Electronic-Jacket

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Abstract: - In global scenario, the prime question in every girls mind is about her safety and the harassment issues. The only thought haunting every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. This project suggests a new technology to protect women. This project focuses on a security for women so that they will never feel helpless. The system consists of various modules such as GSM, GPS, memory card, shock circuit, buzzer, camera, Raspberry pi-3 module. Today there is many cases which are happening about women. It was high time where women needed a change. This project is based on women security where women feel protected. This paper describes about safety electronic system for women, built in public transport vehicles such as cars, buses and auto-rickshaws as nowadays women are being molested, kidnapped and harassed by the drivers. In each field there is a special impact of women Like sports, dance, education, business, in politics also. Women are leading in each field. Are the girls in India are really safe? Always we get the answer No. Hence implemented electronic system is fitted in the jacket which has GPS, GSM, Camera, Shock circuit, Buzzer, memory card which are interfaced with Raspberry pi-3 board to control all of the above.

Key Words: — Electronic Jacket, GSM, GPS, Women safety.

I. INTRODUCTION

Soldiers are the Army's most important resource. Soldiers play a vital role to protect one's country. The term soldiers include service Men and women from the Army, Air Force, Navy and Marines. They will always be the One responsible for taking and holding the duty in Extreme weather conditions throughout The year. While providing security to the nation, they may face troubles in extreme hot or Cold weather conditions. Both very hot and cold temperatures could be dangerous to health.

In this paper an E-Uniform is designed which gives better protection to the soldiers who are working in extreme weather conditions. Temperature sensor is used for checking the 2 In this paper an E-Uniform is designed which gives better protection to the soldiers who are working in extreme weather conditions. Temperature sensor is used for checking the temperature at any time. The LM35 is a precision circuit temperature sensor, whose output voltage is linearly proportional to the Celsius temperature. Sensor gives the analog voltage which is converted into digital by using ADC in the Arduino. These digital values are checked with the heat and cold threshold level. If the temperature is more than the heat threshold, cooler and fan will be activated. If the temperature is less than the cold threshold, heater and fan will be activated and values of temperature are displayed in LCD.

Solar panels are used to provide supply to internal circuit. Metal detector is used to detect the metal objects and produce buzzer. The following sections we will present the block diagram, description usage followed by conclusion.
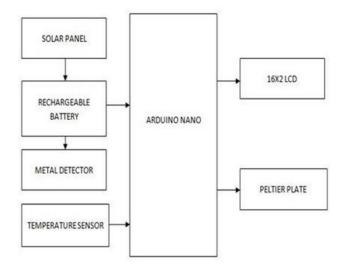

Fig.1. Basic block diagram of proposed model

II. TECHNOLOGY USED

An embedded system is a special-purpose computer system designed to perform one or a few dedicated functions often with real-time computing constraints. It is usually embedded as part of a complete device including hardware and mechanical parts.

In contrast, a general-purpose computer, such as a personal computer, can do many different tasks depending on programming. Embedded systems control many of the common devices in use today. Since the embedded system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product, or increasing the reliability and performance. Some embedded systems are mass-produced, benefiting from economies of scale. Physically, embedded systems range from portable devices such as digital watches and MP4 players, to large stationary installations like traffic lights, factory controllers, or the systems controlling nuclear power plants. Complexity varies from low, with a single microcontroller chip, to very high with multiple units, peripherals and networks mounted inside a large chassis or enclosure. In general, "embedded system" is not an exactly defined term, as many systems have some element of programmability. For example, 3 Handheld computers share some elements with embedded systems such as the operating systems and microprocessors which power them but are not truly embedded systems, because they allow different applications to be loaded and peripherals to be connected.
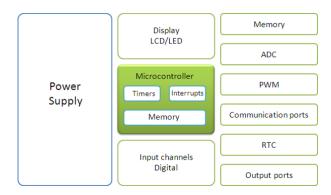

Fig.2. Examples of Embedded Systems

III. DESIGN METHODOLOGY

Relay is a common, simple application of electromagnetism. It uses an electromagnet made from an iron rod wound with hundreds of fine copper wire. When electricity is applied to the wire, the rod becomes magnetic. A movable contact arm above the rod is then pulled toward the rod until it closes a switch contact. When the electricity is removed, a small spring pulls the contract arm away from the rod until it closes a second switch contact. By means of relay, a current circuit can be broken or closed in one circuit as a result of a current in another circuit. Relays can have several poles and contacts. The types of contacts could be normally open and normally closed. One closure of the relay can turn on the same normally open contacts; can turn off the other normally closed contacts
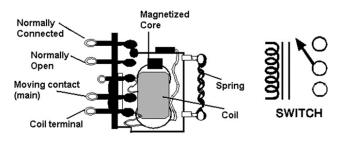

Fig.3.Relay switch

Relay requires a current through their coils, for which a voltage is applied. This voltage for a relay can be D.C. low voltages upto 24V or could be 240V a.c. 7 A relay is an electrical switch that opens and closes under control of another electrical circuit. In the original form, the switch is operated by an electromagnet to open or close one or many sets of contacts. It was invented by Joseph Henry in 1835. Because a relay is able to control an output circuit of higher power than the input circuit, it can be considered, in a broad sense, to be a form of electrical amplifier.
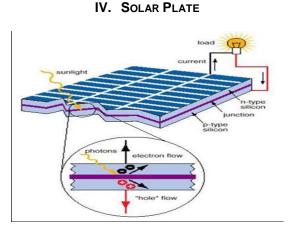
IV. SOLAR PLATE

Fig.4. Solar Plate

A solar cell (also called a photovoltaic cell) is an electrical device that converts the energy of light directly into electricity

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by the photovoltaic effect. It is a form of photoelectric cell (in that its electrical characteristics-- e.g. current, voltage, or resistance-- vary when light is incident upon it) which, when exposed to light, can generate and support an electric current without being attached to any external voltage source.

Specification: 2A/150mA

A. Hardware requirements

- Arduino nano
- Temperature Sensor
- Peltier plate
- Metal Detector

Temperature Sensor:

LM35 temperature sensor is used to detect precise centigrade temperature. The output of this sensor change describes the linearity. The operating temperature range of this LM35 ranges from-55˚ to +150˚C and it has low- self heating. This is operated under 4 to 30 volts. The most extensively used electronic devices are operational amplifiers, which are certain kind of differential amplifiers. Temperature sensor circuit has terminals such as two inputs like non-inverting (+) and inverting (-) and only one output pin. This sensor circuit amplifies the difference between its terminals. The advantages of temperature sensor include It has no effect on the medium, more accurate, it has an easily conditioned output and it responds instantly. As there are three pins, pin1 is connected to VCC and pin2 is connected to output and pin3 of temperature sensor is connected to ground.
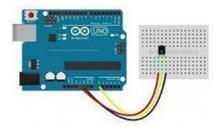

Fig.5. Temperature Sensor Arduino

V. RESULT OF THE MODEL

The proposed model is fabricated. The analytical and numerical analyses are done. In order to do numerical analysis, finite element analysis (FEA) software Ansys 9.0 is used. A couple thermoelectric elements are taken for the analytical and numerical analysis. The material properties of

the thermoelectric module are given in the Table 3. The material properties for the analysis were evaluated at the average cooler temperature of 27°C.

The cooling effect produced per couple at the cold end was 0.394 W by both analytical and numerical method when the current passed through the circuit was 4.31 A. Thus the number of couples required to produce a cooling effect of 6 W is around 16. The maximum value of current which can be passed through the circuit is limited to 2 A. The number of modules used in the prototype is two. The thermoelectric modules used in the prototype have 31 couples in each module. The total cooling effect produced by the modules may be around 12 W. The cooling effect can be increased by connecting more number of coolers in series. By creating the static analysis directory and separate the model file as sea state data and model data as seainp.dat and sacinp.dat. By clicking on Analysis Generator from the Executive window and select Statics for Type and Static analysis for subtype. And selecting the relative environmental options for the Structure to run the Analysis. A file psvdb.dat is created to run the analysis. The unity check ratio for maximum combined stress, axial stress, Z axis bending or Y axis bending may be labelled using the Unity Check labelling features.

- Maximum Combined - The maximum combined stress unity check ratio for all active load cases may be alternately displayed or concealed using this toggle.
- Axial - The maximum axial stress unity check ratio for all active load cases may be alternately displayed or concealed using this toggle.
- Y-Bending - The maximum unity check ratio for bending about the local Y axis for all active load cases may be alternately displayed or concealed using this toggle.
- Z-Bending - The maximum unity check ratio for bending about the local Z axis for all active load cases may be alternately displayed or concealed using this toggle for the jacket structure the Unity check has been performed for pile group members and found that the ratio of actual stress to allowable stress is less than unity for all members. Thus the pile members in the structure are safe. The Unity check is performed for pile group members and the

maximum combined unity check ratio is for member 104P204P which is relatively more affected for static loads.

Fig.6. Electronic- Jacket

VI. CONCLUSION

Soldiers are one of the imperative components in a nation. Since they are the strengths who secure our nation day and night living behind rest and rest. An E- Uniform gives better insurance to the warriors who are working in compelling conditions. This is worked in two modes summer mode and winter mode. In the event that the climate condition is excessively hot then the cooling framework will have worked and in the event that it is excessively cool then the warming framework will have worked.

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