ABSTRACT

PROTOTYPE ROBOT MOVEMENT USING TWO WHEELS PID CONTROL SYSTEM BASED

A two-wheel movement technique in a balanced position is an advanced technology concept such as Run Wheels, where the movement is able to be managed with a load. At a balanced position the angle value affects the position of the robot motion. Robot movement is driven by two motors located on the right and left. The function of this Robot in general as a simple modern transportation that can bring a person to the desired destination by just doing body movements on the Robot.

To know the robot movement in detail and clear, this design is made by using prototype. On body Robot designed with acrylic material and for foot Robot using DC Geared Motor. Robotic prototype mechanism is made in stages but the weight is adjusted to the main components such as Arduino Uno, Motor Driver, Battery, and IMU Sensor. In the robot movement, the movement is controlled according to the weight of an object placed on it.

At the time of testing, the Robot tested its balance by carrying a load above the robot body. By carrying the load Robot is designed to balance the position well. In the movement will be taken in the form of error data that occurs and the balance response on the Robot. In Robot motion system using algorithm in the form of PID (Propotional Integral Derivative) that will be able to produce response balance of Robot until reach settle. To reach the settle point, the value of the constant is done by tuning trial and error of Kp = 11 and Kd = 20 with the resulting error of 2 degrees.

Keywords*: Run Wheels, Motor DC Geared, Arduino Uno, Sensor IMU, PID*