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HAND GESTURE CONTROLLED WIRELESS SURVEILLANCE BOMB DIFFUSING ROBOT WITH MOBILE JAMMING TECHNIQUE USING MEMS TECHNOLOGY.

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ABSTRACT

Service robots sincerely cooperate with people, so discovering a more natural and simple consumer interface is of essential importance. While earlier works have pointed primarily on problem such as treatment and direction-finding in the surrounding, few robotic systems are used with user beneficial interfaces that possess the probable to manage the robot by natural means. To make easy a acceptable solution to this need, we have constructed a system through which the consumer can give commands to a wireless robot using gestures. Through this method, the consumer can manage or find the way of the robot by using gestures of his/her palm, thereby collaborate with the robotic system. [2]

KEYWORDS :*hand gesture recognition, wireless, metal detector, bomb diffusion, jammer, robot, surveillance*

INTRODUCTION :

A Robot is a mechatronics device which also includes inventiveness or self-sufficiency. A machine with self-sufficiency does its thing "on its own" without a person directly instructing it moment-by-moment. Some creator would argue that all mechatronic machine are robots, and that this book's drawback on robot entails only specific software.

Robotics can be define as the current peak of technical progress. Robotics is a concurrence science using the continuing improvement of mechanical engineering, material science, sensor manufacture, developing techniques. The revise and performance of robotics will represent a dilettante or qualified to hundreds of different channel of study. For some, the emotionalism of robotics brings forth an almost delightful curiosity of the world leading to formation of wonderful machines. A expedition of a life span stay in robotics.

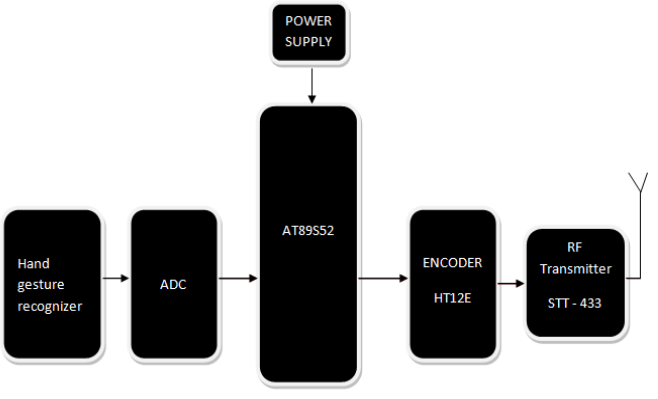
Robotics can be describe as the science or revise of the machinery mainly associated with the, theory, fabrication, structure and appliance of robots. While in other fields donate the mathematics, the procedure, and the components, robotics creates the miraculous end product. The constructive applications of robots drive improvement of robotics and drive betterment other sciences in turn.

Crafters and investigator in robotics learning more than just robotics.
In this project we utilize a robot and it is controlled by hand gestures and these hand activities are recognized by the hand gesture technology and based on the movement of the hand the robot is motivated in the particular direction i.e. either in left or right, forward, backward.

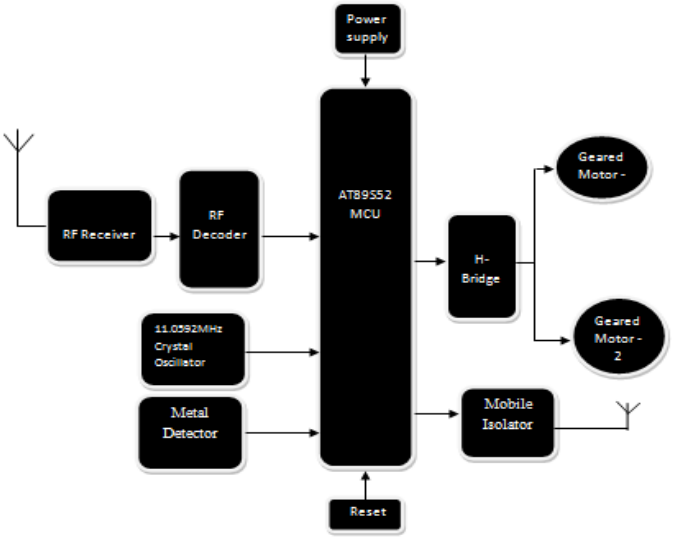
I.PROBLEM FORMULATION

•For diffusion of remote controlled bomb, the deactivators use bomb diffusion jacket for safety purpose, but it is not much safe for them hence they may give up their life. This is the drawback of doing manually bomb diffusion.
•A human interface system for the robot is not available for deactivate the bomb
• we introduce the automatic wireless system to interact with robot using MEMS sensor

II.BLOCK DIAGRAM AND EXPLANATION



Fig(1). Transmitter Block Diagram



Fig(2). Receiver Block Diagram

III.HARDWARE DESCRIPTION:

Microcontroller

The AT89S52 is a high-performance CMOS 8-bit microcontroller, low-power, with 8K bytes of EPROM. These are features of AT89S52 microcontroller: 256 bytes of RAM, 8K bytes of Flash,32 input/output pines, three 16-bit timer/counters, Watchdog timer, two data pointers,

six interrupt of two level architecture, serial port, oscillator . the AT 89C52 is very powerful MC which provides a flexible and inexpensive result to many embedded system applications.[3]

H-Bridge Driver:

The switching property of this H-Bridge can be replace by a Transistor or a Relay or a MOSFET or even by an IC. Here we are replacing this with an IC named L293D as the driver whose description is as given below.

Features:

- 600maoutputcurrent capability
- Per channel
- 1.2a peak output current (non repetitive)
- Per channel
- Enable facility

IV.RF TRANSMITTER STT-433MHz:

Features:

- 433.92 MHz Frequency
- Low Cost
- 1.5-12V operation
- Small size

V.RF RECEIVER STR-433 MHz:

ANT connect antenna input

GND Connect Receiver Ground.
VCC (5V) VCC pins are electrically connected to provide operating voltage for the receiver.
DATA Digital data output pin.
Encoder HT 12E

They are able of programming 12 bit of information which consists of 12-N message bits and N address bits. HT12E is series of CMOS family.

Decoder HT12D

Features

- Low power
- high sound immunity CMOS technology.
- Low supply current.
- Able to decoding 18 bits of messages .
- Pairs with HOLTEK's 318 series of encoders.
- Operating voltage: 2.4V~12V.

Crystal Circuit

- This crystal circuit gives the required clock pulses to the microcontroller to give it the sense of the reference time

Reset Circuit

- This circuit gives the microcontroller the starting pulse required to start the operation from the start. Unless this pulse is given, the microcontroller doesn't start functioning

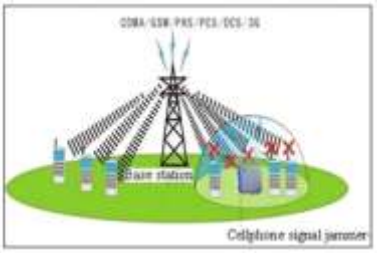
Power supply

The A.C. 230 input is given to rectifier circuit and Output obtain from the rectifier is a pulsating D.C voltage. The output from the rectifier is given to a filter circuit to filter A.C components present constant later than rectification. Now, this voltage fed to voltage regulator to pure constant D.C voltage get.

MEMS (Micro-Electro Mechanical Systems)

.MEMS techniques allow both mechanical devices and electronic circuits to be implemented on a silicon chip, related to the method used for integrated circuits. This allows the fabrication of substance such as sensor chips with fitted electronics that are a small part of the size that was earlier possible.

Mobile Jammer



Fig(3). Jamming concept

A jammer is a device that transmit the signal on a same frequency at which system operates the jamming accomplishment when the mobile phone in the area where jammer is located are disabled. A mobile jammer is device that blocks transmission or reception of wireless signal generally by making some form of obstruction at the same frequency ranges that mobile phones use. As a result, a mobile phone user will either drop the signal.

ADC(Analog-to-digital Converters)

ADC is a transducer that converts a analog information, generally voltage to a distinct number digital message that shows the quantity's like amplitude, frequency, or phase.

Metal detectors

Metal detectors use electromagnetic induction to detect metal. Metal detector can help you to find the metals buried deep in the ground. Uses include the detection of weapons and land mines such as guns, specially at airports, treasure hunting and archaeology .we can also use metal detectors to discover unknown bodies in food, and in the manufacture industry to identify pipes and wires covered in walls and floors and also for steel reinforcing bars in concrete.

VI.SOFTWARE DESCRIPTION

This project is implemented using following software's:
1.Express PCB – for designing circuit
2.PIC C compiler - for compilation part
3.Proteus 7 (Embedded C) – for simulation part.

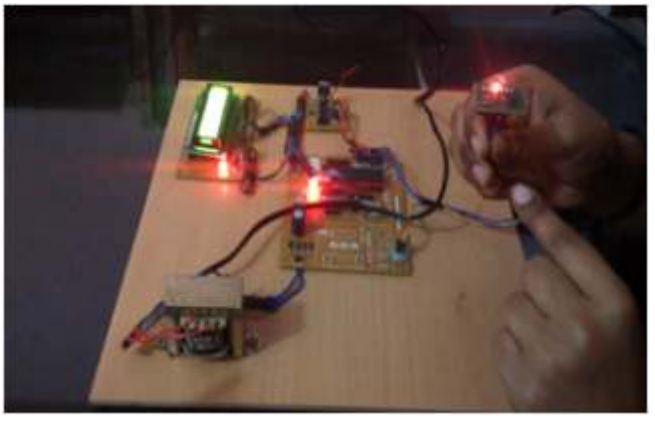
VII.ADVANTAGES:

1)Works on solar power.
2)impulsive output.
3)tone of voice recognition security.

VIII.APPLICATIONS:

1)security.
2)Temples.
3)VIP security.
4)rebel prone areas.

IX.RESULT



Fig(4). Transmitter circuit

Fig(5). Receiver circuit

X.CONCLUSION

This project presents the movement of the robot using Hand gesture technology which runs on the 9V power supply. This project has been implemented and designed in embedded system domain. with Atmel 89S52 microcontroller . Developmental work has been carried out specifically.

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