

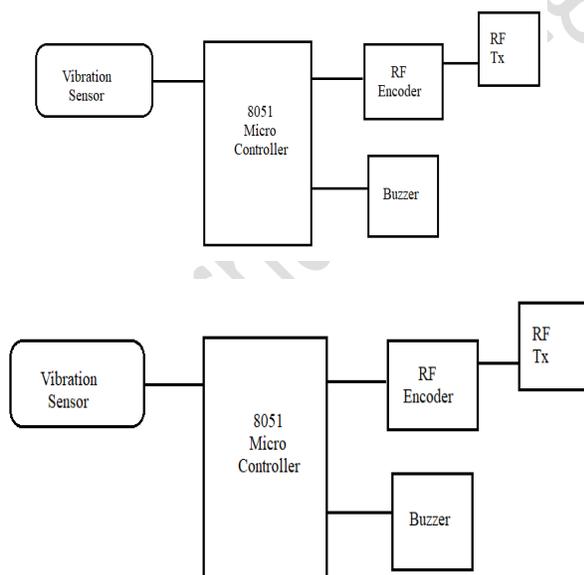
ATM THREAT DETECTION WITH HIDDEN ALARM

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INTRODUCTION

The Idea of Designing and of ATM threat detection with hidden alarm project overcomes the drawback of older technology used in our society. Project deals with the security of ATM machine. Whenever robbery occurs, Vibration sensor will sense the vibrations produced from ATM machine. This signal will be identified by the microcontroller and transmit the data to the nearby police station wirelessly using RF communication. The RF receiver in the police station will receive the signal and alert the police using audible alarm signal.



1. The system consists of power supply unit, RFID module, RF-transmitter (out),

RF- receiver (in), MICROCONTROLLER, and LCD.

2. It is used for taking automatic attendance using RFID.

3. RFID card has the information of Students and the RFID READER reads the Data from RFID (passive tag) card.

4. By using RF communication we are transmitting data acquired from the RFID READER to PC and LCD.

CIRCUIT COMPONENTS

8051 microcontroller is designed by Intel in 1981. It is an 8-bit microcontroller. It is built with 40 pins DIP (dual inline package), 4kb of ROM storage and 128 bytes of RAM storage, 2 16-bit timers. It consists of are four parallel 8-bit ports, which are programmable as well as addressable as per the requirement. An on-chip crystal oscillator is integrated in the microcontroller having crystal frequency of 12 MHz .

In the above diagram, the system bus connects all the support devices to the CPU. The system bus consists of an 8-bit data bus, a 16-bit address bus and bus control signals. All other devices like program memory, ports, data memory, serial interface,

interrupt control, timers, and the CPU are all interfaced together through the system bus.

Over the last twenty five years, different versions of vibration sensors have been designed to suit a whole new range of environmental conditions in an ever increasing need to perform consistently in differing industrial applications. These conditions have helped to create models which are primarily robust with an outer stainless steel construction. They will operate successfully in both high and low temperatures, typically over -55 to +140 degrees C.

Cable choice for the different applications covers tough stainless steel braiding, submersible and high temperature PTFE options. Mechanical fittings are also important for the correct fixing of the sensor to ensure correct transfer of the vibration signal and come in a choice of differing threads, adaptors, quick-fit or glue mounting studs and magnets. Custom designed versions are also available, where a special sensor is created to exactly suit the conditions it will need to operate under.

An RF transmitter module is a small PCB sub assembly capable of transmitting a radio wave and modulating that wave to carry data. Transmitter modules are usually implemented alongside a micro controller

which will provide data to the module which can be transmitted. RF Transmitters are usually subject to Regulatory Requirements which dictate the maximum allowable Transmitter power output, Harmonics, and band edge requirements.

An RF Receiver module receives the modulated RF signal, and demodulates it. There are two types of RF receiver modules: superheterodyne receivers and super-regenerative receivers. Super-regenerative modules are usually low cost and low power designs using a series of amplifiers to extract modulated data from a carrier wave. Super-regenerative modules are generally imprecise as their frequency of operation varies considerably with temperature and power supply voltage[citation needed]. Superheterodyne receivers have a performance advantage over super-regenerative; they offer increased accuracy and stability over a large voltage and temperature range. This stability comes from a fixed crystal design which in turn leads to a comparatively more expensive product.

SOFTWARE REQUIREMENTS

Keil is a cross compiler. So first we have to understand the concept of compilers and cross compilers. After then we shall learn how to work with keil. Concept of compiler:
- Compilers are programs used to convert a

High Level Language to object code. Desktop compilers produce an output object code for the underlying microprocessor, but not for other microprocessors. I.E the programs written in one of the HLL like 'C' will compile the code to run on the system for a particular processor like x86 (underlying microprocessor in the computer). For example compilers for Dos platform is different from the Compilers for Unix platform

So if one wants to define a compiler then compiler is a program that translates source code into object code. The compiler derives its name from the way it works, looking at the entire piece of source code and collecting and reorganizing the instruction. See there is a bit little difference between compiler and an interpreter. Interpreter just interprets whole program at a time while compiler analyzes and execute each line of source code in succession, without looking at the entire program.

The advantage of interpreters is that they can execute a program immediately. Secondly programs produced by compilers run much faster than the same programs executed by an interpreter. However compilers require some time before an executable program emerges. Now as compilers translate source code into object

code, which is unique for each type of computer, many compilers are available for the same language.

A cross compiler is similar to the compilers but we write a program for the target processor (like 8052 and its derivatives) on the host processors (like computer of x86)

It means being in one environment you are writing a code for another environment is called cross development. And the compiler used for cross development is called cross compiler.

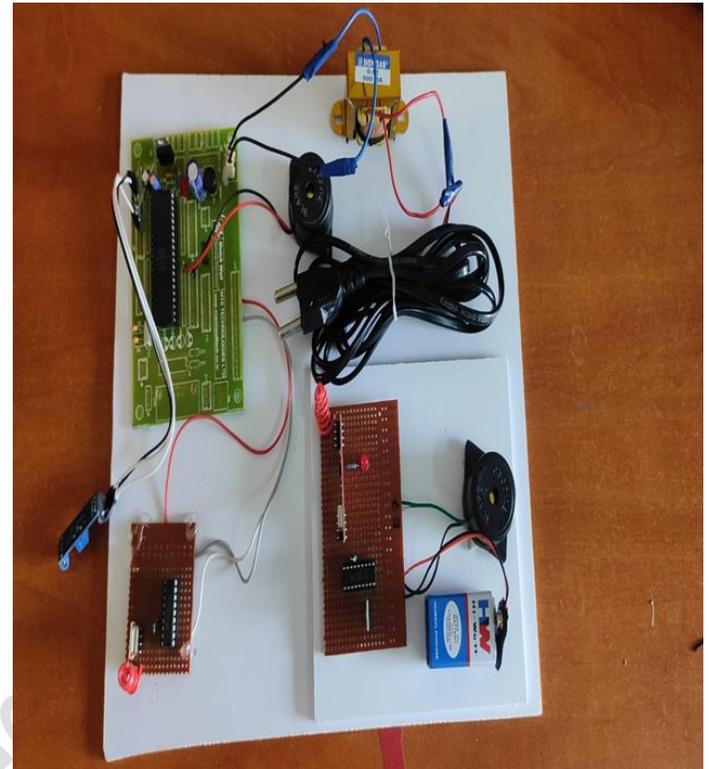
So the definition of cross compiler is a compiler that runs on one computer but produces object code for a different type of computer. Cross compilers are used to generate software that can run on computers with a new architecture or on special-purpose devices that cannot host their own compilers. Cross compilers are very popular for embedded development, where the target probably couldn't run a compiler. Cross compilers are beneficial whenever the host machine has more resources (memory, disk, I/O etc) than the target. Keil C Compiler is one such compiler that supports a huge number of host and target combinations. It supports as a target to 8 bit microcontrollers like Atmel and Motorola etc.

RF COMMUNICATION

UART stands for Universal Asynchronous Receiver/Transmitter. It's not a communication protocol like SPI and I2C, but a physical circuit in a microcontroller, or a stand-alone IC. A UART's main purpose is to transmit and receive serial data.

The UART that is going to transmit data receives the data from a data bus. The data bus is used to send data to the UART by another device like a CPU, memory, or microcontroller. Data is transferred from the data bus to the transmitting UART in parallel form. After the transmitting UART gets the parallel data from the data bus, it adds a start bit, a parity bit, and a stop bit, creating the data packet. Next, the data packet is output serially, bit by bit at the Tx pin. The receiving UART reads the data packet bit by bit at its Rx pin. The receiving UART then converts the data back into parallel form and removes the start bit, parity bit, and stop bits. Finally, the receiving UART transfers the data packet in parallel to the data bus on the receiving end.

WORKING OF THE CIRCUIT



The STT-433 is ideal for remote control applications where low Cost and longer range is required. The transmitter operates from a 1.5-12V supply, making it ideal for battery-powered applications. The transmitter employs a SAW-stabilized oscillator, ensuring Accurate frequency control for best range performance. Output Power and harmonic emissions are easy to control, making FCC and ETSI compliance easy. The manufacturing-friendly SIP style Package and low-cost make the STT-433 suitable for high volume applications.

When we switch on the power supply then the LED will ON at the Transmitter section.

In the Receiver part when we apply the battery supply voltage then the LED gets ON.

When the vibrator sensor gets activated by an external force then the transmitter decodes the information and the buzzer gets ON by giving a beep sound and in the receiver part the RF receiver will encode the information from the transmitter part and the buzzer will ON by giving a beep sound.

Here the transmitter part will be fitted in ATMs and the receiver part placed at nearest police station. When the transmitter side signal gets activated by the vibration sensor then automatically the receiver part will gather the information from the signal received and the buzzer will be ON at the receiver section, thereby the police get the information that there will be a threat happening in some particular ATM near to their station location. The police will take the immediate action upon the signal reception.

CONCLUSION

These days most of the ATMs have been targeted by theft, so the drawbacks of the current circumstances that exist in the ATMs have come to an end. Since we use a camera to identify a face, a person without a proper identification can not access the ATM core. Registered individual data is matched to

registered data through the use of a camera face recognition when the door is opened and the user uses the ATM services. If the captured image does not fit the stored image, the door will stay locked. If some of the sensors like temperature, the IR sensor will activate, the buzzer will warn the sound, and the corresponding alert message will be sent to the designated user. Besides, if anyone attempts to open the money locker, the IR sensor that is on the back of the ATM will be triggered, the door will be locked immediately, and the gas will be sprinkled on the intruder to turn the guy into an unconscious state. Provides good coverage for both ATM and ATM users. As part of the expansion of this initiative, we will expand the database so that more users are stored and can access the ATM facilities safely. We may also give a caught image of crime to a local police station so that the matter can be fixed quickly. We will use this high-level banking security transfer method. We can use an efficient antenna for longer communication. Further extensions can be rendered by enhancing protection by incorporating innovative methods such as eye recognition using computer learning and artificial intelligence.

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