

Artificial Intelligence System for Detection And Monitoring of Victims Human

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Abstract-The incidences of buildings collapse has become very frequent in recent times, "More than 200 persons are killed as a cause of building collapse" it is very important to maximize the chances of detecting trapped persons in collapsed buildings. we, as responsible engineers felt a part of society to bring a system to avoid these mishaps with the meteoric embedded systems along with microcontroller our designed system is preventing deaths and providing safe guided measures. A new revolutionary piezoelectric plate system, which is used to locate human beings trapped survivors under collapsed buildings, has been designed.

In Our project aim is to save the human from the disaster. In this project we use Piezoelectric plate , it sense the vibration created by trapped person in disaster Area so the microcontroller connected is to collect the data and sent the data to the Data collecting unit by using Wireless transmission (RFM). Then the Data collect unit alerts the Rescue team.

Introduction

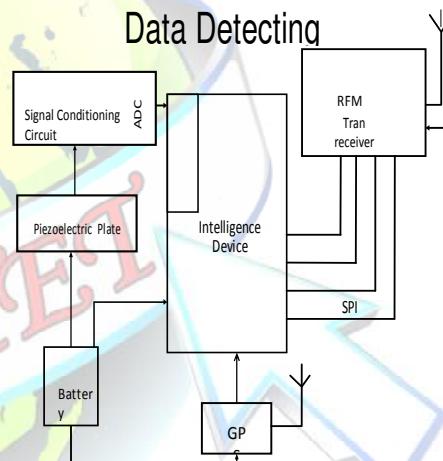
The problem of rescuing people from beneath the collapsed buildings does not have an ultimate technical solution that would guarantee efficient detection and localization of victims. The main techniques in use are: Cameras with long optical fibers that are injected into the holes or fissures in the collapsed buildings (the usability of such devices and their efficiency depend on the structure of collapsed building and besides, when the victim is detected it is difficult in the most cases to determine its actual position). Sledge hammers are used to give a signal to potential victims, and rescuers with microphones are waiting for hearing the response (obvious limitation of this method is that unconscious people cannot be detected. Localization of victims is a problem as well).

Proposed method

Present methods for searching and rescuing victims buried or Trapped under collapsed buildings are not effective. The vibration data from the person's body is properly distinguished, so the person alive can be detected. By proper processing of these data, the status of the person under trap can be easily judged. Thus a person under debris can be identified. The location of the person under the rubble can be detected by using GPS. The RFID is used to know the worker's IN and OUT time.

The proposed method is an efficient method which identification of people in a given area. It consists of detecting unit and data collecting unit. In detecting unit Piezoelectric

Battery. Piezoelectric plate is to sense the vibrations from the hand. Piezoelectric plate is connected to the wrist of workers to monitor the blood movement and the heart beat of the trapped person. If vibration is sensed, then the signal is given to the ADC pin of the microcontroller via signal conditioning, since vibration is of mill volt, signal conditioning is to amplify voltage level adaptable for the PIC.



GPS is to position the location of the trapped person by sensing the signals from the PIC. Information is sent to the RFM via SPI (Serial Peripheral Interface) for receiving and transmitting the information. The signals from the microcontroller are transmitted via SPI (Serial Peripheral Interface) protocol to the RFM transceiver. In data collecting unit consists of .NET as front end monitor, RPS and RFM transceiver

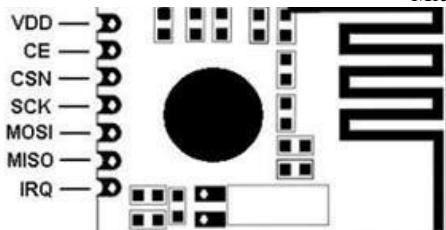
PIC MICROCONTROLLER

The microcontroller is the heart of the power saving unit, which get the data from sensor and driver the control circuit. It is an integrated chip that is often part of an embedded system. The microcontroller includes a CPU RAM, ROM, I/O ports and timers like a standard computer but they are designed to execute only a single specific task to control a single system they are much smaller and simplified so that they can include all the functions required on a single chip. Other than the normal Microcontrollers PIC Family supports

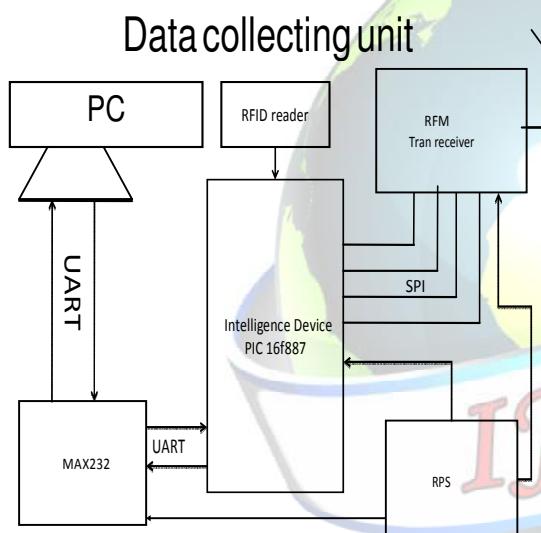
RFM 73

RFM73 is a low-power, high-speed FSK/GFSK transceiver module specifically operating in the world wide ISM frequency band at 2400 - 2483.5 MHz. The module offers low cost, small size, high stability. The maximum air data rate can be up to 2Mbps. It can be widely applied in various wireless connections in daily life or activities, and it is very easy to use and interface with

Microcontrollers



Bus



The signals transmitted from the detecting unit are received by RFM transceiver in the receiver side via SPI to the ARM. The ARM will sense the signals from the receiver and display it on a monitor. The RFID reader is to sense the signals from the RFID Tag, it will store the respective person time in, time out and amount of salary.

Thus, the position of the trapped person is detected and save from the life of trapped person in a safety manner.

RFID READER

Radio Frequency Identification (RFID) Card Readers provide a low-cost solution to read passive RFID transponder tags up to 7 cm away. This RFID Card Reader can be used in a wide variety of hobbyist and commercial applications, including access control, automatic identification, robotics navigation, inventory tracking, payment systems, and car immobilization. The RFID card reader read the RFID tag in range and outputs

unique identification code of the tag at baud rate of 9600. The data from RFID reader can be interfaced to be read by microcontroller or PC

The start byte and stop byte are used to easily identify that a correct string has been received from the reader (they correspond to a line feed and carriage return characters, respectively). The middle ten bytes are the actual tag's unique ID.

For example, for a tag with a valid ID of 0F0184F07A, the following ASCII data would be sent 0F0184F07A



The PIC will sense the signals from the receiver and display it on a monitor. The RFID reader is to sense the signals from the RFID Tag, it will store the respective person time in, time out and amount of salary. Thus, the position of the trapped person is detected and saved from the trap in a safety manner. **Piezoelectric Plate**

The basic principle used in Piezo electric plate is piezoelectricity. It is a phenomenon of internal accumulation of charge in crystals in response to external mechanical force. The material used in piezoelectric element is lead zirconate crystal.

These crystals generate measurable piezoelectricity when they are deformed about 0.1% of their original dimensions. These crystals readily release the current when the orientation of crystal is disturbed by mechanical vibrations. These signals are in turn given to Op-Amp. The piezo element can detect slightest vibrations to make it useful to detect seismic waves. Useful, cheap and can be used for many applications applied on it.



piezo electric plate



Serial to Peripheral Interface (SPI)

The SPI bus, which operates at full duplex (means, signals carrying data can go in both directions simultaneously), is a synchronous type data link setup with a Master / Slave interface and can support up to 1 megabaud or 10Mbps of speed. Both single-master and multi-master protocols are possible in SPI. But the multi-master bus is rarely used and look awkward, and are usually limited to a single slave. In SPI-bus communication there can be one master with multiple slaves. In single-master protocol, usually one SPI device acts as the SPI Master and controls the data flow by generating the clock signal (SCLK) and activating the slave it wants to communicate with slave-select signal (SS), then receives and or transmits data via the two data lines. A master, usually the host micro controller, always provides clock signal to all devices on a bus whether it is selected or not. Christo Ananth et al. [3] discussed about an eye blinking sensor. Nowadays heart attack patients are increasing day by day."Though it is tough to save the heart attack patients, we can increase the statistics of saving the life of patients & the life of others whom they are responsible for. The main design of this project is to track the heart attack of patients who are suffering from any attacks during driving and send them a medical need & thereby to stop the vehicle to ensure that the persons along them are safe from accident. Here, an eye blinking sensor is used to sense the blinking of the eye. spO₂ sensor checks the pulse rate of the patient. Both are connected to micro controller. If eye blinking gets stopped then the signal is sent to the controller to make an alarm through the buffer. If spO₂ sensor senses a variation in pulse or low oxygen content in blood, it may result in heart failure and therefore the controller stops the motor of the vehicle. Then Tarang F4 transmitter is used to send the vehicle number & the mobile number of the patient to a nearest medical station within 25 km for medical aid. The pulse rate monitored via LCD .The Tarang F4 receiver receives the signal and passes through controller and the number gets displayed in the LCD screen and an alarm is produced through a buzzer as soon the signal is received.



CCS Complier

A compiler is a computer program (or set of programs) that transforms source code written in a programming language (the source language) into another computer language (the target language, often having a binary form known as object code). The most common reason for wanting to transform source code is to create an executable program.

This integrated C development environment gives developers the capability to quickly produce very efficient code from an easily maintainable high level language. The compiler includes built-in functions to access the PIC microcontroller hardware such as READ_ADC to read a value from the A/D converter. Discrete I/O is handled by describing the port characteristics in a PROGRAM. Functions such as INPUT and OUTPUT_HIGH will properly maintain the tri-state registers. Variables including structures may be directly mapped to memory such as I/O ports to best represent the hardware structure in C. Built in libraries that work with all chips for RS232 serial I/O, I2C, discrete I/O and precision delays.

Integrates with MPLAB IDE and other simulators and editors for source level debugging. Standard HEX file and debug

files ensure compatibility with all programmers. Formatted printf allows easy formatting and display in HEX or decimal. Efficient function implementation allows call trees deeper than the hardware stack.

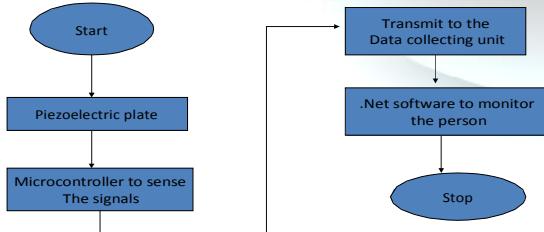
Source code drivers included for LCD modules, keypads, 24xx and 94xx serial EEPROM's, X10, DS1302 and NJU6355 real time clocks, Dallas touch memory devices, DS2223 and PCF8570 serial SRAM, LTC1298 and PCF8591 A/D converters, temperature sensors, digital pots, I/O expander and much more. Access to hardware features from easy to use C functions, timers, A/D, EEPROM, SSP, PSP, USB, I2C and more. 1, 8, 16 and 32 bit integer types and 32 bit floating point.

PROTEUS 7.0 SIMULATION TOOL

Proteus 7.0 is a Virtual System Modeling (VSM) that combines circuit simulation, animated components and microprocessor models to co-simulate the complete microcontroller based designs. This is the perfect tool for engineers to test their microcontroller designs before constructing a physical prototype in real time.

This program allows users to interact with the design using on-screen indicators and/or LED and LCD displays and, if attached to the PC, switches and buttons. One of the main components of Proteus 7.0 is the Circuit Simulation -- a product that uses a SPICE3f5 analogue simulator kernel combined with an event-driven digital simulator that allow users to utilize any SPICE model by any manufacturer. Proteus VSM comes with extensive debugging features, including breakpoints, single stepping and variable display for a neat design prior to hardware prototyping. In summary, Proteus 7.0 is the program to use when we want to simulate the interaction between software running on a microcontroller and any analog or digital electronic device connected to it.

Flow chart



FURTHER ENHANCEMENT

The information about the rescue team is come for rescue the Trapped preson is sending the intimation. Further enhancement can be done such as configuring the hardware parameters as per the requirement. In construction area, to monitor the workers. Workers mine and regions of natural disaster like earthquake prone location.

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CONCLUSION

This paper presents an approach to assess the casualty situation in urban areas shortly after building collapse. It is a new sensitive life detection system using piezoelectric plate for locating human beings under collapsed buildings. By the advent of this system the world death rate as a cause of natural disaster may decrease to a great extent.