot will not react. The facial recognition method that the author will use is CNN (convolution neural network) and using the PID as an actuator controller.

After testing and analysis, it was found that by using the Arduino Uno and inputting the Kp value of 0.24, there was no delay for the tool in moving the servo motor according to facial movements with room light intensity conditions of 150 lux to 350 lux with a face distance with a webcam of 30 cm. up to 70 cm.

Keywords: face recognition, object tracking robot, machine learning,CNN