SELF-BALANCING SPHERICAL WHEEL ROBOT

By

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BACHELOR'S DEGREE
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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

SELF-BALANCING
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The self-balancing system is used to control the system to its set point. In this thesis the set point will be 0 degree, which means the body of the robot will stand up straight. A spherical wheel is used as the wheel in this thesis. A spherical wheel will give more agile movement and shorter movement path. The control of the spherical wheel, had been done by the previous thesis by Calvin Thelma and Kevin Chandra. This thesis will try to develop the spherical wheel by creating self-balancing system to the spherical wheel. The self-balancing system is using gyroscope and accelerometer as the sensor to detect tilting of the system. To balance the system, three brushless DC motors are used to control the movement of the spherical wheel. The design will be done with SolidWorks and the code will be done in Arduino.

Keywords: Self-Balancing, Spherical Wheel, Gyroscope and Accelerometer, Brushless DC motor, SolidWorks, Arduino

DEDICATION

I dedicate this works for my university, family, friends and the future of the country I loved: Indonesia

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