ABSTRACT

Wall climbing robot is a robot that can run on vertical terrain. This robot is inspired by animals such as a lizard that can stick into the wall. This robot can help human work when it requires height, for example in cleaning windows outside the building, and cleaning in other industrial fields. However, the wall climbing robot has one of the disadvantages that the robot must initialize in a vertical field first before going upward. Therefore, we need a system that can control the robot starting from the horizontal position to the vertical position automatically.

Basically, wall climbing robots can use legs or wheels. For wall climbing robots that use wheels, it will reach a certain height faster, while those who use the legs will be sturdier and stronger when attached. In its development, the wall climbing robot has been very advanced. There are several methods that can be used for designing this robot. The methods are Vacuum suction methods, Magnetic Devices for Climbing Ferrous Surfaces, Attraction Force Based on Aerodynamic Principles, and Dry Adhesives. The purpose of these methods is to find the most effective system to lift weights to unlimited heights.

In this final project, the robot is designed so it can be move from the horizontal field to the vertical field step by step. The accuracy for each motor servo used are servo motor A = 71.33%, servo motor B = 68.66%, and servo motor C = 69.33%. The time needed for one step of the horizontal robot movement is 31,636s. The time needed for 90º step movement is 15.82s. While for the vertical field for 47.45s.

Keywords: Vacuum suction, Wall Climbing Robot, Servo Motor