

## ABSTRACT

Robot arm is a construction of robots which has actuators as a DC motor or a DC motor already equipped control circuit with a closed feedback system are integrated in the so-called DC motor servo. This robot is a very popular robot in the world of industry and robotics. One of the development in the industry is to move the tool, material, or equipment with a variety of movement programs for various tasks and also to control and synchronize the devices with their work.

Leap Motion is an appliance-based small-sized USB device that can allow a user to control a device using motion. Leap Motion capture sensor of hand gestures and movements of our fingers independently , as well as other objects, it allows users to control a device without touching it, simply moving a finger in front of Leap Motion sensor.

In this final project will integrate between Leap Motion with a robotic arm that controls the robotic arm moving enough without having to touch a finger in front of the sensor Leap Motion, the robot arm will move to follow our hands. Distance palms affect scores on leap motion and found that the distance palms accordance with the mechanical arm robot created, namely for the X-axis value leap motion between 200-640 (0-255), the output value of the servo motor between 0-1023 (0 - 180) and for the Y axis has a value leap motion between 200-450 (0-255), the output value of the servo motor between 512-920 (0-180) and for the Z-axis has a value leap motion between 22-66 (0-255) , the output value of servo 350-550 (0-180). But with the amount of noise that makes the value leap motion on the axes X, Y, Z varies very hamper the movement of servo motors then the input value 550 robot arm becomes unstable, it is therefore to obtain stable results it is suggested value motor input servo between 50 - 150. the robotic arms can operate for 121 minutes and to achieve maximum conditions it may take as long as 45 minutes with the power supply of 11.5 V - 12.5 V and a maximum torque of 19.5 kgf.cm.