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IMPLEMENTATION FUZZY LOGIC CONTROLLER METHOD FOR BALANCING PROTOTYPE OF ROBOT SERVANT

**NPM : 1121003
HIDAYAT WIJAYA**

ABSTRACT

Robot Servant is one of the terms in robotics where robots can help facilitate the work performed daily in human life. The One is Robot Servant assist in the delivery of goods. The difficulty of balancing the carrier by robot is still done conventionally and the movement of the robot is less stable.

In this research, by the implementation of the fuzzy logic method so that the movement of the robot becomes more refined when carrier goods (smooth) and capable of stable balance with both wheels. Fuzzy Logic is a method of control system that aims to map an input to the output with the concept of partial truth. Fuzzy logic will be used as control the movement of the motor, and the robot will be equipped with sensors Accelerometer-gyro to measure the angle so that the robot can maintain its position at the set point. The use of two left and right motors are intended to control the vertical position of the robot remains balance on the left and right wheels on the surface to the stabilize position.

From the overall study, the error angle sensor readings obtained at -4.7° to 4.7° . Robot Servant able to hold that oscillate at degree 4° to -4° without carriage and able to hold that oscillate at degree 6° to -6° with carriage of good, this proves that the use of fuzzy logic controllers in the prototype Robot Servant goes well in maintaining balance.

Keywords: *Robot Servant, Fuzzy Logic, Accelerometer, Gyroscope, Self Balancing*