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Applications of Security System

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ABSTRACT: An embedded system is a special-purpose computer system designed to perform a dedicated function. Since the system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product. Embedded system comprises of both hardware and software. Embedded system is fast growing technology in various fields like industrial automation, home appliances, automobiles, aeronautics etc. Embedded technology uses PC or a controller to do the specified task and the programming is done using assembly language programming or embedded.

In my project by using microcontroller as controlling unit. I imply my own concept for marine security which basis of RF and GSM. The RF transmitter is placed in harbor. The RF receiver, controller and Gsm modem unit are placed in our boat or ship. normally, the transmitter and receiver units are in continuous signal with 455MHZ. when the transmitter and receiver signal will be disconnected the microcontroller assumed that the boat crossing the border immediately it take action to protect the fisherman's by intimating through alarm at the same time send SMS to the Indian navy to secured the fisherman's. This project definitely helps to avoid unnecessary problem between two governments.

I. INTRODUCTION

1.1. Embedded System

An embedded system is one consisting of a processor, associated peripherals and software used for specific purpose. Like any other computer system an embedded system is a combination of hardware and software. The embedded system was developed in 1978. Literally embedded means entrenched or implanted. Embedded system is thus a system having a micro controller with relevant software and interfacing peripherals to perform a specified task.

1.1.1. Categories of Embedded System

The categorization of embedded system is based upon whether the system has to work as an independent unit or it has to be networked, whether it has to perform real time operations or not and so on.

1.1.2. Stand Alone Embedded System

Stand alone embedded systems work in standalone mode, which is taking input and producing output. The input can be electrical signals from sensors or commands from a human being, such as pressing a button. The output can be electrical signals to drive another system or an LED or LCD display for conveying information to users. For stand-alone embedded systems, the dead line to carry out a specific task may not be very strict. That is, the response time is not crucial. Examples for this are air conditioner, toys, CD players etc.

1.1.3. Real Time Embedded System

Some embedded systems are required to carry out specific tasks in a specified amount of time. Such embedded systems are called Real Time Embedded Systems .These is used extensively in the field of process control, when time critical tasks have to be carried out. Such embedded systems use RTOS (Real Time Operating System) for its functioning. The real time systems are broadly classified into two types,

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Hard Real Time Embedded Systems
Soft Real Time Embedded systems

1.1.4. Networked Appliances

Some embedded systems are connected to a network , typically one based on a TCP/IP protocol(Transmission Control Protocol /Internet Protocol) , such as in the internet or accompanying intranet . These systems are of a new brand that has emerged in the recent years. They run the complete TCP/IP protocol stack and can communicate with other node on the network. Even a web-server can be embedded to the system. A typical example is the monitoring of equipment in a manufacturing system.

1.1.5. Advantages of the Embedded System

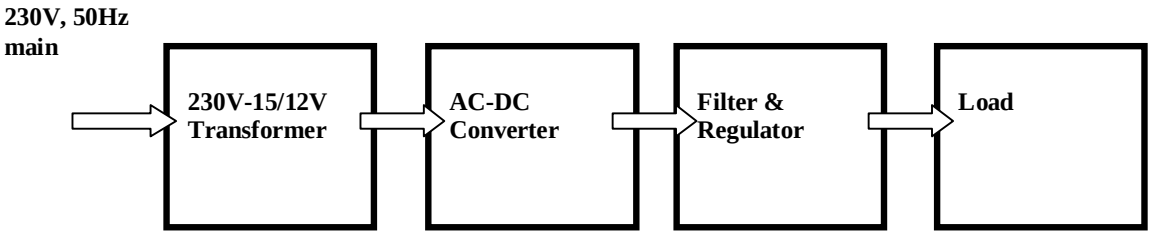
The advantages of the embedded system can be listed as follows:

- ✓ Reliability
- ✓ Cost effectiveness
- ✓ Low power consumption
- ✓ Efficient use of memory
- ✓ Appropriate execution time
- ✓ All units are well integrated in single module

1.1.6. Applications of Embedded System

In recent years, the applications of embedded systems are increased multifold with advent of appliances that can be connected to networks, particularly the internet. Embedded systems are extensively used in control systems in the manufacturing industry, such as in the chemical plants, cement plants, semiconductor plants, missile development units, nuclear plants and so on. To understand the various applications are divided into the following market segments, each of which is covered in the following sections; Consumer electronics, Control system and industrial automation, Biomedical system, Field information, Hand held computers, Data communications, Networked information appliances, Tele communications and Wireless communications.

1.2. Block Diagram:



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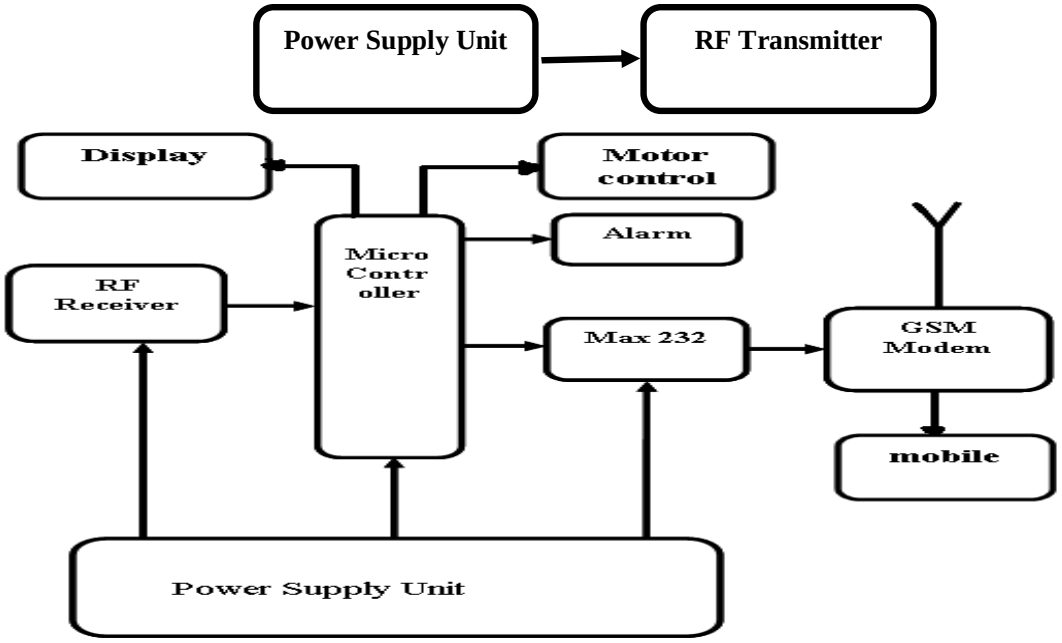
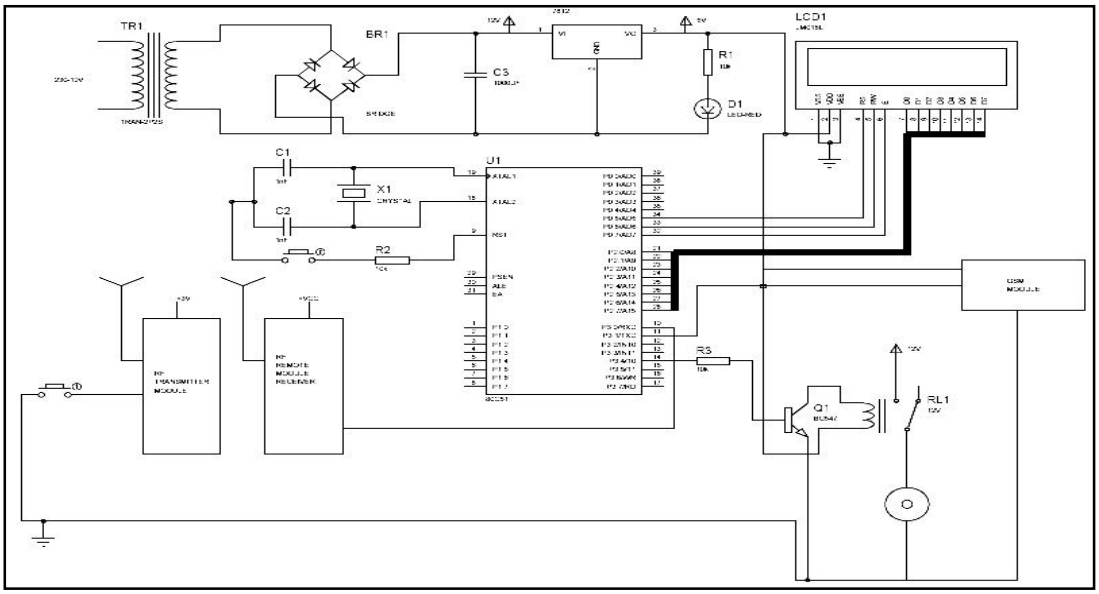
1.2.1. Power Supply Unit



1.2.2. Harbour Unit And Control Unit

1.2.3. CIRCUIT DIAGRAM



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II. MODULE 02: RF TRANSMITTER AND RECEIVER

2.1. RF Module (Radio Frequency)

Radio Frequency, any frequency within the electromagnetic spectrum associated with radio wave propagation. When an RF current is supplied to an antenna, an electromagnetic field is created that then is able to propagate through space. Many wireless technologies are based Radio Frequency: The 10 kHz to 300 GHz frequency range that can be used for wireless communication. Radio Frequency is also generally used to refer to the radio signal generated by the system transmitter, or to energy present from certain sources that may be picked up by a wireless receiver. The sources from which the radio signals may be picked up by wireless on RF field propagation.

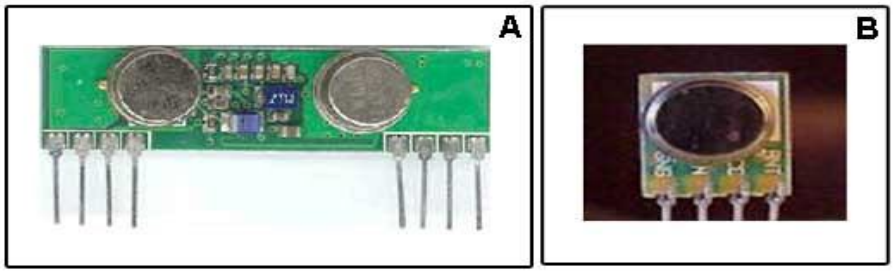

Figure 2:1 (A) Receiver Module; (B) Transmitter Module

Receiver are Wireless mouse, keyboard, Wireless data communication, Alarm and security systems, Home Automation, Remote control, Automotive Telemetry, Intelligent sports equipment, Handheld terminals, Data loggers, Industrial telemetry and telecommunications, In-building environmental monitoring and control, High-end security and fire alarms.

2.2. Transmitter

The TWS-434 extremely small, and are excellent for applications requiring short-range RF remote controls. The transmitter module is only 1/3 the size of a standard postage stamp, and can easily be placed inside a small plastic enclosure.

TWS-434: The transmitter output is up to 8mW at 433.92MHz with a range of approximately 400 foot (open area) outdoors. Indoors, the range is approximately 200 foot, and will go through most walls.

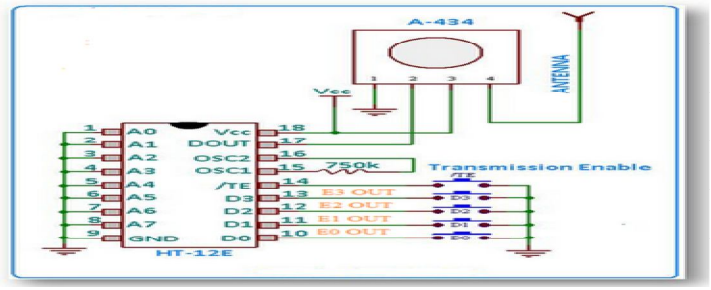

Figure 2.2: TWS-434 Transmitter Application Circuit

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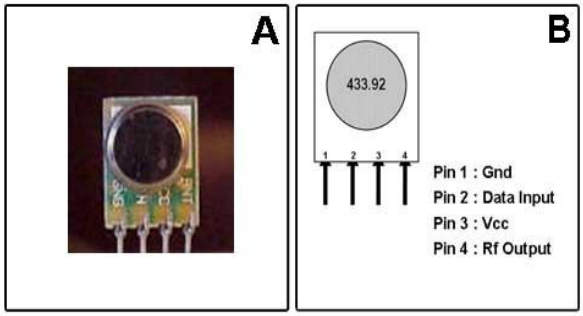

Figure 2.2: (A) TWS; (B) TWS-434 Pin Diagram

The TWS-434 transmitter accepts both linear and digital inputs, can operate from 1.5 to 12 Volts-DC, and makes building a miniature hand-held RF transmitter very easy. The TWS-434 is approximately 1/3 the size of a standard postage stamp.

2.3. Receiver

RWS-434: The receiver also operates at 433.92 MHz, and has a sensitivity of 3uV. The RWS-434 receiver operates from 4.5 to 5.5 volts-DC, and has both linear and digital outputs.

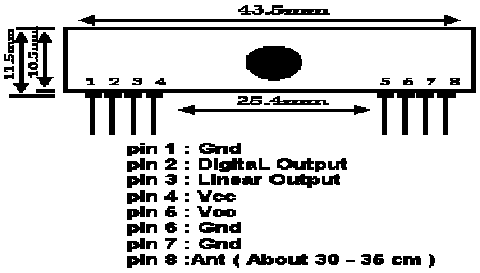

Figure 3.3: Pin out Diagram

2.4. Circuit

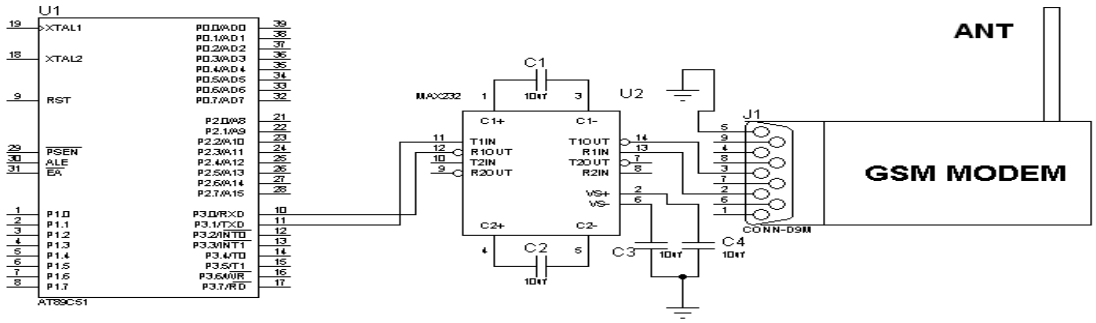

Figure 2.4: Circuit

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2.5. GSM Modem Application

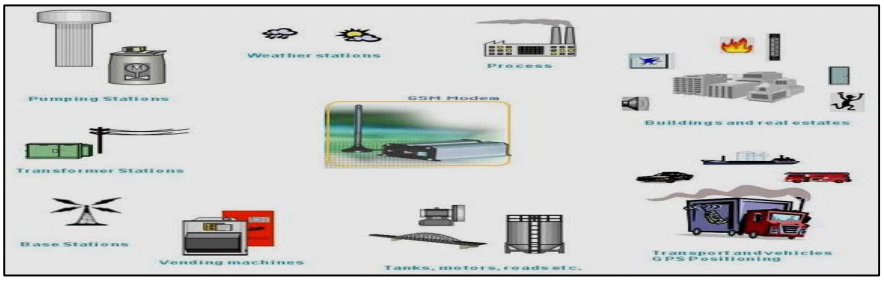

Figure 2.5: Applications of GSM Modem

III. CONCLUSION

Before 10 years of technology development, the fishermen lives were at risk due to lack of communication. Through this work, we reported that RF and GPS system would help to save millions of fishermen lives. The break in the signal between the RF transmitter and RF receiver easily alarms that the life of fisherman is at risk. Thus, by understanding the danger it will be easy to save their lives. As a result, the misunderstanding and disputes between governments shall be avoided. Hence it is also concluded that the system is more secured and reliable.

REFERENCES

1. Mill Man, J and Hawkies, C.C. "Integrated Electronics" McGraw Hill, 1972.
2. Roy Choudhury, D., Shail Jain., "Linear Integrated Circuit", New Age International Publishers, New Delhi, 2000.
3. "The 8051 Microcontroller and Embedded System" by Mohammad Ali Mazidi.

6 Websites:

1. http://www.atmel.com/
2. http://www.microchip.com/
3. www.8052.com
4. http://www.beyondlogic.org
5. http://www.aimglobal.org/
6. http://www.gsmarena.com/