



**DEVELOPMENT OF ARDUINO BASED CONTROLLER  
FOR TENNIS BALL MACHINE**

**UNDERGRADUATE THESIS**

**Submitted as one of the requirements to obtain  
Sarjana Teknik**

**By:**

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**FACULTY OF ENGINEERING  
MECHANICAL ENGINEERING STUDY PROGRAM**

**CIKARANG**

**MAY 2023**

# THESIS APPROVAL

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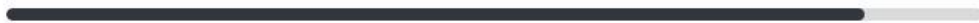
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## **ABSTRACT**

The industrial revolution 4.0, also known as the industrial revolution that conceals collaborative manufacturing that cannot be separated from automatic technology or system automation, is presently entering Indonesia and the rest of the world. This automation technology has not been extensively used in tennis court sports. The use of automation technology is anticipated to make training easier for tennis court coaches and players. The goal of this final project is to make training easier and more comfortable for athletes by creating a tennis ball throwing machine with automatic system control. Several mechanical components, including an Arduino Uno, a DC motor, a BTS7960 driver, an HC-05 Bluetooth module, an IR sensor, an ultrasonic sensor, and a smartphone, are used to build this machine. The Arduino IDE and Arduino Bluetooth Controller Application are the programs used. The outcome of the work on this tennis ball throwing machine is a machine that can be controlled wirelessly using a Bluetooth connection on an Android smartphone and can be operated with different types of games depending on the athlete's degree of proficiency.

*Keywords : Tennis Ball Machine, Arduino, BTS7960 Driver, Controller, DC Motor 755*

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Cikarang, May 17 2023

A handwritten signature in black ink, appearing to read 'Rafli', with a horizontal line underneath.

Mohamad Rafli Firzatullah

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