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AN EFFECTIVE RISK TRACKING SYSTEM USING WIRELESS NETWORK

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ABSTRACT

The localisation and the identification achieved tasks, allowed to protect a person in any risky area. In this paper we presented the design of an embedded system based on a wireless sensor network. The system as well involves of heartbeat sensor and humidity sensor which is used to monitor the human presence recognition and simultaneously we can also measures the atmosphere condition. By using this two sensors we can save the person human life. The system can also provide security by using GSM technology and concurrently track the exact location if any irregular circumstance happened.

Keywords: Microcontroller, GSM, GPS Technology and RFID.

I. INTRODUCTION

Many firms area unit implementing a management system for health and safety within the context of their risk management strategy, to reply to development in legislation so as to protect their workers. The target of this technique is to minimize the speed of work accidents by finding out the punctual risks. However, in most cases, there area unit forever accidents caused by staff neglecting safety measures within the site. Therefore, it's required to hold the situation of every individual, so as to guard workers health andsafety.We developed associate application that locates the personnel in risk areas exploitation wireless communication. It ensures additionally the required zone safety measures. We on-going this application by effectively put the wireless device of the target within the employee safety helmet. Whereas, the distinct worker uniform used as protecting garments, was equipped with multiple RFID antennas to spot the required safety equipment which were furnished RFID tags. As a consequence, the position info and therefore the information delivered by the protection equipment, worn by the person among the positioning, area unit all sent to the room employing a wireless communication

II. PROPOSED SYSTEM

The objective of project is to security for persons those who are in risky conditions. By placing sensors like humidity and heartbeat, we can easy to find the human presences and climatic conditions of surrounding

environment. The system can implemented in two different ways. One is location based and another one RFID. The location tracking is based on GPS modem which is easy to track the exact location in any areas where as for providing security we preferred RFID Modem. By using this two modems we can easy to recognize the risk condition across different area and also track the specific location.

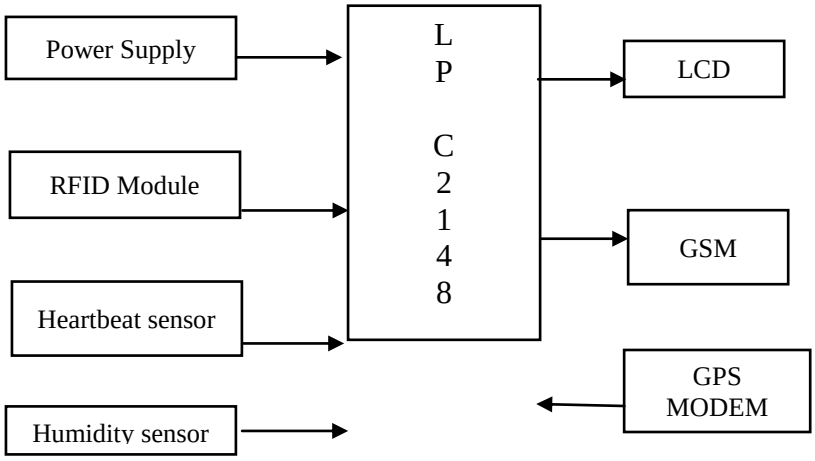

Fig 1: Block Diagram of System Design Model

III. WORKING

The system comprises of microcontroller, wetness and heartbeat sensing element, RFID module, GSM Module, GPS Module.The microcontroller is plays an important role altogether elements. It's a negotiate of all of devices interface with them. The controller is main a part of the merchandise that performs all the specified operations and can management all the remaining modules.

3.1 Microcontroller

The controller, which we used in this system i.e. LPC2148. It has several inbuilt features such as

- It is a 16/32 bit micro-controller.
- It has 512kb of program memory and 8kb to 40kb of data memory.
- It has 2 UART's which is used to communicate with several devices.
- It also consists of 2 I2C protocols.
- It delivers 2 SPI protocols.
- It has 64 GPIO port pins.
- It has a real time clock to measure the time, date and day in real time manner.
- It provides ADC, PWM and watchdog timer etc.
- It also provides two 32 bit timers.

3.2 RFID Module

RFID module is for identification of the person details in step with the RFID tag. The placement proof of identity task are profitable to be accomplished by exploitation GPS and therefore the data are going to be send trough GSM module. The aim of this project is to extend the accuracy to seek out the precise destination

by employing a conception that there in GPS navigation system, that by exploitation RFID cards we tend to square measure finding the destination. So as to implement localization and identification we tend to use RFID Technology. It consists of a reader and RF cards. The RFID cards extent of 2 varieties they're active and passive. The active cards wants the continual offer so as to pass the information, the passive cards doesn't need any external power offer, whenever the reader reaches the cardboard as a result of the coil that is there in card can mechanically activates the cardboard and passes the data to the reader.

3.3 Humidity Sensor

Humidity is that the main parameter that we've got to think about specified parameter and also we will determine that we've got to provide water to field or not.

3.4 Heart Beat Sensor

The heartbeat sensing element that monitor the human incidence recognition.

3.5 GPS Modem

While the automobile has happened by misfortune then controller makes the GPS into the operating mode and so starts reading the values of the current location (latitude and meridian value) by exploitation the satellite. The system monitors the conditions of the sensors and sends the standing message that consists of the standing of temperature, and humidity etc. whereas reading the values from the GPS we will get the data concerning speed with that the vehicle is moving, altitude of the GPS from the ocean level, actual time is calculated, range of satellites wont to browse the information, etc. Those values are going to be fed to the GSM to transmit the data.

3.6 GSM Modem

This GSM works beneath serial communication, to perform that action we tend to need a separate interface. However just in case of our controller we've got solely 2 sets of serial communication ports. The aim of GSM electronic equipment is to intimate the incident across space once just in case of risky condition.

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IV. FLOW CHART

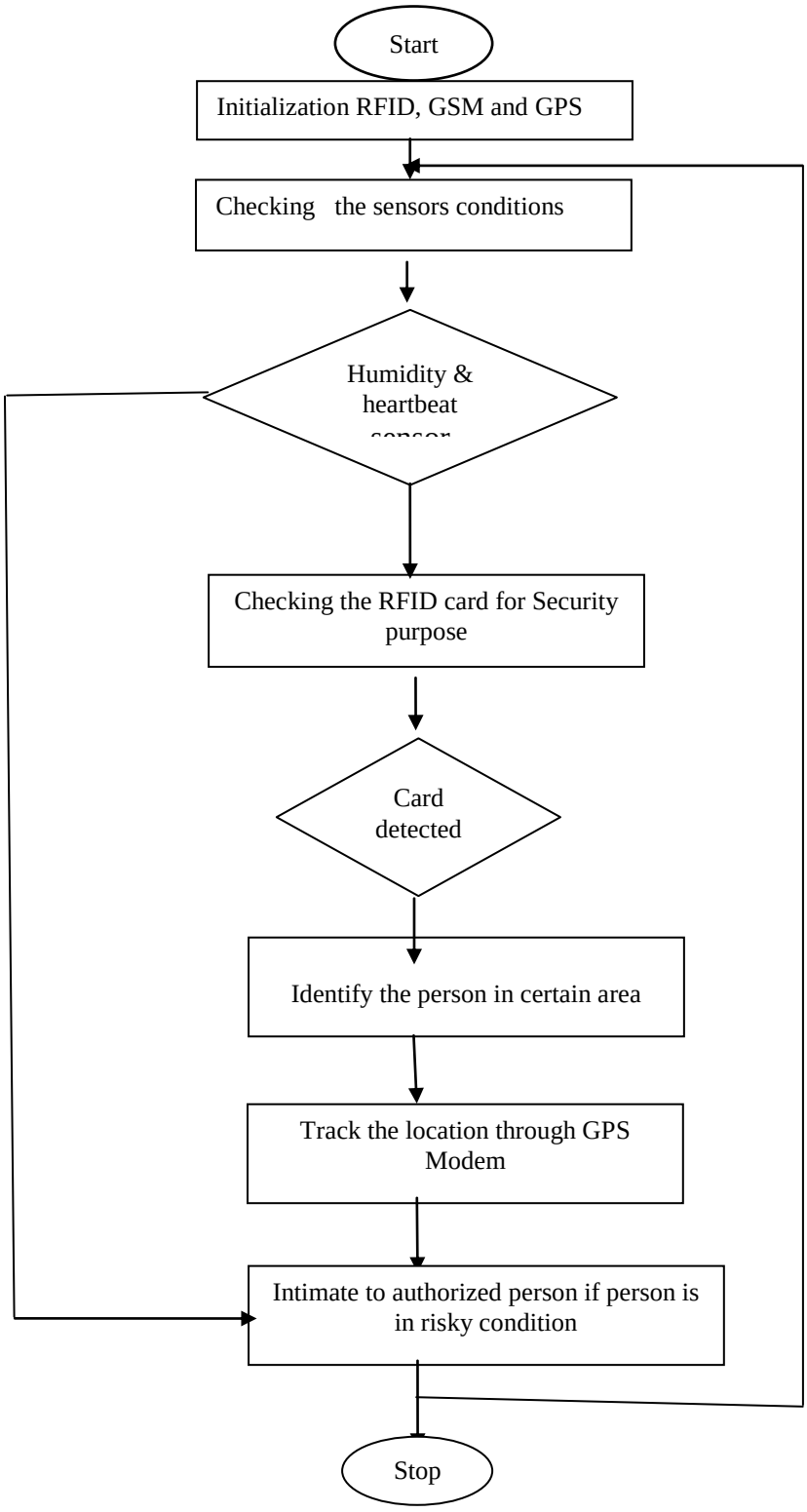

Fig2 : System Design Overflow

V. SOFTWARE IMPLEMENTATION

In order to communicate with the hardware we require a predefined software. An embedded system we require both hardware and software, it is mandatory to perform a precise application. The hardware

elementsdeterminationpathway according to the instruction given to the program. The software tools should be selected based on micro-controller using in this application. The following some of software tools are used in this project.

1) MDK Keil µVision

2) Flash Magic

5.1 KeilµVision

The Keil µVision is an IDE which will consist of complete programming environment for various micro-controllers. Keil is having a C editor, ANSI C cross compiler. It supports programming for various 8-bit, 16-bit and 32-bit micro-controllers.

5.2 Flash Magic

It is simply a programming dumping software. Micro-controllers can only understand machine language. Whatever we are writing in the program, that we convert into machine level language. That machine level language format of the program, we call it as Hex file. By generating hex file the programmer desires to write the hex file into micro-controller.

VI. RESULTS

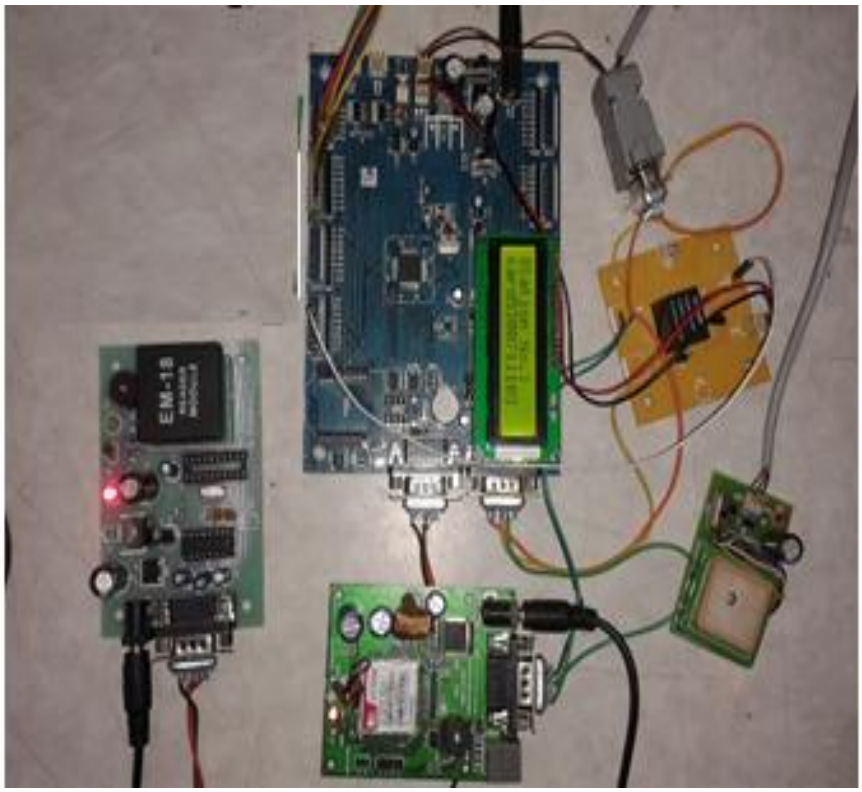

Fig 3: Overview of System Design Model

VII. CONCLUSION

The location identification and security was the main aim of the project and for that we are using a GPS module which gives the all-round surveillance of the earth. GSM module was used for data conversation. Due to rapid growth in technology, it will be extra skilled and low-priced to exchange the information using GSM. RFID is to identify the exact person in any area.In future we can maintain the database through GPRS which is used to find the information at required amount of time.

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