Advanced Military Spying and Bomb Disposal Robot

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Abstract: *In This Project We Are Going To Merge Two Applications That Is SPYING And BOMB DISPOSAL. Here A Camera Is Attached To The Mini Spy Robot. The Motors Will Be Run By The Relays Which Will Be Then Controlled Through Remote Via RF Module. The Work Is Designed To Develop A War Field Robot Which Is Capable Of Disposing Bombs Landmines In Its Path And Which Is Wirelessly Controlled Through RF Module. The Robot Can Be Moved In All The Directions Using The Remote Wirelessly. The Controlling Device Of The Whole System Is A ARDUINO. The Circuit Complexity Is Reduced And Performance Speed Is Increased By Using The Arduino. Whenever , Landmines Or Bombs Are Detected It Alerts Through Blinking Of LED's Of System. The Arduino Used In The Project Are Programmed Using Arduino Software Language. Just By Using A RF Module Enabled, The User Can Control The ADVANCED MILITARY SPYING AND BOMB DISPOSAL ROBOT From Any Area.*

Keywords- *Bomb Disposal Sensor, Intelligent Robot And RF Module.*

I.   Introduction

The Technical Improvement Together With The Need For High Performance Robots Created Faster, More Accurate And More Intelligent Robots Using New Robots Control Devices, New Drives And Advanced Control Algorithms. The Presented Robot Control System Can Be Used For Different Sophisticated Robot Applications. This Spy And Bomb Detecting Robot Was Fully Controlled By The Remote And The Commands From The Remote Via RF Transmitter Were Received By The Arduino. So This Spy And Bomb Detecting Robot Can Be Used In Military Applications. Most Of The Military Organization Now Takes The Help Of Robots To Carry Out Many Risky Jobs That Cannot Be Done By The Soldier. These Spy Robots Used In Military Are Usually Employed With The Integrated System Including Gripper And Cameras, Video Screens, Sensors. The Military Robots Also Have Different Shapes According To The Purposes Of Each Robot. Thus The Proposed System, An Intelligent Robot Using RF Module Saves Human Lives And Reduces Manual Error In Defense Side. This Is Specially Designed Spy And Bomb Detecting Robot System To Save Human Life And Protect The Country From Enemies. 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.

II.   Existing System

There Is Much Advancement In The Field Of Engineering, Robotics In Particular. Many Robotic Systems Have Been Developed For Various Purposes. There Are Certain Systems Which Are Used For Automatic Motion Of Vehicles In Road And Wheel Chairs Which Can Help Disabled.

2.1 DISADVANTAGES
- No Monitoring System For Vehicles.
- No Remote Control For The Robotic   Movement.
- It Is Not Used To Put Out Large Fires.
- Require Visible Environment.

III. Proposed System

The Robot Can Be Altered To Suit The Needs Of The User. It Is Fast And Robust. It Can Be Handled In Different Loads . The Recent Technology Can Be Controlled Remotely . It Has Video Feedback And It Can Support All Kind Of Environment .
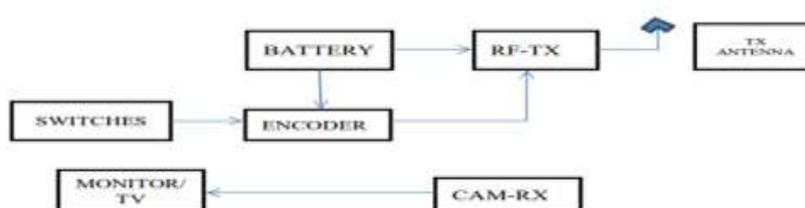
IV. Block Diagram Of Transmitter

Fig: Block Diagram Of Transmitter

4.1. POWER SUPPLY: Transmitter Circuit Requires 9V For Radio Frequency Transmitter And Serial To Parallel Decoder Also, Priority Encoder. This Power Supply Can Be Provided 9V Battery Can Be Chargeable Or Use And Throw.

4.2. CONTROL PANEL: The Circuit Required Total Four Movement Or Controls Hence 4 Switches Connected To The Keyboard Of Transmitter. Four Switches For Controlling Movement Forward, Backward, Left Turn And Right Turn, Depending Upon Our Programming Conditions We Can Manage Particular Switch For Particular Operation.

4.3. PARALLEL TO SERIAL ENCODER: Input Is 4-Bit Parallel BCD Number (Connected With Switches). It Cannot Transmit Over Long Distance Directly, Hence Converted In To Serial Using Parallel To Serial Encoder Circuit. The Serially Converted 4-Bit BCD Is Transmitted By Using Radio Frequency Module. It Can Transmit Data Up To 250 Meter In Open Space.

4.4. RF FREQUENCY MODULES: There Are Various Types Of RF Modules Available In Market Like 315mhz, 433mhz; 668mhz From Free Frequency Band, Having Maximum Communication Distance Is 250mtrs. We Can Use Any Of Them.

4.5. CAMERA RX: We Used Here Camera Receiver To Receive Transmitted Video By Camera On Robot. The Receiver Required 9V DC And Can Be Connected To TV Directly. For Monitor TV Tuner Card Required To Convert The Video Signals In To Monitor.

4.6. POWER SUPPLY: Here Arduino Uno Board, Battery, Motor Driver Required 9V Power Supply Connected With BATTERY, RF RECEIVER, LED Indicators, Sensors And Control Circuit Operates With DC 5V. AC Ripples Reducer Circuit Provides To Obtain Pure DC From Pulsating DC.

V. Block Diagram Of Receiver

5.1. RF RECEIVER: We Required Using Same Frequency Receiver Module As Used In Transmitter Remote(It Can Be 433mhz/ 315mhz/ 668mhz). The Received Signal Is Decoded By RF Module Itself And Gives Serial Output For The Serial To Parallel Decoder Circuit. This Circuit Can Decode Serial Data In To Parallel Format (Original Format As In Transmitter). Now That Output Is Given To The Arduino, Depends Upon Programming Conditions, Arduino Board Drives Motor Driver And Motor Driver To The Motors.

5.2. MOTOR DRIVER: Arduino Board/ Microcontroller Has Very Low Current Output It Cannot Drive Current Consuming Sources, Such Like Motor Hence Separate Motor Driver Circuit Requires. We Can Implement This Circuit Using Related Motor Driver Module Or IC. Notification LED Can Directly Drive With Current Limiting Resistor.LED Indicators Connected To Which Operation Is Working Now, As Like LED 1 For Forward, LED 2 For Reverse And So On. As Our Programming Conditions System Requires Providing Data By Transmitter Circuit And Received At Receiver End Can Operate The Robot.

5.3. SENSOR: Here We Are Using Metal Detector Operates With Metal Detection From Maximum 3-4 Inch Distance, Connected With Analog Input Pins Of Arduino Uno Board, According To Programming Arduino Peeps The Buzzer. For RF Received Signal Robot Operate Forward, Reverse, Left Turn, Right Turn Movements According To Programming Conditions.
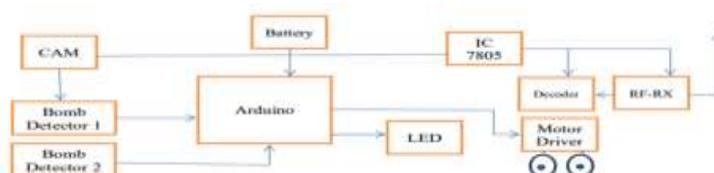
Fig: Block Diagram Of Receiver
SOFTWARE

Arduino Is An Open-Source Platform Used For Building Electronics Projects. Arduino Consists Of Both A Physical Programmable Circuit Board (Often Referred To As A Microcontroller) And A Piece Of Software, Or IDE (Integrated Development Environment) That Runs On Your Computer, Used To Write And Upload Computer Code To The Physical Board. The Arduino Platform Has Become Quite Popular With People Just Starting Out With Electronics, And For Good Reason. Unlike Most Previous Programmable Circuit Boards, The Arduino Does Not Need A Separate Piece Of Hardware (Called A Programmer) In Order To Load New Code Onto The Board – You Can Simply Use A USB Cable. Additionally, The Arduino IDE Uses A Simplified Version Of C++, Making It Easier To Learn To Program.

VI. Conclusion

It Detects The RF Data Send By Transmitter And According To That Control Robot In Forward, Backward, Left Turn, Right Turn Movements. Metal/Bomb Detector Can Detect The Metals And Alert With LED To Notify The Metal/Bomb .Because, We Can't Detect The Actual Bomb We Don't Have That Much Authority .The Camera Detects The Exact Location Of The Robot. In This Manner Our Project Plays A Crucial Role In Military As Well As In Our Police Department. In This Project, We Have Introduces A New Application Using Two Techniques I.E. Spying And Bomb Disposal Implemented By Using Arduino Kit. In Future, We Can Also Implement Bomb Diffusion Technique In This Project. It Can Be Used In Radar Detection Systems To Detect Objects By Implementing Other Hardware.

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