

ABSTRACT

The use of robotic arms in the manufacturing industry has increased significantly. In the automotive industry, for example, robots have replaced the role of humans to do welding. The perishable goods industry such as food is no exception. Existing robot arms in the manufacturing industry still use grippers that are hard, so if applied to food or objects such as plasticine, they can be damaged. How to test the gripper by doing experiments when picking up perishable objects. A hard gripper is very susceptible to damaging objects so that if it is used to take plasticine or eggs there is a possibility of damage.

To overcome these problems, this research is aimed at designing and building a 3 DOF robot arm with a soft gripper. The object that will be used as a gripping object is an egg. The tool is designed using forward kinematic and inverse kinematic to determine the position of the robot arm which aims to grip and store eggs in the packaging. Soft gripper testing is done by experimenting when picking up eggs, observing when eggs are moved when there are shocks, and observing when eggs are stored in packaging.

Based on the test results, it can be concluded that the tool functions with varying degrees of accuracy according to the test. In the test to retrieve eggs, there is a tool success rate value of 70% of 30 trials. Then, when moving eggs there is a tool success rate value of 80% of 30 trials. Then, when storing eggs there is a tool success rate value of 56% of 30 trials. So that the overall value of the success rate of the tool can be taken as 68%.

Keywords: Robotic arm, soft gripper, fragile objects.