IOT BASED WAR FIELD SPYING ROBOT

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 ABSTRACT: This project focuses on building a RF based spying robot attached with wireless camera that can reduce the human victim. This robot sends the signal to the base station using wireless camera. One of the major application of this project can be analyzed using android based smart phone which can be used to control the movement of the robot. The robot sends the signal to the RF receiver mounted on the robot via RF transmitter at the base station. With this feature the robot can transmit real time videos with night vision capabilities and cannot be identified by the enemies in war zone.

 Keywords: Sensors , iot ,spying robot

1.INTRODUCTION:

 With the aim of developing a high-tech technology that serves high speed technology, advanced capacity to control the robots and to device new methods of control theory. The realize above standards some technical improvement along with the need of high performance robot is required to create a faster, reliable, accurate and more intelligent robot which can be devised by advanced control algorithm, robot control devices and new drivers. Earlier the robots were controlled through wired networks but now to make robot more users friendly, they are framed to make user commanded work. Therefore to attain the requirements we can use android as a multimedia to control the user friendly robot. Robotics is the branch of mechanical engineering, electrical engineering and computer science that deals with the design, construction, operation and application of robotics, as well as computer systems for their control, sensory feedback and information processing. The aim of developing a high-tech technology serves the purpose of achieving high speed technology, advanced capacity to control the robots and to device new methods of control theory. The realization of above standards some technical improvement along with the need of high performance robot is required to create a faster, reliable, accurate and more intelligent robot which can be devised by advanced control algorithm, robot control devices and new drivers.

2.SYSTEM EXISTING:

- Already existing systems use robots that have limited range of communication as they are based on RF Technology, Zigbee and Bluetooth.
- Some existing projects use short range wireless camera.

- Some existing robots can only be controlled with a manual mode which needs human supervision throughout the whole surveillance process

3.PROPOSED STSTEM:

- Robots can be operated in both manual and automatic modes.
- By using Arduino microcontroller, the cost and complexity can be reduced.
- The communication with the robot occurs in a more secured manner.
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4.BLOCK DIAGRAM:
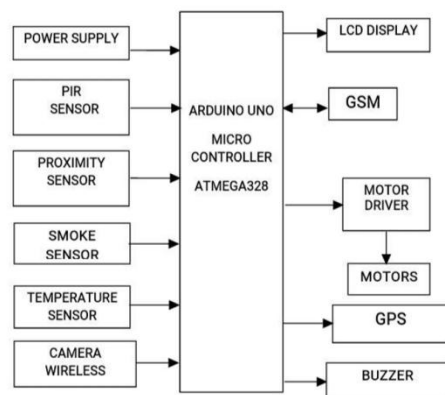
Fig(A):Block Diagram For IOT Based War Field Spying Robot

This Project mainly consists of Power Supply section, Arduino Uno Microcontroller section, LCD display, temperature sensor, Buzzer, Smoke sensor, Proximity sensor, PIR Sensor, GPS, GSM, and Robot Section.

5.HARDWARE COMPONENTS:

POWER SUPPLY:

This section is meant for supplying Power to all the sections mentioned above. It basically consists of a 12V battery.

BUZZER:

A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric. Buzzer is an integrated structure of electronic transducers, DC power supply, widely used in computers, printers, copiers, alarms, electronic toys, automotive electronic equipment, telephones, timers and other electronic products for sound devices. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke.

LM35 TEMPERATURE SENSOR:

In general, a temperature sensor is a device which is designed specifically to measure the hotness or coldness of an object.LM35 is a precision IC temperature sensor with its output proportional to the temperature (in °C).With LM35, the temperature can be

measured more accurately than with a thermistor.

It also possesses low self heating and does not cause more than 0.1 °C temperature rise in still air. The operating temperature range is from -55°C to 150°C.The LM35's low output impedance, linear output, and precise inherent calibration make interfacing to readout or control circuitry especially easy. It has find its applications on power supplies, battery management, appliances, etc.

ARDUINO UNO MICROCONTROLLER:

The ARDUINO UNO is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 Digital pins, 6 Analog pins, and programmable with the ARDUINO IDE (Integrated Development Environment) via a type B USB cable. It can be powered by a USB cable or by an external 9 volt battery, though it accepts voltages between 7 and 20 volts. It is also similar to the ARDUINO NANO and Leonardo. The hardware reference design is distributed under a Creative Commons Attribution Share- Alike 2.5 license and is available on the ARDUINO website.

6.LCD DISPLAY:

A **liquid-crystal display** (**LCD**) is a flat-panel display or other electronically modulated optical device that uses the light modulating properties of liquid crystals.

Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome.

LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and sevensegment displays, as in a digital clock.

They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements. LCDs can either be normally on (positive) or off (negative), depending on the polarizer arrangement. For example, a character positive LCD with a backlight will have black lettering on a background that is the color of the backlight, and a character negative LCD will have a black background with the letters being of the same color as the backlight.
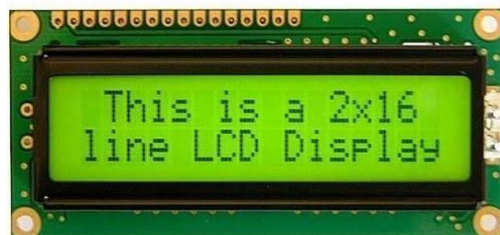
PIR SENSOR:

All living objects, whose body temperature is more than $0\ ^0C$ emit the heat in form of infrared radiation through their body, also called as thermal radiations. This Radiated energy is invisible to human eye. These Signals can be detected by using PIR sensor

which is specially designed for such purpose.

PROXIMITY SENSOR:

A proximity sensor is a sensor able to detect the presence of nearby objects without any physical contact. A proximity sensor often emits an electromagnetic field or a beam of electromagnetic radiation, and looks for changes in the field or return signal.

SMOKE SENSOR:

The MQ-2 is a flammable gas and smoke sensor detects the concentrations of combustible gas in the air and outputs its reading as an analog voltage. The sensor can measure concentrations of flammable gas of 300 to 10,000 ppm.The MQ-2 gas sensor is sensitive to LPG, i-butane, propane, methane, alcohol, Hydrogen and smoke. They are used in gas leakage detecting equipments in family and industry and in portable gas detector.

WIRELESS CAMERA:

Wireless security cameras are closed circuit television (CCTV) cameras that transmit a video and audio signal to a wireless receiver through a radio band.wireless cameras are providing very popular among modern security consumers due to their low installation costs and flexible mounting options.

GSM :

GSM stands for global system for mobile communication. it is a digital cellular technology used for transmitting mobile voice and data services.GSM operates on the mobile communication bands 900 MHz and 1800MHz in most parts of the world.

GSM use the narrow band time division multiple access (TDMA) technique for transmitting the data.

GPS :

GPS stands for global positioning system. It is made up of satellites, ground stations, and receivers.GPS is a system of 30+ navigation satellites circling earth. We know where they are because they constantly send out signals. a GPS receiver in your phone listens for these signals.

MOTOR DRIVERS :

Motor driver act as an interface between the motors and the control circuits. Motor require high amount of current where as the controller requires low current signals.so the function of motor drivers is to take a low current control signal and then turn it into a high current signal that can drive a motor.

MOTORS :

An electric motor is an electrical machine that coverts electrical energy into mechanical energy.most electric motors operates through the interaction between the motors magnetic field and electric current in a wire wire winding to generate force in the form of torque applied on the motors shaft.
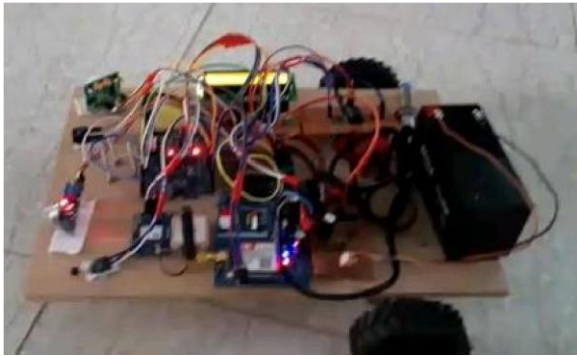
6.OUT PUT:

Fig:Project prototype

7.APPLICATIONS:

- By combining camera features with the robot we can easily monitor indoor as well as outdoor locations during daytime and at night.
- Remote areas can also be explored.
- Used to record and send vedio out put of the required environment.

8.ADVANTAGES:

- It saves life of many soldiers.
- It is simple to operate.
- It can move from one location to another location.
- The main advantage of this project is that we can easily control the robot using an android mobile.

9.CONCLUSION: The main motive of the war spying robot was to make it user friendly. The spy robot can easily move, capture images and wirelessly transmit them, thus giving the soldiers an intimation about the dangers and situations in the war field. The robot will move depending on the motor direction based upon the input we give through transmitter (remote) section. RF signals are used as control signals. By using these signals encoding is done & signal is sent through the transmitter. At the receiver end, these decoded signal are given as input to drive the motor. The robot is used for short distance surveillance thus ensuring the security of the region. This helps the forces to view the things accurately that are currently happening in the surrounding area and to plan ahead accordingly. Thus we should be able to manipulate its path when necessary, to create the robot safely. To all that, a control unit is needed, where control units RF signal is used. By using these signals encoding is done & signal is sent through the transmitter. At the receiver end these decoded signal are given as input to drive the motor. Not for long range applications it can be used as a spy robot within short distances.

10.FUTURE SCOPE: This spying robot can be modified and made it for prolonged ranged and can be make it more useful by consuming

more operational procedures and modules like Wi-Fi module, raspberry pi. Future scope of this robot is very efficient it may have gas sensors to detect the harmful or hazardous gases in the surroundings.

It can also be used as bomb diffuser and bomb disposal team can also use these type of robot in many ways and reduces the risk factor of human loss. Further, a terminating framework can be set on the robot, to fire any foe when he is spotted. The innovation can be enhanced further by offering directions to accepting circuit and control it by utilizing satellites correspondence. It will utilized in shopping centers for pickup, drop trolleys and car vehicle painting. Likewise, the framework can be made android based, where all controlling should be possible through an advanced mobile phone. There is a light called halogen light which is useful for the camera's vision which is attached on the robot. This robot can also be controllable by giving commands through voice it will response to the voice commands also.

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