IMPLEMENTATION OF PERSONAL DATA ASSISTANT SYSTEM FOR DEFENCE PERSONS USING MICROCONTROLLER

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Abstract— **In Military and Industry persons working in harsh conditions. In embedded system there having some possible source to monitoring the person in harsh conditions. They use PDA (personal data assistant) for collecting the information. It takes the information about their working condition in harsh environments. It not likes that easy one. So they choose the embedded. In that CPU, LCD touch screen and wireless communication module, GPS, barcode laser scanner and interfaces etc….In that also some disadvantages having major thing that monitoring the military person's Parameters. Using Advances military jacket .Peltier is used to control temperature level and Corresponding Measurements are displayed. Peltier is nothing but thermoelectric cooling. It creates a heat flux between the junctions of two different types of materials. A Peltier cooler, heater, or thermoelectric heat pump is a solid-state active heat pump which transfers heat from one side of the device to the other, with consumption of electrical energy, depending on the direction of the current. Thermoelectric coolers operate by the Peltier effect (which also goes by the more general name thermoelectric effect). The device has two sides, and when DC current flows through the device, it brings heat from one side to the other, so that one side gets cooler while the other gets hotter. The "hot" side is attached to a heat sink so that it remains at ambient temperature, while the cool side goes below room temperature. In some applications, multiple coolers can be cascaded together for lower temperature. Using this Repeated or continuous observations of the personnel's life supporting functions and save the person in High robust condition**

Index Terms— **Personal data assistant, Pressure sensor, Heart beat sensor, Temperature sensor, Peripheral Interface Controller, ZigBee, Peltier.**

I. INTRODUCTION

There are many information requirements in battlefield. Many novel portable electronic devices can be equipped for soldiers to handle and transmit information such as GPS information, weather forecasting, command or other military application information. Likely, the industry Domain has the same requirements with the development of embedded technology, a few embedded system schemes can be selected as military or industry. Handheld devices usually adopt battery as power. So the low power consumption is an important design rule.

The working environment of is very hardness. Temperature range for getting information or reporting personal information. So there are many technical targets must be considered into design the device.

- SENSOR
- GPS
- RS232
- PELTIER
- LCD
- SWITCH

Today the war is information warfare. There are many informatization requirements in battlefield. Many novel portable electronic devices can be equipped for soldiers to handle and transmit information such as GPS information weather forecasting, command or other military application information. Likely, the industry domain has the same requirements. With the development of embedded technology, a few embedded system schemes can be selected as military or industry PDA. Handheld devices usually adopt battery as power. So the low power consumption is an important design rule. In addition, the PDA needs to do much computation when processing image or video task. In the X Scale 32 bits processor PXA270, transplanted the embedded Linux and Qt/Embedded as embedded graphic library, carried out motion target detection and tracking system by adopting map means capture data from camera. Experiments result shows this system has a preferably capability.

Designed an embedded gateway for wireless sensor networks based on PXA270 processor. Researched one real-time implementation of continuous speech recognition algorithm on a mobile CPU, Intel PXA270, and platform. Proposed the hydrological sediment

detection system based on image collection subsystem, network transmission subsystem and ARM-based processing subsystem based on PXA270 processor. The similar application was applied in implemented the H.264/AVC baseline profile decoder on Intel's X scale processor PXA270 for real-time applications, which requires higher-speed processor. From the above applications we can see that the PXA270 processor has been widely used in portable device, which provides sophisticated power management capabilities enabling excellent performance.

II. OBJECTIVE

The objective of this project is to monitor the parameters of human body such as temperature, heart beats rate, pressure, location information and weather conditioner through microcontroller. These observed data are transferred from a place to another place and controlled by manually.

III. METHODOLOGY

The Project can be designed with the following blocks,

- Temperature sensor
- Heartbeat sensor
- Pressure sensor
- Amplifier
- Signal conditioning unit (SCU)
- Pulse shaping Unit
- Microcontroller
- GPS
- Peltier transducer
- Analog to Digital Converter
- Display

A. BLOCK DIAGRAM

The block diagram of the circuit for designing the personal data assistant is shown below. The main sections of the proposed model are now described below.

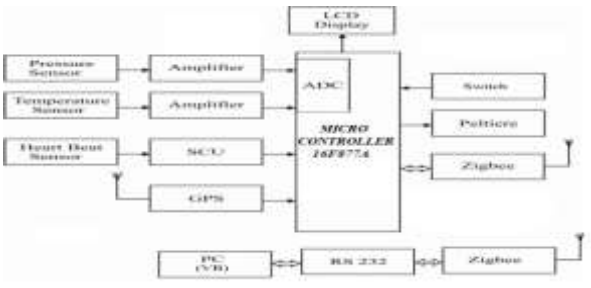

Figure Block Diagram of automatic defibrillator circuit

B. BLOCK DESCRIPTION

The Temperature sensor is used to senses the change body temperature. The output of the temperature sensor is given to the amplifier to amplify the weak signal. The amplified signal is passed to the analog to Digital converter. The Analog to Digital converter converts the analog signal to the Digital signal. The Digital signals are given to the Micro controller.

The pressure sensor is used to senses the change body pressure. The output of the pressure sensor is given to the amplifier to amplify the weak signal. The amplified signal is passed to the analog to Digital converter. The Analog to Digital converter converts the analog signal to the Digital signal. The Digital signals are given to the Micro controller.

The Heart Beat sensor is used to measure the heart beats of the militaries then the output signal is given to signal conditioning unit in which the signal is conditioned. Then the signal is given to pulse shaping circuit. Here the signal is converted into square pulse. The converted square pulse signal is given to microcontroller. The performance specifications are given in the following table.

Hot Side Temperature (ºC)	**25ºC**	**50ºC**
Qmax (Watts)	**50**	**57**
Delta Tmax (ºC)	**66**	**75**
Imax (Amps)	**6.4**	**6.4**
Vmax (Volts)	**14.4**	**16.4**
Module Resistance (Ohms)	**1.98**	**2.30**

Table performance specifications

A Peltier cooler can also be used as a thermoelectric generator. When operated as a cooler, a voltage is applied across the device, and as a result, a difference in temperature will build up between the two sides. When operated as a generator, one side of the device is heated to a temperature greater than the other side, and as a result, a difference in voltage will build up between the two sides (the See beck effect). However, a well-designed Peltier cooler will be a mediocre thermoelectric generator and vice-versa, due to different design and packaging requirements.

IV. RESULTS AND CONCLUSION

A. RESULT

The following diagram represents the simulated result of the personal data assistant system.

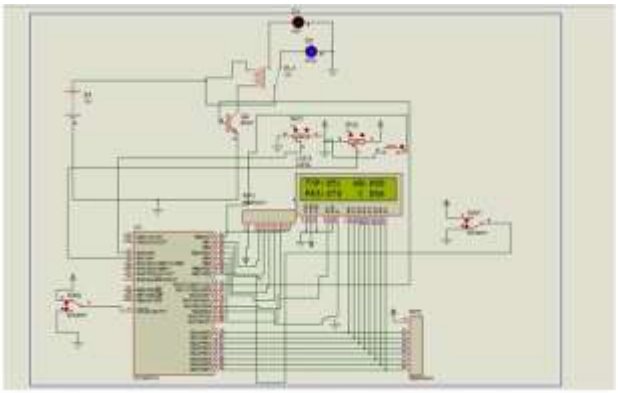

Figure simulated result of the proposed system

B. CONCLUSION

- Military monitoring system not only alert it also takes some life saving procedures.
- Data of the personnel will be provided to the monitoring station from the field within a specific interval of time.
- The data assistant includes a LCD screen, wireless communication devices & a GPS interfaces in it.
- The hardware and software are designed in a generic way. So, for several applications it can be implemented.
- Repeated or continuous observations of the personnel's life supporting functions.
- High robust.

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