

UNMANNED ARMY ROBOT

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ABSTRACT :- An intelligent unmanned army robot (IUAR) is actively being developed for both civilian and military use to mainly perform in dangerous activities. Predominantly these vehicle are utilised to substitute people in risky situations. IUAR have recently been the subject of numerous research initiatives for both military and civilian applications, including border patrol, law enforcement, surveillance, riot control, and military, police, and security services. For instance, bombs and explosives can disable automobiles. Today, IUARs of all sizes are saving lives and providing essential auxiliary capabilities in military operations across the globe. The major problem is every country is border problems due to this problems border guarding force of army men are implemented for guarding land border during peace time and surveillance of border preventing transnational crime and to monitor intruders like terrorist, and civilian of other nation. During surveillance operation many army men wounded and shot dead in borders by the attack of terrorist and army of opponent country, so to protect the precious life of army men and women. We expect that the intelligent unmanned army robot plays an important role in the future military operation.

I. INTRODUCTION

In the conventional system there is separate remote monitoring for robots are available. The vision of proposed system is used to carry out human detection and tracking of the objects and fire the target object. In the conventional system the control of robot with the help of humans only, so it is somewhat complex while implementing this system. In order to rectify it we go for a new system, which works in manual mode and automatic mode as well. In the proposed system, the having two different control modes for the robot. Through an RF Transmitter and Receiver, the controller sends a video signal to the control unit. The correct action can be made by the control unit, and the signals are sent to the controller by the transmitter and receiver, who then fires the target object. If a person is seen on camera and appears to be an enemy, the appropriate signal is sent to the control unit, where the appropriate action, such as firing the person or not, will be taken. This system's goal is to produce a robot for use in combat and other military operations. The system is also to identify the intruders which are being carried out by using facial recognition technique. For the last few decades, robots are becoming very popular and common in military organizations. There are many advantages of these robots as compare to human soldier. One of the most important things about these robots is that they have the capability to perform missions remotely in the field, without any actual danger to human lives. Keeping this objective in mind several companies have built a robot guns or military robot to do the specific task without harming the soldier's life. These robot guns impressed a lot but have some disadvantage in it which is stopping them to get introduced in to military operations. Some of the proposed robot guns are Camel gun, Super Aegis F2. These both are manufactured by some Korean companies and were proposed to Korean military.

II. METHODOLOGY

We have developed a system in which a robot autonomously goes to any remote area and detects its target and shoot from an acceptable distance. The robot is pre-programmed and comprises of a micro-controller with good quality webcam and has a self-made linear projectile mechanism. The web IOT based the real time frame or image of the surrounding more specifically called an arena [4]. Then the frame of an image goes as an input in the human army and the image is being processed using humane brain and army take action. Then signal has been produced for the robot whether to move or take left, right and forward. There is also a trigger mechanism installed in a robot which activates the linear projectile shooting mechanism. This trigger mechanism gets activated when the robot fully detects its target and achieved its acceptable distance and linear projectile mechanism is activated based on the Fleming thumb rule and the bullet is fired in the direction of the target.

1 MOTOR

A DC motor is any of a class of electrical machines that converts direct current electrical power into mechanical power. The most common types rely on the forces produced by magnetic fields. Nearly all types of DC motors have some internal mechanism, either electromechanical or electronic; to periodically change the direction of current flow in part of the motor. Most types produce rotary motion; a linear motor directly produces force and motion in a straight line.

DC motors were the first type widely used, since they could be powered from existing direct-current lighting power distribution systems. A DC motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings. Small DC motors are used in tools, toys, and appliances. The universal motor can operate on direct current but is a lightweight motor used for portable power tools and appliances.

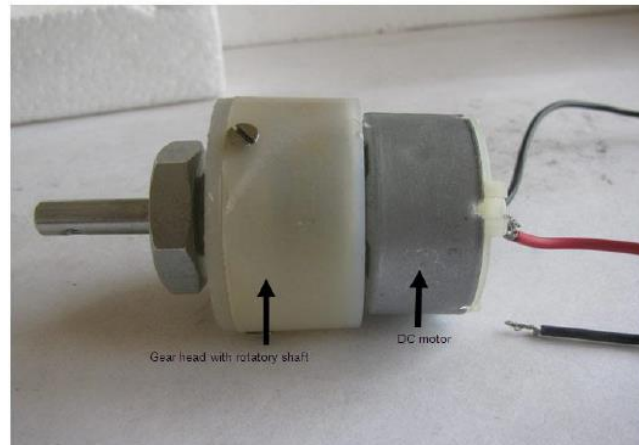


Fig.1 Motor

2. CAMERA



Fig.2 Camera

3. DESCRIPTION

Simple Three Setups, Easy to Use. Support IOS/Android/Windows devices for remote view. Control your camera just by finger's sliding on the screen Built-in Dual-Antenna (WIFI+433) for extreme reliable High-speed and stable network connection. Support multiple RS433 alarming methods, magnetic door, bracelet etc Two Way Audio: Built-in Mic & Speaker, Directly talk to your family and friends with phone or PC anytime and anywhere Night Vision: Built-in IR LEDs will turn on automatically in low light. Day and Night Surveillance, when monitor detects something or alarm is triggered, instant notification (sound or vibration) will be sent.

Product Features

- Technology: Infrared IR
- Distance(m):8mPower
- Supply(V):110-220V

- Power Consumption(W):3-5W
- Sensor: CMOS
- Alarm Action: Email Photo, Local Alarm
- Dimensions (L x W x D) (mm):15*15*15cm
- Special Features: Vandal-proof
- Viewing Angle (Degree): Horizontal: 355° Vertical: 90°
- Supported Mobile Systems: iPhone OS, Windows Mobile, Android
- Connectivity: IP/Network Wireless Sensor
- Type: IP Camera
- Video Compression Format: H.264
- Lens (mm):3.6mm
- Audio Output:1CH RCA
- Minimum Illumination (Lux):0.1lux
- High Definition:720P(HD)
- Network Interface: Wi-Fi/802.11/b/g
- Style: Box Camera
- Model Number: F5003A
- Technology: P2P Wi fi Camera, Night Vision Camera
- High Definition:720P(HD) Wi fi Camera, Mini IP Camera
- Function: Two-way audio, Night vision, wifi camera 720P

4. BUCK BOOST



Fig. 5 Buck boost

5. BLOCK DIAGRAM

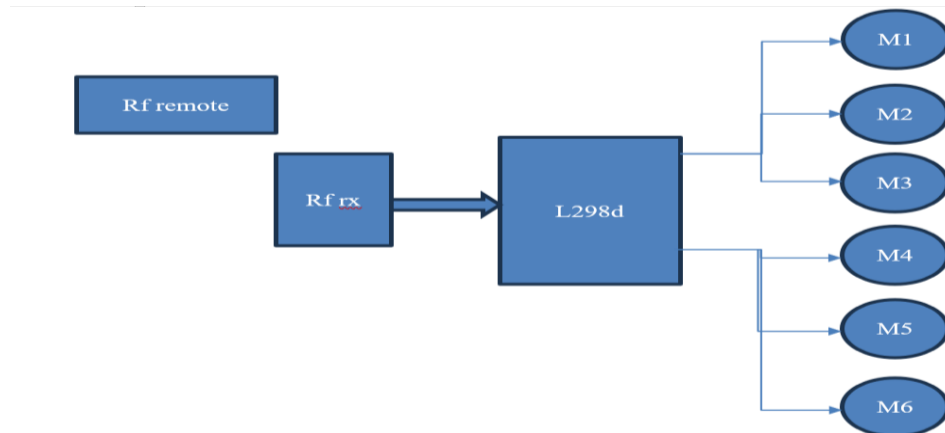
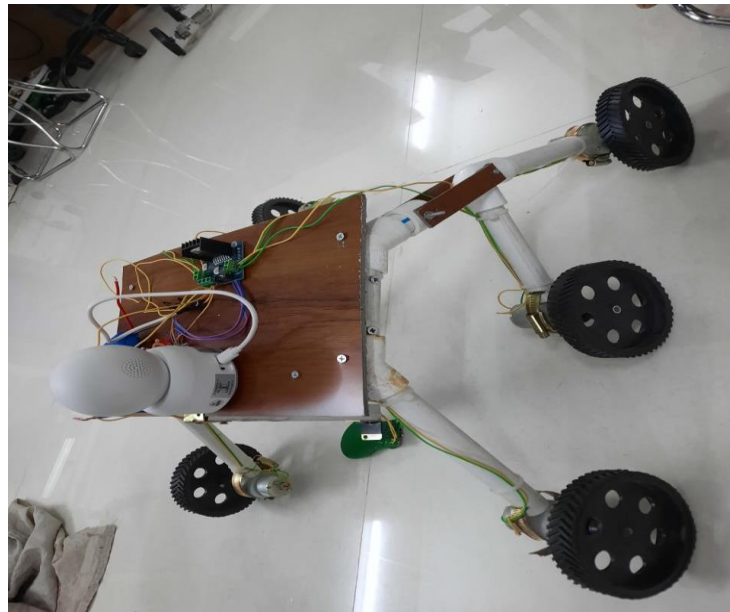


Fig 6. Block diagram

As shown in the diagram, one rechargeable buck boost as supply is used which is connected to motor driver and arduino respectively. When the circuit is energized, we will have to first pair the android phone with the RF module through the phone's RF settings. The default password of the RF module will be '1234'. Once the phone gets paired, open the application 'CAR RF RC' which we can download from 'Google play store'. On opening the application, there will be sets of control displayed on the screen. If the device has not been connected, the control will be locked, meaning the control buttons cannot be pressed. When the car is at its initial position, the application automatically sends the command 'S' meaning stop. The stop command is put in a loop that keeps on repeating throughout the execution of the program. As the user presses any control buttons, the stop command will be interrupted by the move forward, backward, right, left, depending on the user and the car moves likewise. The program is designed in such a manner that we can also give two commands at the same time, i.e. move front and turn right or left and same with the backward motion. The Arduino also stores the program in its memory so it does not require re-uploading of Program. The IN1, IN2, IN3 and IN4 are the inputs for the motor driver that receives command from the Arduino for the two motors respectively. The motor driver should be grounded with the Arduino ground pin (GND). The motor driver requires a minimum of 6V and above to run, any voltage below 6V the motor remains off. The RXD pin of the RF module is for receiving commands from the Android devices and sends to Arduino through this pin and the TXD is for transmitting or sending data or information's. It is supplied with a 5V DC source from the Arduino 5V pin. Same as servo motor controlling and relay on/off controlled for motor M43 triggering the gun firing. The main part of the above circuit diagram is Arduino UNO. The power supply section is very important. It should provide constant voltage to the devices for successful working of the project.

III. RESULT



IV. CONCLUSIONS

By putting this initiative into action, the risk to soldiers' lives in numerous military operations and on any battlefield will be reduced. We are creating an automatic robot gun that will be mobile and have simple RF interface. It will be a very userfriendly robot with excellent features and dependability. Robots in a battlefield are driving and firing.

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