

DESIGN AND BUILD A ROBOTIC ARM

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Abstract

This project is about design and build a robot manipulator arm. The robot is then controlled by using a Microcontroller. It is designed to emulate the human arm to do certain tasks programmed into the PIC. The arm consists of five parts to move which is the gripper (end effector), wrist, elbow, shoulder and base. Each of these joints is then attached to a motor to move. All of the five geared DC motor are controlled by PIC. Depending on the program on the PIC, the robotic arm can perform certain task as the user wanted. Assembly language is use as the medium to program the PIC. This report describes the design and implementation of the robotic arm. It consists of two main parts which is the mechanical part of the robotic arm and also the circuit part where the design of the PIC circuit to control the movement of the robotic arm. The mechanical part explains on the structure of the arm in terms of kinematics and dynamic. For the circuit part, it will explain on how the circuit is build, the components used and the PIC program used for controlling the arm.