

A Wireless Machine Gun for Self-Defence

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Abstract: - Now-a-days we use manual method on the borders of the country or during wars i.e. the soldiers continuously observe any of the terror movement on the actual line of control. These systems are not safe for the soldier's life and there are ample of chances of mistakes and dangers. The Automatic Machine Gun is mainly designed to provide remote accessibility using wireless technology (RF Module) by using ATmega328P microcontroller which is control machine and robot for land soldiers in battle field. The aim of the proposed system is to build a system which will offer the world's most complete line of remote armed delay/denial and unarmed reconnaissance platforms. It is designed to keep enemy out of the line of control. This system can be very useful in ground level combat and save most worthy human life.

Keywords: - ATmega328P, Automatic Machine Gun, Robot, RF Module.

I. INTRODUCTION

The proposed system consists of two sections such as the transmitter section and the receiver section. At the transmitter side continuously monitoring from location of the machine gun will be done. And at the receiver side, the gun actions will be performed under the decisions taken by the user at control room. Now-a-days we use manual method on the borders of the country or during wars i.e. the soldiers continuously observe any of the terror movement on the actual line of control. These systems are not safe for the soldier's life and there are ample of chances of mistakes and dangers. The proposed system is mainly designed to provide remote accessibility using wireless technology for land soldiers in battle field. The aim of the proposed system is to build a system which will offer the world's most complete line of remote armed delay/denial and unarmed reconnaissance platforms. It is designed to keep enemy out of the line of control. This system can be very useful in ground level combat and save most worthy human life.

II. LITERATURE SURVEY

The survey consists of studies of various published international papers.

Some of them are-

A) Border security system

In this system a special type of human sensor is PIR (passive infrared) used to detect the human being

around 20feet distance. This sensor uses the concept of Black Body Radiation. If anyone tries to cross the border sensor detects and it sends a signal to the microcontroller switch on the camera which captures the image of the human and it transmits the signals to the near security station.

b) Advance border security using android application

These system offers a complete robot action which design to keep the enemy out of reach from line of control. That is what it saves the most worthy human life. Now a day our soldiers continuously observe the border of country. Though it is a normal day or during a war. And they observe any of the terror moment on the field. But unfortunately the system is not safe for soldier's life and there are chances of mistake and dangers.

III. COMPONENTS

Arduino Atmega328

Atmega328microcontroller with 32kbytes flash program memory is used.

- 28-pin AVR Microcontroller.
- Flash Program Memory: 32 kB.
- EEPROM Data Memory: 1 kB.
- SRAM Data Memory: 2 kB.
- I/O Pins: 23.
- Timers: Two 8-bit / One 16-bit.
- A/D Converter: 10-bit Six Channel.

Liquid Crystal Display (LCD)

The 2 line, 16 character LCD screen is used to display the instruction information.

RF_TX_433MHz

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These RF Transmitter Modules are very small in dimension and have a wide operating voltage range (3V-12V). The low cost RF Transmitter can be used to transmit signal up to 100 meters (the antenna design, working environment and supply voltage will seriously impact the effective distance). It is good for short distance, battery power device development.

RF_RX_433MHz

These RF receiver modules are very small in dimension. The low cost RF Receiver can be used to receive RF signal from transmitter at the specific frequency which determined by the product specifications. Super regeneration design ensure sensitive to weak signal.

Infrared Laser Light

For accurate target at the aim user can use this LASER. It is light emitting diode which generate long distance red laser beam. It is attached with machine gun so that it will move at machine gun's direction.

Joystick/ Keypad

Joystick switches or joysticks are manually actuated control devices for installation in control and front panels as well as in portable control equipment. They are used wherever motion sequences analogous to the actuation direction are controlled by hand. They are ideal for rising, lowering and triggering movements to the right and left, just to name some few possibilities.

Servo Motor

The rotation of Gun is done by two Servo motors. One in horizontal direction & other in vertical direction, so that user can target or see at any direction by rotating gun using remote input device.

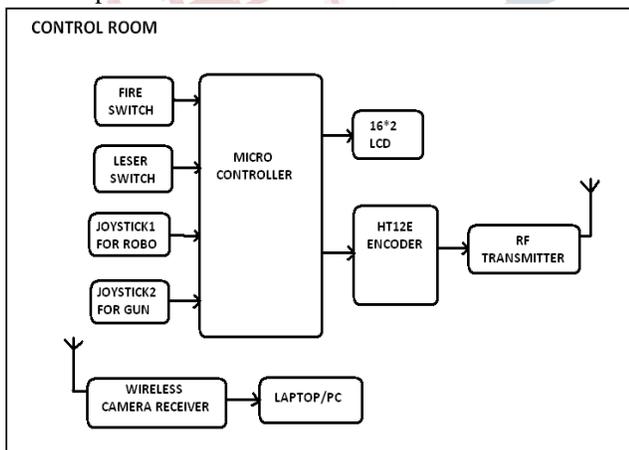


Fig 1: TRANSMITTER SECTION

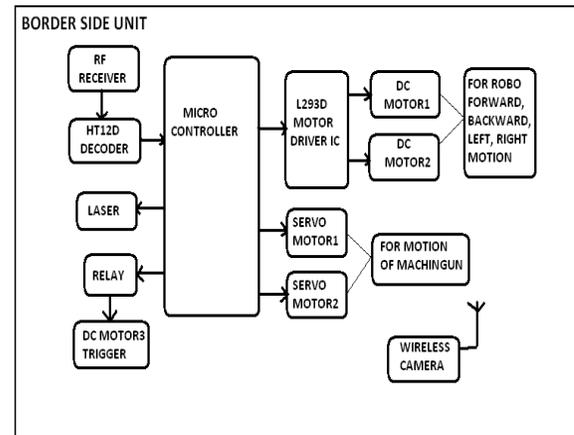


Fig 2: RECEIVER SECTION

IV. WORKING

There are two blocks, the transmitter side and the receiver side. At the transmitter side continuously monitoring from location of the machine gun will be done. And at the receiver side, the gun actions will be performed under the decisions taken by the user at control room. There is the interconnection between the transmitting and receiving ends which are properly synchronized with each other. The resonance helps in perfect matching two ends.

Transmitter unit consists of joysticks which control the motion of the gun, robot and the laser switch. The wireless camera at the receiver section or the remote unit on the border continuously captures the videos at the border and transmits it to the control unit on PC. Once the vigilance person who is at the control room finds any unauthorized entry of adjacent country terrorist or militant he can activates a gun which is located at the border side from the room itself which is done by using the joysticks which is nothing but a input from control unit to the remote unit. In the similar way the laser is used to target the enemy and the gun is triggered remotely from the control unit. All these transmission are taken over by a RF transmitter and a receiver which are placed at both the ends. The RF units is a 433MHz transmitter receiver units.

V. SOFTWARE IMPLEMENTATION

PROTEUS 8.1

Proteus 8.1 software runs program in Arduino for AVR microcontroller.

It supports object oriented language C++.

To run circuit diagram it requires hex file from the source code. After generating hex file it creates PCB layout schematic.

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PROTEL 99

Protel Advanced PCB is an application used to design electronic circuit schematics. The program can design PCB layout manually, Auto-Route according the electronic circuit schematic that you design, design a Multi-layer PCB (consisting of several layers), and many more.

ARDUINO 1.6.8

This software can be used with any Arduino board. New Arduino-builder: faster, better prototype generation and library discovery logic, and more. Serial plotter allows to plot multiple values at once. Arduino IDE icon is in high definition.

VI. FUTURE SCOPE

If this system is implemented, it could be used at VIP Places. Last but not the least, this concept could be able to work at major sensitive areas with higher level enhancement for better performance.

VII. RESULT

INPUT	COMMAND ON DISPLAY
0001	LASER ON
0010	LASER OFF
0011	FIRE ON
0100	FIRE OFF
0101	ROBO FORWARD
0110	ROBO BACKWARD
0111	ROBO LEFT
1000	ROBO RIGHT
1001	GUN CLOCKWISE
1010	GUN ANTICLOCKWISE
1011	GUN DOWN
1100	GUN UP

Table 1

VII. CONCLUSION

Thus we developed “A Wireless Machine Gun for Self-Defence”system for protecting our border. The remote controlling improves its efficiency, security and accuracy. Thus it will increases the “Indian military” power and saves human worthy life. In future with more development and enhancement it will be ready to work in real world environment.

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