SRI RAMAKRISHNA INSTITUTE OF TECHNOLOGY
(Affiliated to Anna University, Chennai)

DESIGN AND IMPLEMENTATION OF 4 DOF PICK AND PLACE ROBOTIC ARM

MAHALAKSHMI.R   (713813105016)

SEETHAI.R   (713813105033)

SELVA KUMARI.M.L   (713813105034)

VIGNESH KUMAR.R   (713813105044)

B.E., ELECTRICAL AND ELECTRONICS ENGINEERING

SUPERVISOR: Mr.A.P. ROGER ROZARIO, AP/EEE

SYNOPSIS

Robotics reduces the human efforts in risky operations and for lifting heavy weights. Robots are especially desirable for certain applications because, unlike humans, they never get tired, they can work in any undesirable conditions that are uncomfortable and they cannot be distracted from its task. Nowadays, Industries are moving from Automation to Robotization, in order to reduce the manpower and to increase the productivity. Robot manipulator plays an important role in positioning and orientating the object so that the robotic arm can perform the required task. The pick-and-place processes are the primary requisite for many of the industrial and household application. The main focus of our project is to design a 4DOF robotic arm which is used to pick and place the object from one place to desired location. It is an open or closed kinematic chain of rigid links interconnected by movable joints. Robotic arm designed here uses four joints, four links and servo motors to drive. The arm is designed using SOLID WORKS 3D software. The arm is developed based on the payload. The actuators fitted in the arm are controlled using ARDUINO UNO microcontroller. Actuators at the elbow, wrist and gripper are controlled based on the push button signal and the base control is done by potentiometer. RF transmitter and RF receiver also provides its intended support to the robotic arm functionality. The operation of designed pick and place robotic arm has been fully tested, experimentally verified and the results match the design.