NIGHT VISION SAFETY ROBOT

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ABSTRACT

A robot is a mechanical or virtual artificial agent, usually an electro-mechanical machine that is guided by a computer program or electronic circuitry It is a unique spy robot circuit that can be controlled using an RF remote controller. It can act as a live telecast of audio and video information from the surroundings and can be sent to a remote station through RF. The moment of the camera is also. The maximum range is 100 meters. Another feature included it measures the distance of the object in front of the robot and also automatically stops the robot if it detects the distance of the object is inside 10cm & data of distance can be also accessed by a remote section unit by sending RF signal. RF 2.4GHz ASK transmitter and receiver are used for the remote control which provides serial communication under a specific range. The camera has a receiver, which is placed in the remote station. Its output signals are in the form of audio and video. The main objective behind developing this robot is for the surveillance of human activities in the war field or border regions in order to reduce infiltration from the enemy side. The robot consists of a night vision wireless camera which can transmit videos of the war field in order to prevent any damage and loss of human life. Military people have a huge risk in their lives while entering unknown territory. The robot will serve as an appropriate machine for the defense sector to reduce the loss of human life and will also prevent illegal activities. It will help all the military people and armed forces to know the condition of the territory before entering it.

I. INTRODUCTION

The military is undeniably the primary customer of new advances and improvements in strategy and is also often the sponsor of new improvements when it comes to envisioning new innovations in military settings. Numerous basic military technologies deployed out of the blue are now advanced to the piece of industrial robots. In any case, the importance of military autonomy and modern mechanical autonomy is still quite different. The military has special, robotic equipment while, in modern terms, the robot is a larger amount of a smart, adaptable, large-scale manufacturing machine. Later, the use of modern robots for military applications will always be imaginable. Cost and development of the specialized capacity of the innovative robot will build the enthusiasm of the military customers. In the research, we will demonstrate that the inspiration for the utilization of robots, inside the military and inside the industry, is the substitution of people. The explanations behind this substitution are, the following: quality, cost, and acculturation; be that as it may, utilizing an alternate methodology in each field, obviously. Presently, the monitoring of international fringe zones is an exceptionally overwhelming errand. The security forces observe the outskirts under antagonistic conditions. You get support from reconnaissance cameras officially assembled, but they cover exceptionally restricted zones. The cameras mounted viably at a settled position aren't of incredible use, as we can't change the camera to look dynamic. Moreover, it is inconceivable to mount the cameras in the timberland regions as the trees discourage the camera's point of view. The aim of structuring a robot is to encourage individuals by giving security. The innovation utilized in this safeguard and security robot has various imperative highlights, for example, mechanical vehicle control by RF technology and Wi-Fi, naturally maintaining a strategic distance from obstructions in its way. A high-caliber remote camcorder outfitted the security forces to observe

the outskirts under antagonistic conditions. You get support from reconnaissance cameras officially assembled, but they cover exceptionally restricted zones. The cameras mounted effectively at a settled position aren't of extraordinary use, as we can't change the camera to look dynamic. Moreover, it is inconceivable to mount the cameras in the timberland regions as the trees block the camera's point of view with a stepper engine for the omnidirectional view. This sound and video stream got from the recipient unit can be utilized to gain real ground, as shown by the got signs. This robot can likewise be utilized to achieve places where individuals can't.

Android spy robot with night vision camera 2 achieves like concealed spots, little sections. A definitive focal point of this structure is to give the individual the most extreme security. We are using RF technology for data communication between the robot and the user. Through the CCD camera, we are going to obtain maneuvers and real-time videos of the place where the robot is moving. Here PIC microcontroller is the brain of the system, controlling all the tasks and actions performed by the robot.

II. LITERATURE REVIEW

The main idea to construct this robot is for the spying purposes, it for to keep an eye on people's maneuvers on the battleground or during the war days to reduce the chances of takeovers from the enemy side. Army people or entities have to face many dangers in their lives while spying on the enemy or opposite entities. To overcome these ideas for this job robots will be more suitable and will decrease the risks of loss of human lives and can better spy on illicit maneuvers of their opposite entities. Before entering any doubtful districts, we can send robots to check the status of that field so the military or army individuals don't need to risk their lives. These types of robots will be constructed in such a way that they would have a night vision camera mounted on them so in the darker places or at the night they can record the view clearly.

There are many different modules with different specifications. For large ranges we can use Wi-Fi, Zig honey bee and many others can be used. The future scope of this robot is very vast, as it will continue to modify with time. For example, it will be modified by planting gas sensors that will detect harmful gases in the surroundings. It can also be used as a bomb diffuser in the future, bomb disposal team can have these robots which will help to diffuse bombs. The size of the robot can be scaled down to its minimal size [4].

The primary focal point of this exploration is the use of robots in wars and in harmony and their effect on the general public. This paper examines advances utilized for spying and observation in various situations and conditions. The creators examine the need and motivation behind building up the cutting-edge robots for the various, unforgiving and unpredicted conditions of the war zones. They intend to present progressed controlling, self-ruling and rapid robots to serve harmony in countries, as effectively as human-controlled machines. Alongside these variables, they center on growing innovative weapons and hardware to be utilized. This government-operative robot is easy to use. It can undoubtedly move, catch pictures and transmit them remotely on the checking screen where the warriors can see the present circumstance of the war field. The powers can design their guards as indicated by the risks been appeared through the robot. This robot is utilized for short separation reconnaissance for the security of that locale. The structure comprises a vehicle having a camera for checking with an RF innovation for remote activities. The transmitter sends the directions to the recipient for controlling the development of the robot. The collector gathers and disentangles the gotten flags previously intensify by the micro-controller which drives the motors through drivers. The remote of the camera can send live sound and visual recording to a PC or a TV through a tuner card to the station of the remote controller.

III. COMPONENTS REQUIRED

1. NIGHT VISION CAMERA

Night visibility: 8 PCS LEDs for IR illumination. Vision extends up to 8 meters at night. Input/Output: Mic&Speaker built-in. Supports bidirectional audio, and simple contact.

Figure 1: Night Vision Camera

2. DC MOTOR

Designed to convert electrical current into force in order to force the workings of a robotic by applying a firm degree of torque to the motor beam. A dc motor is a form of electric motor that transforms electrical energy into mechanical energy.

Figure 2: DC Motor

3. MOTOR DRIVER

The l293d circuit includes a dual h-bridge motor driver (ic). Since they take a low-modern handle signal and convert it to a better-modern signal, motor drivers serve as modern amplifiers. Pressure is applied to the motors using this improved modern signal. An infrared sensor is used in this device to make the robot flow mechanically in a specific direction. The sound sensor detects the presence of sound in a specific area. The captured image is sent to the police station using IoT. Then connect the raspberry pi to a USB HD camera and join the strong financial institution to the raspberry pi.

Additionally, attach the Raspberry Pi to the Strength Financial Institution. Connect the HDMI cable to the raspberry pi from the VGA to the HDMI converter cable. After that, attach the raspberry pi to a USB mouse and keyboard.

Figure 3 : Motor Driver

4. RF MODULE

RF frequency ranges from around three kHz to 300GHz. this corresponds to the frequency of radio waves and also the AC that carries radio waves. It refers to the ac having such characteristics that if the present is input to Associate in Nursing Associate in Nursingtenna a magnetism field is generated appropriate for wireless broadcast and communication. In order to receive radio signals Associate in Nursing antenna should be used. This antenna can obtain thousands of radio waves at a time and for a similar, we want to use a radio tuner to tune into a selected frequency. This is done by using a resonator.

Figure 4: RF Module

5. 8051 MICROCONTROLLER

It is the heart of the system as it controls all the activities of transmitting and receiving. AT89S52 IC is used. The AT89S52 Microcontroller is an associate 8-bit microcontroller of the 8051 series with 8K Bytes of In-System Programming non-volatile storage. Atmel's high-density non-volatile memory technology is used for the manufacturing of the device and is compatible with the industry-standard 80C51 instruction sets. The on-chip Flash memory allows the program memory to be reprogrammed in-system or a conventional non-volatile memory programmer. Atmel AT89S52 is a powerful

microcontroller by combines a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, it provides a cost-effective and highly-flexible solution to many embedded control applications.
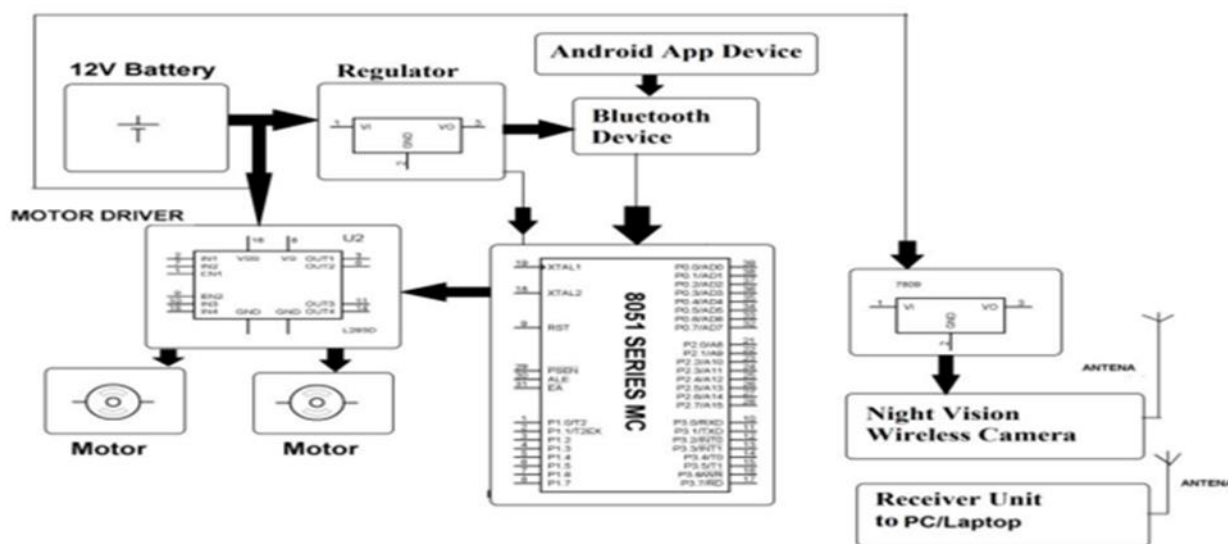

Figure 5 : 8051 Microcontroller

IV. BLOCK DIAGRAM

Figure 6 : Block Diagram

V. SOFTWARE SPECIFICATION

1. ARDUINO IDE

The Arduino Integrated Programming Environment (IDE) is a cross-platform system written in functions like C and C++ (for Windows, macOS, Linux, etc.). It is used to write and upload programs to boards that are compatible with Arduino but also other product development boards with 3rd party core support.

2. EMBEDDED C

Embedded C is a generic term given to a C-written programming language associated with a particular architecture of the hardware; Embedded C is a C language extension with many additional header details. These files in the header could turn from controller to controller.

VI. CONCLUSION

In this project, the model of the robot can be described to build a robot using a night vision the wireless camera run by an android application and the people can learn about developing an android application in order to control the robot through the wireless application using the platform of MIT app inventor. The robot can be made more enhanced by adding features like gas sensors and a bomb defuse kit. The idea of the project evolved with a fantasy to see the places we wish to see at will. In this paper, the idea is realized at our fingertips. The paper is done to create a version of a spying robot that can enable us to observe the place of our interest. The size of the robot.

also aids it to be used as a spy robot. Thus, to create the robot, we should be able to manipulate its path when necessary. To realize all that, a control unit is required. In this control unit, an RF signal is used. Using these signals encoding is done and the signal is sent

through the transmitter. In the receiver end, these received signals are decoded and given as input to drive the motor. This will help us to manipulate the robot in the manner we want. A video transmitter mounted on top of the robot helps us to see the path of motion. There as on behind manual control of the robot is that it will not be lost owing to the absence of human involvement. Further, this paper can be extended for industrial applications also by using different types of sensors.

VII. REFERENCES

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