

Automatic Radar Missile Launcher Control System Unit

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Abstract—The aim of our project is to design a missile launcher which is controlled by the signals from a Radar. The working is based on Arduino Uno, Servo motor, Ultrasonic sensor. The idea is to first code the entire working using our previous knowledge of programming. The code will then be simulated on software and later be interfaced with the hardware or Arduino Uno. The ultrasonic sensor movement is maintained by the servo motor fixed within it. The servo motor is made to revolve through fixed angles; if object is detected then the angle position is sent as the input to the launcher fixed servo motor. The launcher will release the missile fixed within it. This project will play an important role in defence purposes.

I. INTRODUCTION

Radar is a long-range object detection system that uses radio waves to establish certain parameters of an object like its range, speed and position. The project is based on Sonar technology as I will be using an Ultrasonic Sensor to determine the presence of any object in a particular range. Radar is an object detection system. It uses Microwaves to determine the range, altitude, direction, or speed of objects. The radar can transmit radio waves or microwaves which bounce off any object in their path. So, we can easily determine any object in the radar range. A missile is an intelligent unmanned rocket designed to carry the payload to a designated point with an aim of destroying the object/target. The missile is designed keeping in mind its target, trajectory, warhead, range, velocity and launch platform. Missile, a rocket-propelled weapon designed to deliver an explosive warhead with great accuracy at high speed. Missiles vary from small tactical weapons that are effective out to only a few hundred feet to much larger strategic weapons that have ranges of several thousand miles.

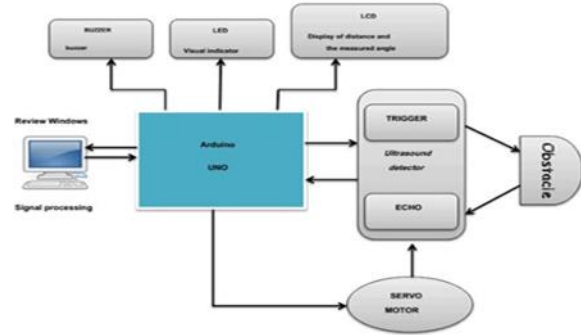


Fig.1.1 Block Diagram of Control System

II. LITERATURE REVIEW

Subsequent to experiencing a portion of the papers with respect to using ultrasonic sensors and Arduino, it was found that this idea is a mainstream idea which is still in advance. The advance utilized were not just productive and solid yet in addition financially achievable. Not only this, here other very useful applications of ultrasonic sensors were observed too. This paper discusses about a monitoring system which is designed to measure the speed of waves and height of river through ultrasonic sensor using micro controller (Arduino).

III. METHODOLOGY

The missile is designed keeping in mind its target, trajectory, warhead, range, velocity and launch platform. Missile, a rocket-propelled weapon designed to deliver an explosive warhead with great accuracy at high speed. Missiles vary from small tactical weapons that are effective out to only a few hundred feet to much larger strategic weapons that have ranges of several thousand miles.

IV. STCTURAL COMPONENTS OF THE AUTOMATIC MISSILE LAUNCHER

1. Arduino UNO
2. Ultrasonic sensor
3. HC 05 Bluetooth module
4. 5V Relay module (8channel)
5. 12V DC 7.5 AH Battery
6. L298N Motor Driver
7. DC Gear motor
8. DC Servo motor
9. 9-12V DC Buzzer
10. 12V DC LED

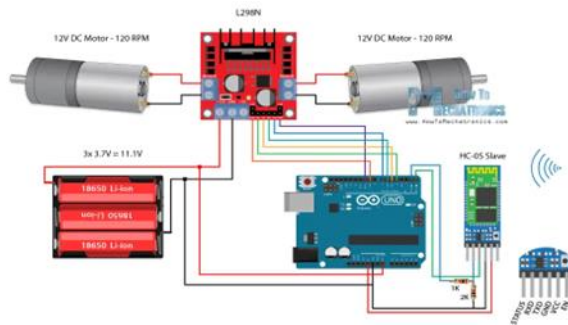


Fig.2.1 Stctural Components of Automation Missile Launcher

V. APPLICATION

- It Is Use for Defence System.

VI. EXPERIMENTAL ANALYSIS

The Arduino-based totally missile radar gadget operates via a sequence of coordinated steps, beginning with the add of code to the Arduino and the status quo of essential connections. The servo motor initiates a sweeping motion, inflicting the connected ultrasonic sensor to dynamically test the surrounding environment. extensively, the ultrasonic sensor detects gadgets by emitting waves and measuring their rebound time. Upon detecting an item, the sensor-fixed servo motor halts its rotation, taking pictures the perspective at which the interruption took place. This perspective facts are then transmitted as input to the launcher-fixed servo motor. Assuming particular servo motor overall performance, the launcher-constant servo is activated, releasing a missile aimed at the detected item.

VII. DESIGN OF PROJECT

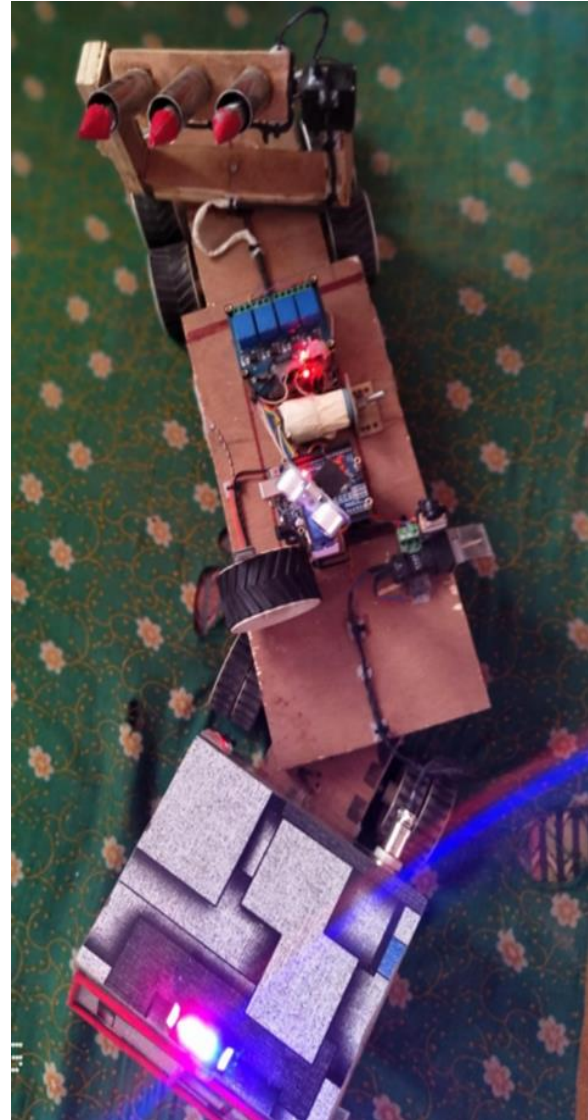


Fig.2.2 Automatic Missile Launcher Control System Unit Design

VIII. CONSTRUCTION

The precise, the research supplied herein outlines the development of a radar device that governs the initiation and positioning of a missile launcher via the integration of Arduino, servomotor, and ultrasonic sensor technologies. The machine proves proficient in detecting the position and distance of limitations along its direction, translating these records right into a visually interpretable layout in the Arduino processing software program. With a selected awareness on protection programs, this innovative system serves

as an object detection and destruction mechanism.

IX. CONCLUSION

The precise, the research supplied herein outlines the development of a radar device that governs the initiation and positioning of a missile launcher via the integration of Arduino, servomotor, and ultrasonic sensor technologies. The machine proves proficient in detecting the position and distance of limitations along its direction, translating these records right into a visually interpretable layout in the Arduino processing software program. With a selected awareness on protection programs, this innovative system serves as an object detection and destruction mechanism. The operational variety is contingent upon the choice of the ultrasonic sensor, with our implementation utilizing the HC-SR04 sensor, imparting a range spanning from 2 to forty cm. This study not only contributes to the advancement of missile radar structures however also underscores the potential for defence-oriented applications leveraging such era.

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