

# WAR FIELD SPYING ROBOT WITH NIGHT VISION CAMERA

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## ABSTRACT

With the aim of the satisfying and meeting the ever-changing desires of human from producing unit to the home unit AI and automation has been a definite key player throughout. This project focuses on building a RF based mostly spying automaton hooked up with wireless camera that may cut back the human victim. This automaton sends the signal to the bottom station victimization wireless camera. One of the major applications of this project can be analysed using android based smart phone which can be used to control the movement of the robot. The automaton sends the signal to the RF receiver mounted on the automaton via RF transmitter at the bottomstation. With this feature the automaton will transmit real time videos with night-sight capabilities and can't be known by the enemies in combat area.

## INTRODUCTION

With the aim of developing a sophisticated technology that serves high speed technology, advanced capabilitymanagement to regulate to manage} the robots and to device new ways 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 canbe devised by advanced management algorithmic program, golem management devices and new drivers. Earlier the golems were controlled through wired networks however currently to form robot additional users friendly, they are framed to make user commanded work. Therefore to realize the wants we will use humanoid as a transmission to regulate the user friendly golem.

The design of our project encourages developing a golemic vehicle supported RF technology for the remote operation connected with the wireless camera mounted on the robot for watching purpose.The golem is embedded with 8051 series microcontroller for desired operation and is mostly used for spying functions.The transmittal module encompass the push buttons that send the commands to the receiving module for dominant the movement of golem either to right, left, forward, downward. In the receiving module of the golem 2 motors square measure interfaced with the 8051 series of microcontroller to regulate its movement via motor driver IC.The device (RF transmitter) features a vary of 200m that transmits the signals to the RF receiver.The receiver collects and decodes the received signals before feeding it to the microcontroller to drive the DC motors via motor drivers.The wireless camera used for spying purpose additionally serves in complete darkness victimisation IR lightning [1].

The distinct applications of this idea in such golem will be a sensible phone controlled golems wherever the movement of the golem is controlled by a robot on thebasis of android platform. Smart phone transmits the AT commands and data to the 8051 controller and controls the motor by motor driver L923D. The robot motions left, right, forward, backward. Interfacing is being done between device and Bluetooth. Bluetooth device HC-05 module receives the commands from sensible phone via 8051 microcontroller.

Component technologies used are

- (a) RF technology
- (b) C language
- (c) Embedded system.

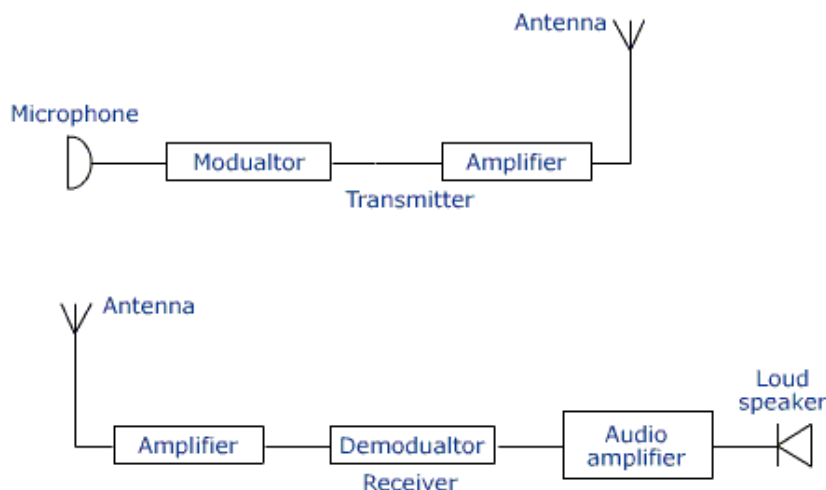
## RF COMMUNICATION

RF frequency ranges from around three kHz to 300GHz .this corresponds to the frequency of radio waves and also the AC that carry radio wave.It refers to the ac having such characteristics that if the present is input to Associate in Nursing Associate in Nursing antenna 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 wave 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.Resonator amplifies oscillations inside a band whereas reducing the oscillations at different frequency outside the band.Any RF field incorporates a wavelength that is reciprocally proportional to the frequency.In the atmosphere, in the outer spaces, or anywhere in our ambience if frequency F is in MHz and the wavelength in meters, then  $S=300/f$ .The frequency of RF signal is reciprocally proportional to the wavelength of the EM field to that it corresponds.At 9 KHz, the free-space wavelength is approx. 33 kilometers or 21 miles (mi).At the best radio frequencies, the EM wavelengths measure around one millimeter (1mm).As the frequency is inflated on the far side the RF spectrum, EM energy takes the form of infrared (IR), visible, ultraviolet, X rays, and gamma rays.

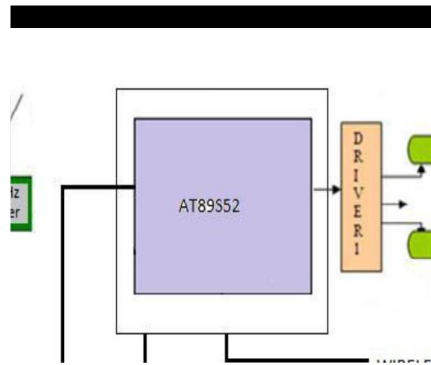
## RF SECTION BLOCK DIAGRAM

Let us take a RF transmitter writhing Associate in Nursing negatron in one location.This writhing can negatron cause a ripple result, somewhat same to dropping a stone in an exceedingly pool.The result is Associate in Nursing magnetism (EM) wave that travels out from the initial location those ends up inelectrons to wiggle in remote locations.An RF receiver will discover the remote negatron writhing.

The RF communication system then any utilizesthis development by writhing electrons in an exceedingly specific pattern thus on represent data.The receiver will build a similar data offered at a far off location by establishing a communication with no wires.In most of the wireless systems a designer has 2 dominant constraints: it should operate over an exact distance (range) and transfer an exact quantity of data inside atime frame (datarate)].



## HARDWARE IMPLEMENTATION



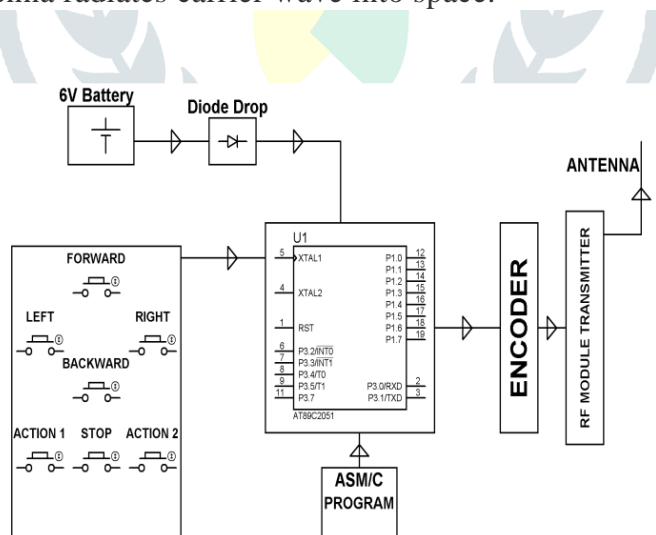
The diagram of the hardware implementation of the golem is as shown within the Figure1. This robot is operated at radio frequency, self-powered and has all the controls like a normal car. Wireless camera is employed to send real time video and audio signals from the war field, which could be seen on a remote monitor at the base station, and action can be taken accordingly. Heart of this robot is Atmel's AT89S52.

Microcontroller is that the master controller that decodes all the commands received from the transmitter unit and provides commands to slave microcontroller. It conjointly acts as Slave microcontroller at the receiver unit that is liable for corporal punishment all the commands received from the master and conjointly generates PWM pulses for the speed control of the robot [2]. Based on the input codes provided by the user master can give command to slave microcontroller and golem can behave as follows.

- Moves back and forth
- turns left or right whereas moving forward or backward
- Controls speed in both the direction.

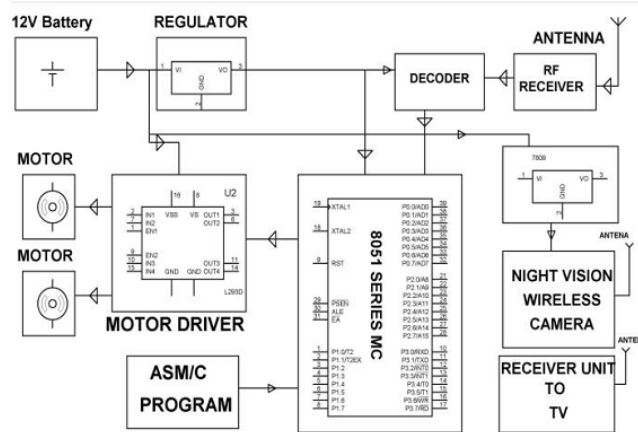
### Transmitting Unit

For modulating the frequency variable frequency oscillator is employed i.e. to be transmitted and output is obtained a high frequency generator a pair of for generating a radio emission. Antenna radiates carrier wave into space.



### Receiving Unit

The receiving antenna for detecting the waves transmitted by transmitter antenna is connected to a tuned wave detecting circuit [2]. The tuned wave detecting circuit's output is connected to an amplifier which in turn has its output connected to the input of the low pass frequency as well as the filter to a high pass frequency filter.



The amplifiers outputs are connected to separate motors and other side of motors are connected to voltage potential. The high frequency is extracted from the high pass frequency filter and low frequency is extracted from low pass frequency filter.

### Microcontroller Circuit (AT89S52)

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 8-bit microcontroller of the 8051 series with 8K Bytes of In-System Programmable non-volatile storage. Atmel's high-density non-volatile memory technology is used for 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 is used [3]. Atmel AT89S52 is a powerful microcontroller by combining 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. The Idle Mode is employed to prevent the hardware whereas permitting the RAM, serial ports, timer/counters, and interrupt system to continue functioning. The Power-down mode is used to save the RAM contents but freezes the oscillator, and disables all other chip functions until the next interrupt or hardware reset occurs [3].

### Power

### Supply Circuit

Power supply is the main building block of any electronic system used to provide required power for their operation and is as shown in the Figure 4. For the microcontroller, keyboard, RTC, LCD, GSM, +5V are required and for driving a buzzer +12V is required. The power supply gives regulated output of +5V and non-regulated output of +12V [3]. The three-terminal IC7805 provides +5V. The rectification of secondary voltage from the most electrical device is finished by electronic rectifier & filtration by electrical device. The unregulated DC voltage is provided to the input pin of transformer IC.

### Wireless Camera

We are using a unit employing a wireless CCD camera, that unit is normally offered within the market. This camera works on 12 volts DC supply. The camera includes a receiver, that is placed within the remote terminal. Its output area unit within the type of audio and video signals. These signals are unit directly sent to a TV or a laptop through a tuner card. This CCD camera is placed on the robot. The camera captures the audio and video signals and sends those signals to the remote terminal and with the assistance of the camera receiver that is connected to the television or a laptop through we'll be ready to see the captured signals. This is a mini wireless observation video camera and wireless receiver set for home and tiny business police investigation, security and Americaed [is employed] by us for demonstration purpose [4]. We need to put in the wireless camera within the space wherever we wish to watch and set the wireless receiver within the next space (up to fifteen meters away) and hook it up to a TV or DVR to look at the action or record the footage for the protection purpose. Are placing this wireless camera in the combat robot which would be present in the war field.

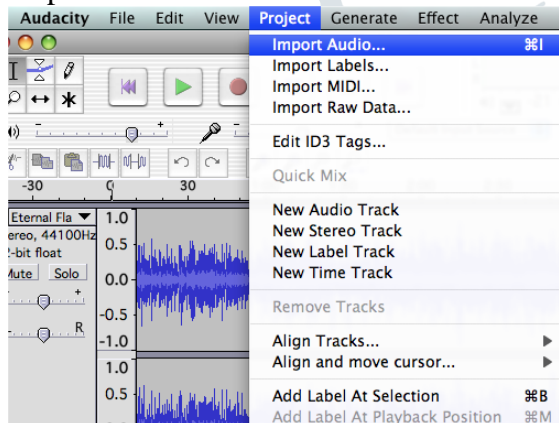
## SOFTWAREIMPLEMENTAION

### Audacity

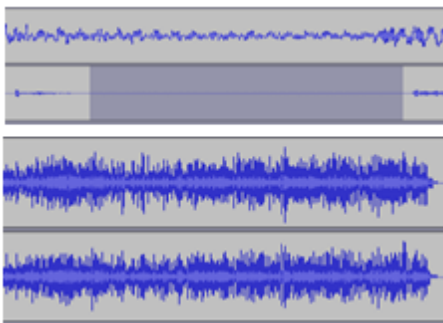
1. Its free software package offered for the removal of noise.
2. it's a free open digital audio editor and recording laptop software package application, available for Mac OS X, Windows, Linux and other operating systems.
3. We will take away the unwanted noise from the audio/video that is coming back at the receiver finish [5].

## RESULT

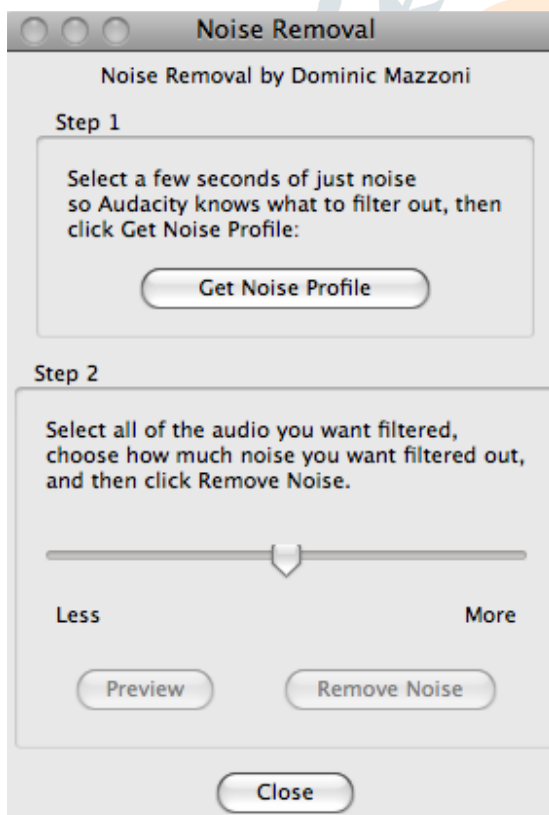
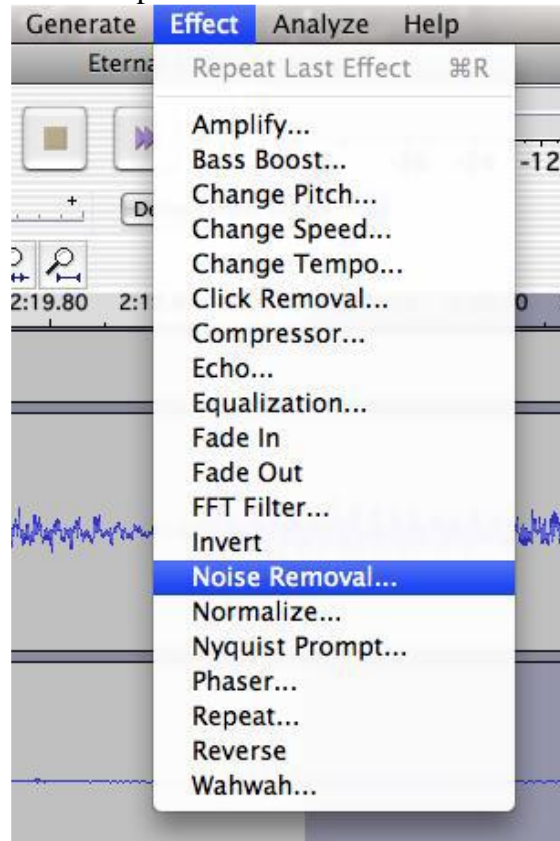
### Import audio



### Isolate the quiet moment



Get noise profile



With the assistance of this we have a tendency to geared toward getting the accuracy. It has been tested to best of our ability. We were ready to read the items accurately that were happening. In our view.

Our style has not caused any form of disturbances. This mechanism can move supported the motor direction relying upon the input we have a tendency to offer through command via remote section unit.

With the assistance of camera we have a tendency to square measure ready to read the items that square measure happening within the war field wherever the mechanism is hidden.

The commerce and exportation options of 'AUDACITY' during this project have helped to get rid of the unwanted audio signals. By victimisation this software package we will post method all kind audio as well as broadcast by adding effects like normalizing, trimming attenuation in and attenuation out.

## CONCLUSION

The primary would like for our paper would be accuracy. We have been ready to read the items accurately that square measure presently happening within the encompassing space. Our design has not caused any sort of disturbances. The mechanism can move reckoning on the motor direction primarily based upon the input we have a tendency to offer through command by remote section unit. It show the present operation goes on as example left mechanism, near to object, clear up. With the assistance of the camera we have a tendency to square measure ready to read the items that square measure happening within the encompassing space wherever the mechanism is hidden. By keeping the circuit straightforward and straightforward, most users are ready to use it simply. Thus we should always be ready to manipulate its path once necessary, to make the mechanism safely. To all that, a control unit is needed, where control units RF signal is used. By victimisation these signals encryption is completed & signal is distributed through the transmitter. At the receiver end these decoded signal are given as input to drive the motor. Not for long vary applications it is used as a spy mechanism inside short distances.

## FUTURE ENHANCEMENT

We can connect this method on to web by victimisation zig-bee with Wi-Fi.

By victimisation web we will management the system via remote location. We don't need any simulation tool by victimisation GUI software package. Halogen light-weight is used for the vision of the mechanism.

We can conjointly management the device by giving it voice command thereby creating it a voice recognition system.

## REFERENCES

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