

FIRING ROBOT BASED ON ARDUINO

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ABSTRACT

This is Fire Fighting Robot basically use for fighting against enemies and securing our army. This robot can sense ammunition and indicates so our army can avoid from ammunition of enemies. It can walk like human and provide backup as a soldier it shoots and firing on enemies. It will be control mobile phone and also can control through voice. The gun system is used with laser system for prompt target. This robot is based on Arduino, which is programmable, in which we give the command with the help of coding. In this robot used many components – Arduino UNO R3, L298N motor driver module, Bluetooth module, 12V Li-on battery, relay module, laser system, rocket launcher.

KEYWORDS: Arduino UNO, Bluetooth Module, L298N Motor Driver Module, Relay Module, Rocket Launcher, Arduino Bluetooth Application.

I. INTRODUCTION

In this project, the Fire Fighting Robot work on the given command. It is based on Arduino UNO which will be connect to the android phone with the help of Wi-Fi and works through the software intelligence. The Arduino is programmable, AVR based micro-controller with a robust set of features. It attacks on the enemies and kills. It has also a sensor which senses the ammunition and indicate and also can destroy. This Robot purpose is showing humanoid working with fighting and we want to use this type of robot for army whereby fighting time on the border. Our soldier is not die.

Arduino is a microcontroller based prototyping board which can be used in developing digital devices that can read inputs like finger on a button, touch on a screen, light on a sensor etc. Arduino is a micro-controller that's great for hardware prototyping. A micro-controller is kind of like your brain – it processes inputs and send out outputs. A micro-controller is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/ output peripheral device.

II. METHODOLOGY

2.1 Hardware and Software Requirements

This required hardware for this project is Arduino UNO R3, L298N Module, Bluetooth Module, Gear Motor, Relay Module, Li-ion Battery(12v), Jumper Wire, Chassis 4WD.

The required software for this project is AMR Remote Control for Android App, C OR Java programming language.

2.2 Block Diagram of Project

The block diagram of this project is given in fig.1. The basic block diagram of Fire Fighting Robot using Arduino is given below which consist of android phone that recognize the command and transmit to the Bluetooth module via Bluetooth link. The Arduino is used to give the command for firing and for up and down, left- right of the robot hand. when we give the command via AMR Remote control android App and this transfer the command to the

Bluetooth Device. According to the given command Arduino UNO R3 receive the command and operates on it. To perform all operation, it required 12volt power supply.

First the gives command or data is converted into text in AMR Remote Control for android app. When it received at the Bluetooth module, the data or command is converted into digital form hence the Arduino perform the operation according to the received command or data. The following step by step construct each block as per used:

1. Android Application.
2. Bluetooth Module.
3. Arduino UNO R3.
4. L298N Motor Driver Module.
5. Gear Motor.
6. Relay Module.
7. Rocket Launcher.
8. 12-volt power supply.

2.3 The Block Diagram Shown in Below Figure:

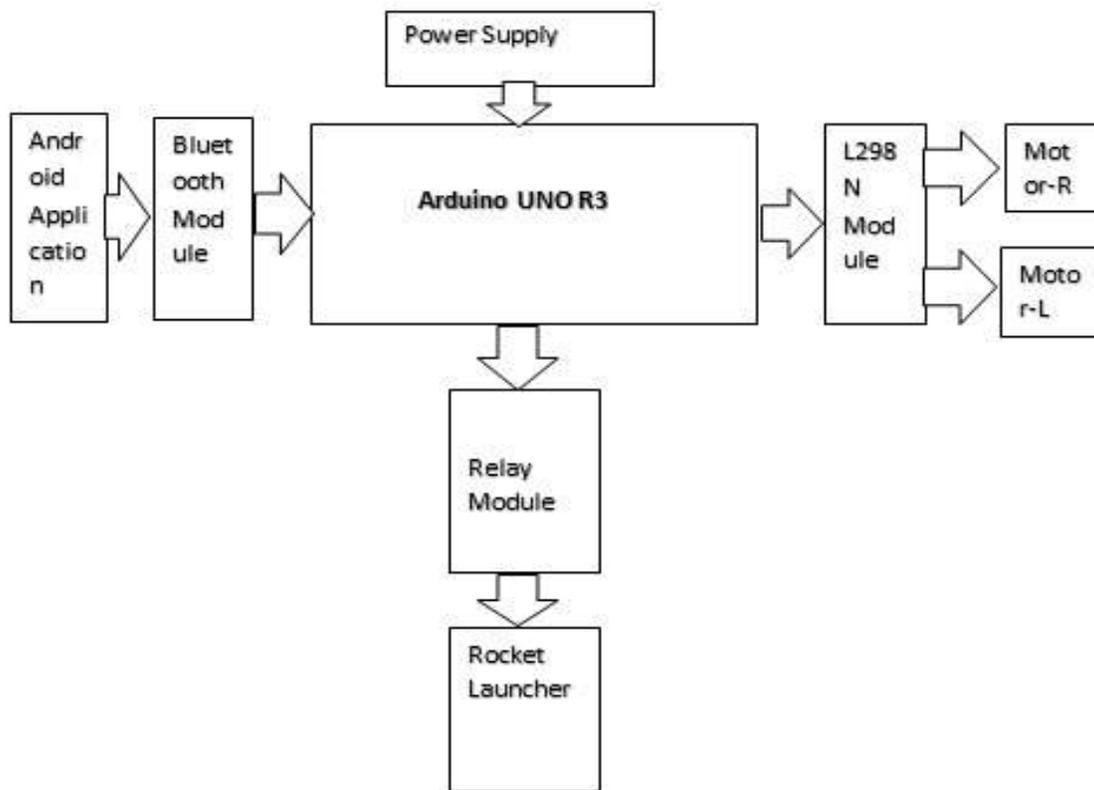


Fig-1: Block Diagram of Fire Fighting Robot

2.4 Circuit Diagram

The circuit diagram of this project is given in Fig2. To run the whole system, we need a DC power supply. The DC power supply is given to Arduino UNO R3, Bluetooth Module and Motor Driver Module. Hardware of project is Arduino UNO R3, Bluetooth Module and Motor Driver Module is used. The command is given through the Android Application which works as Transmitter and Receiver via Bluetooth the Motor Driver Module works as a receiver. This Bluetooth module is connected by the Arduino UNO, which perform the operation as the command is given.

The Arduino is programmable. we can use C OR Java language for programming the Arduino. The DC motor is connected to the motor driver module and Arduino and also the Bluetooth module is connected to Arduino UNO.

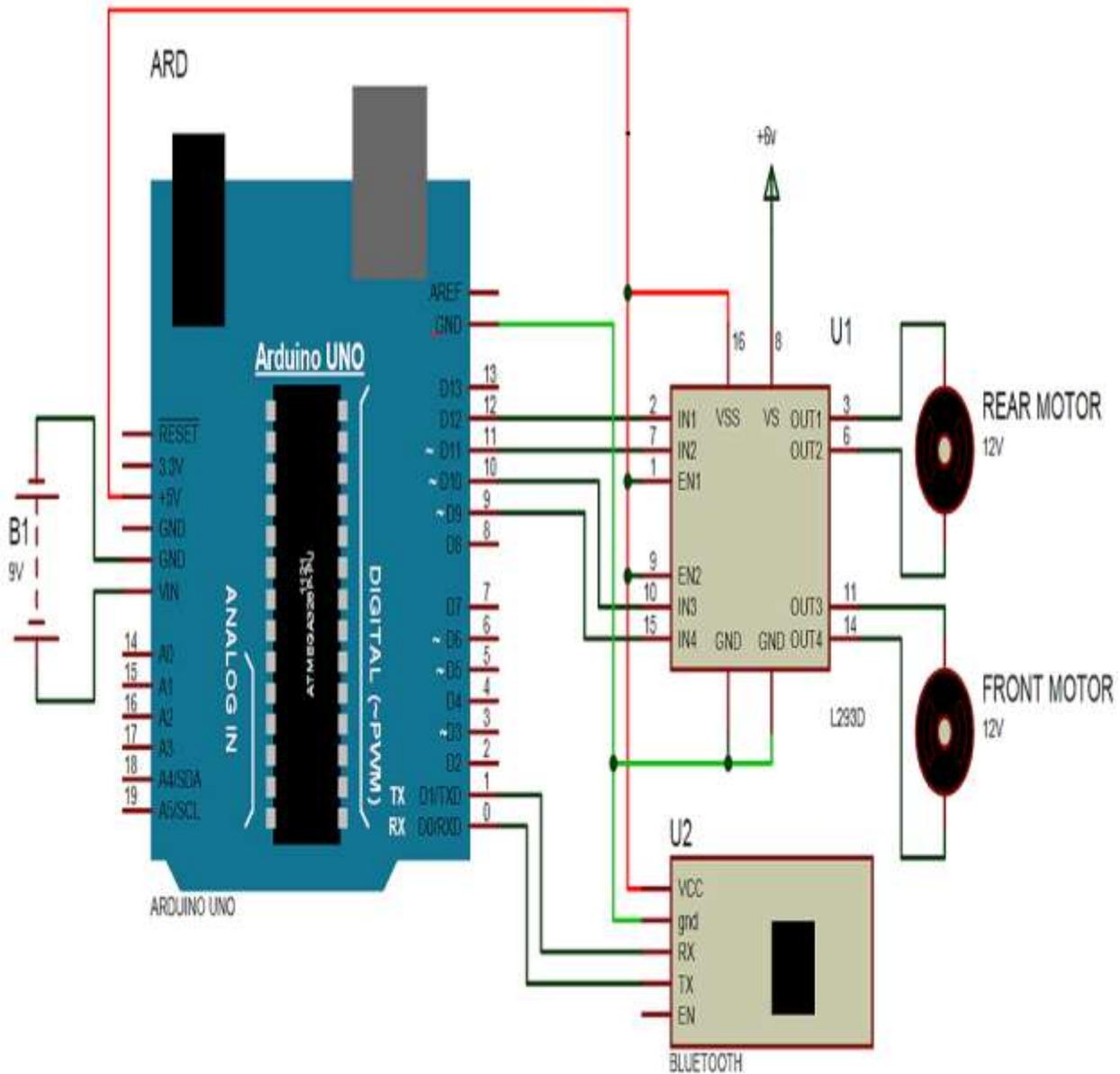


Fig-2: Circuit Diagram

The Fire Fighting Robot having the two circuit diagram one is shown as above the figure and another is shown for the (Firing system) circuit diagram shown in below the Figure.3. In both the circuit diagram one Arduino is used, which is totally programmable and easily handled the whole circuits and working of firing system. we connect the Android phone to the Bluetooth module (HC-05) and open the Arduino Bluetooth application. We give the command to the Arduino with the help of Arduino Bluetooth application and Arduino send a signal to the relay module. After receiving the signal relay module will be ON. If we give command only one channel of the relay module, then only one channel will be ON. At every channel of the relay module we connect the tungsten wire and

on every tungsten wire we connect the rocket. When, we give command to the first channel then the first channel will be ON and tungsten will heat at which connected rocket will release.

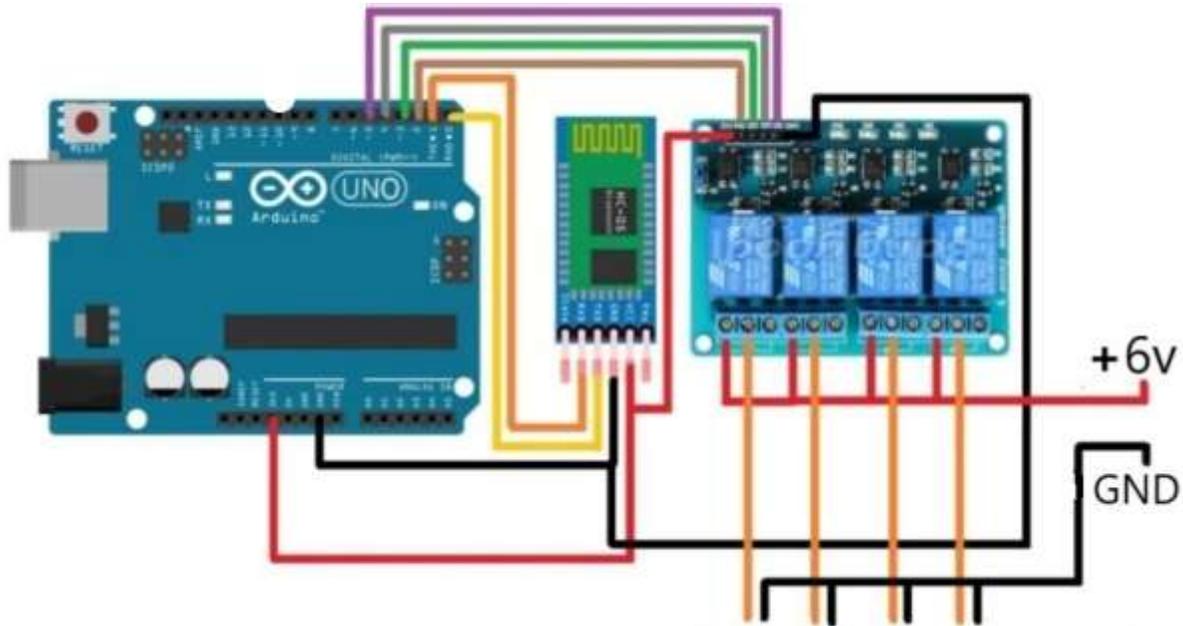


Fig-3: Circuit Diagram of Firing System

2.5 Controlling of Robot

How to use Android application to control the Robot for that the step are given below:

- 1) Download the application “AMR Remote Control” from google play store and install it.
- 2) After installing the application, turn on the Bluetooth Smartphone and Bluetooth Module.
- 3) Now pair your Smartphone Bluetooth with Bluetooth module HC-05 and the default password for pairing is “1234” OR “0000”.
- 4) Now the application and Robot is ready to perform the operation.
- 5) Now click on the “Remote Control application “and give the specific command to the robot.
- 6) Robot will perform the given specific command.
- 7) For Example, when we say Forward through the module application to the robot, the command is given to Bluetooth module of robot which is connected to the Arduino. According to the programming of the Arduino the robot will perform the task or command. hence the robot will move to Forward.

III. APPLICATION

- We can use this for military purpose.
- Best security of our army.
- We can use like a soldier.
- We can also use these Robots for highly security Biological Weapons labs.

IV. ADVANTAGE

- Easy to operate.
- Low power consumption.
- Reliable and low cost.

- It reduces man power.
- Easy to build.
- It works on simple command via android application.

V. FUTURE SCOPE

- It will be advance and useful for military.
- Automatic target system can be implemented with the RADAR systems.
- It will be helpful to secure our soldier life.

VI. CONCLUSION

Overall, there seems to be no doubt as to the effectiveness of robots for use in law enforcement applications. Agencies are very willing to invest in new robotic technologies that will aid in their efforts and help protect personnel. However, the entrance pricing point is much too high to be reasonable for fixed-budget agencies. To increase the utility of a robotic system in the eyes of an agency purchasing a robotic system, more functionality must be added, and price must be decreased. Finally, it makes easy to fight from enemies of our Army. Using of this robot, we secure life of our soldier.

VII. REFERENCES

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