

**DESIGNING AND CONSTRUCTING SPHERICAL WHEEL: MECHANICAL
AND DISPLACEMENT SENSOR**

By

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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

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Single spherical wheel is the base of the ballbot. It is robot that sits on the top of ball. Designing and constructing the mechanical of the spherical wheel is the first step to do before goes further. Three brushless dc motors are used to control the movement of the ball. Inverse mouse ball drive mechanism is used in this project. The design will be done with SOLIDWORKS. The important thing from this drive mechanism is the friction between the ball and the rollers. The spring loaded mechanisms maintain the rollers and the ball in touch. In result, the spherical wheel can move corresponding with the control. The basketball provides high friction surface however the flexible form of basketball will interfere the movement of the spherical wheel.

Keywords: Ballbot, Inverse Mouse Ball, Spherical Wheel, BLDC, Optical Mouse Sensor, Arduino Microcontroller, SOLIDWORKS



DEDICATION

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



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