

ABSTRACT

In its development, articulation robots have many functions and have been developed to be smaller and functional enough to be installed in wheelchairs or on beds, the purpose is to make it easier for people with disabilities to carry out activities such as picking up, lifting and moving objects. Based on these conditions, in this Final Project, a control system will be designed for articulated robots using hand gestures. The system is divided into, transmitter and receiver. Transmitter is a series of control systems for reading hand gestures, the Transmitter circuit consists of Arduino as a microcontroller, APC220 as a data sender, a gyroscope as a sensor to control the body and shoulder axes and two flexes sensors for controlling the swing axis on the Elbow axis and gripper axis for object retrieval. Receiver is an articulated robot frame built to receive data from the transmitter and perform movements according to the data received, the device contained in the receiver is Arduino as a microcontroller, the APC220 radio frequency module as the data receiver and the servo motor is attached to the four axes of the robot, namely servo 1 on the axis Body, servo 2 on the shoulder axis, servo 3 on the elbow axis and servo 4 on the gripper axis. The result of this final project is the design of a glove control system that reads hand gestures to control articulated robots using a gyroscope and flex sensors with radio frequency communication. The movement carried out is to control the four axes contained in the robot, while rotating and moving (body, shoulder, elbow and gripper) moving based on predetermined angular values and accurate communication reaching a distance of 10 meters.

Keywords: Hand Gesture, Articulation Robot, Flex sensor, Radio frequency.