

## **ABSTRACT**

A bullet launcher is a defense tool intended for target shooting, powered by gunpowder that can harm the user. The use of gunpowder is dangerous because the resulting explosive power can harm the user. An alternative solution that can be done for this problem is to replace the use of gunpowder in bullet launchers such as using electromagnetic or pneumatic propulsion.

The system that has been implemented is a pneumatically powered bullet launcher. The pneumatic system is controlled using a microcontroller for input control of sensors, solenoids, actuators and air pressure in the system. The pressure sensor used is a WPT-83G-EGG4 transmitter with a maximum pressure of 12 bar or 174 psi.

The test results of the accuracy and precision of the bullets on the target were carried out at a distance of 100 cm, 200 cm, and 300 cm. The test data is calculated using the RMSE method in cm units with an average shot accuracy value of 98.56% with an average shot precision value of 69.83% on the bullet launcher system.

**Keywords:** Bullet Launcher, Pneumatics, Encoder Sensor, Servo Motor, and Solenoid Valve.