FINAL PROJECT

DESIGNING, CREATING, AND TESTING OF 5 DOF ROBOT ARM STYROFOAM CUTTER WITH ARDUINO CONTROLLER

Submitted As One Requirement to Complete

Bachelor Degree Education

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ABSTRACT

Styrofoam is commonly used for a container or buffer of various products, such as food, electronic devices, and as decoration. To make it functional, Styrofoam needs to be formed according to need. At the present, Styrofoam has been sold widely. This tool is used manually to cut the Styrofoam into a desired shape. Manual work has weaknesses such as errors can occur from the manufacturer, takes a lot of time and productivity is low. For that reason, the role of humans in Styrofoam cutting can be replaced with robots. By using a robot, it is expected cutting the Styrofoam can be done more quickly, minimal error and can be done repeatedly.

The robot that will be created is arm robot. Arm robot can manipulate movement from human hand so it can copy cutting movement of Styrofoam. This robotic arm uses Arduino controllers. By using servo motors, robotic arms can be moved as desired. Then, as for cutting the Styrofoam, arm robot uses hot wire cutter. The wire will heat up when electricity flow through it so that can be used to cut the Styrofoam. The position of the servo motor that has been set with interface program can be saved and re-run with Arduino controller. Thus, Styrofoam cutting can be done repeatedly.

The arm robot will re-run the saved position and repead the pattern. The error between the pattern and the arm robot done will be analized and searched the causes and solutions of it.

Keywords : Arm robot, arduino, servo, interface program, hot wire cutter