

SOLAR BASED E-UNIFORM FOR SOLDIERS WHO WORK AT EXTREME HIGH TEMPERATURE OR EXTREME LOW TEMPERATURE

Amruta Yemul

ABSTRACT:

Troopers are the Army's most imperative asset. Officers assume an indispensable part to ensure one's nation. The term troopers incorporate administration men and ladies from the Army, Air Force, Navy and Marines. They will dependably be the one in charge of taking and holding the obligation in great climate conditions consistently. While giving security to the country, they might confront inconveniences in amazing hot/icy climate conditions. Both extremely icy and exceptionally hot temperatures could be hazardous to wellbeing. Extreme introduction to warmth is alluded to as warmth anxiety and over the top presentation to frosty is alluded to as icy anxiety. In an extremely hot environment, the most genuine concern is warmth stroke. At exceptionally icy temperatures, the most genuine concern is the danger of hypothermia or perilous overcooling of the body.

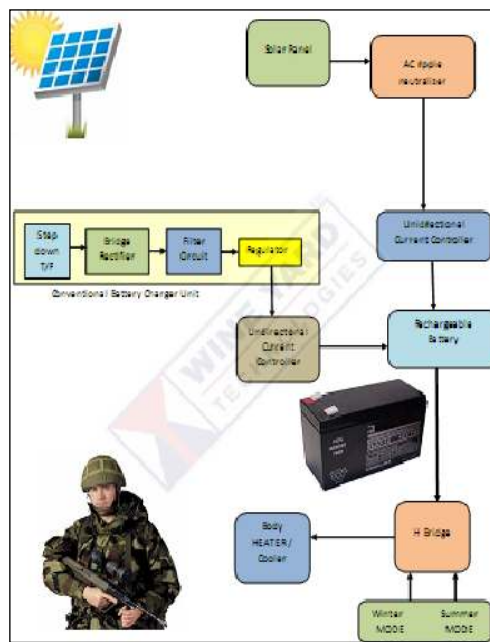
KEYWORDS:

Microcontroller, Solar Panel, Rechargeable Battery, Temperature Sensor, Heart Rate Sensor

INTRODUCTION:

Warriors are the Army's most imperative asset. Warriors assume an essential part to ensure one's nation. The term warriors incorporate administration men and ladies from the Army, Air

Force, Navy and Marine. While giving security to the country, they might confront inconveniences in hot/frosty climate conditions. Both exceptionally hot and icy temperatures could be unsafe to well being .[1]This venture is a solution for this circumstance. In this venture an E-Uniform is planned which gives better security to the officers who are working in



great climate conditions. Temperature sensor is utilized for check the temperature whenever. The LM35 is an exactness circuit temperature sensor, whose yield voltage is directly relative to the Celsius (Centigrade) temperature. In this undertaking we are going to plan an E-Uniform which gives better assurance to the fighters who are working in amazing whether conditions. This Uniform will make the trooper to work in any sort of environment. Here we are utilizing Solar Panels to control up the inside hardware of the E-uniform. A 12 V DC lead corrosive rechargeable battery is utilized for

putting away the vitality. We are utilizing routine battery charging unit additionally to give supply to the hardware. We are likewise utilize temperature sensor and heart rate sensor for checking the wellbeing of the trooper in any circumstance. AT89S52 miniaturized scale controller is the heart of the circuit as it controls every one of the capacities. A voltage sampler is interfaced with the framework utilizing ADC 0808 to get the voltage produced from battery as a showcase on a 16X2 LCD.

The undertaking is worked in two modes summer mode and winter mode. By selecting the

method of operation, we are working the H-Bridge IC such that it can drive body radiator/cooler. The warmer/cooler thus will help us to give chilling or warming impact inside the uniform which helps the officer to stand to any sort of outer environment and he can work proficiently without warmth stress or frosty anxiety.

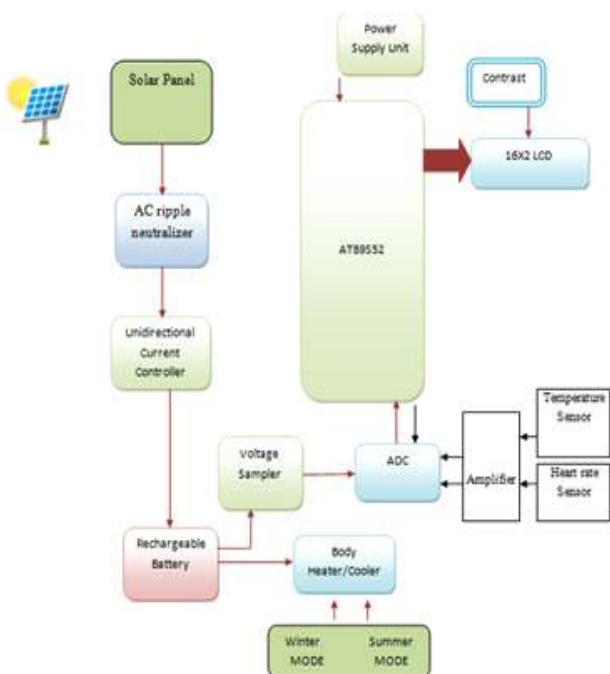
A 12 V DC lead corrosive rechargeable battery is utilized for putting away the vitality. We are utilizing traditional battery charging unit likewise to give supply to the hardware.

This Conventional force source utilizes managed 5V, 500mA power supply. 7805 three terminal voltage controller is utilized for voltage regulation. Span sort full wave rectifier is utilized to amend the air conditioner yield of optional of 230/12V stage down transformer.

Issue Formulation

At whatever point the daylight is not there then the E uniform does not get the adequate force.

Piece Diagram and Explanation



Microcontroller



Microcontroller is expected to persistently sense climate the dirt is dry or wet. What's more, reaction is given to on or off the water supply. In the meantime the framework will alarm the client by sending SMS through GSM module. The AT89S52 is an elite CMOS 8-bit microcontroller, low-power, with 8K bytes of EPROM. These are elements of AT89S52 microcontroller: 256 bytes of RAM, 8K bytes of Flash, , three 16-bit clock/counters, 32 info/yield pines , two information pointers, Watchdog clock. six hinder of two level structural planning, serial port, oscillator . the AT 89C52 is intense MC which gives an adaptable and reasonable result to numerous inserted framework applications.

Solar panel



Recently included component for our undertaking is – Solar Panel. As we were confronting issue for consistently release of 12v battery utilized at recorded. We at long last chose to go for sun oriented board renewable vitality source. It changes over light vitality from the sun into 12 Volt DC power. Gradually charges our 12V battery. It likewise keeps up a charge and amplify battery's life. It ensures battery through long stockpiling periods. This sunlight based board

charger has no moving parts that could destroy after some time. **Battery**

ADC



ADC is utilized to change over the simple qualities into advanced qualities.

We are utilizing ADC 0808 on the grounds that it has higher determination than other ADC.

LCD:



LCD stands for liquid crystal display. LCD used is 16 by 2. It contains the 16 pin. 8 pin is used for data communication, read, write, enable, Brightness control and 4 pins for power supply. It is used to display data.

Features Of LCD

- * 16 Characters x 2 Lines
- * 5x7 Dot Matrix Character + Cursor
- * 4-bit or 8-bit MPU Interface
- * Standard Type
- * Works with almost any Microcontroller
- * Great Value Pricing
- * Maximum input voltage: 5.3VDC
- * Operating input voltage: 5VDC
- * 8-bit interface data bus
- * Character font size: 0.125"W x 0.200"H



Battery (power), a variety of electrochemical cells for power stockpiling, either exclusively connected or independently connected and housed in a solitary unit. An electrical battery is a mix of one or more electrochemical cells, used to change over put away concoction vitality into electrical vitality. Batteries might be utilized once and tossed, or energized for quite a long time as in standby force applications. Small cells are utilized to power gadgets, for example, portable amplifiers and wristwatches; bigger batteries give standby energy to phone trades or PC server farms.

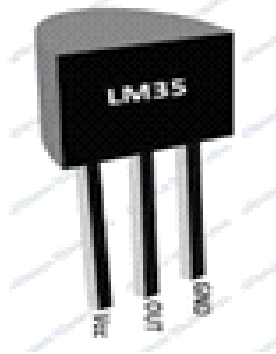
AC ripple neutralizer

The most well-known significance of swell in electrical science is the little undesirable leftover occasional variety of the immediate current (dc) yield of a force supply which has been gotten from a substituting current (air conditioning) source. This swell is because of inadequate concealment of the substituting waveform inside of the force supply.

Voltage sampler

Test and hold circuits is utilized to test a simple sign and to store its worth for some period of time (for computerized code change). It is intensely utilized as a part of information converters. Test and-hold are likewise alluded to as track-and-hold circuits.

Temperature sensor



- * The LM35 is a coordinated circuit sensor that can be utilized to quantify temperature with an electrical yield relative to the temperature (in oC).
- * It quantifies temperature more precisely than an utilizing a thermistor.
- * The sensor hardware is fixed and not subject to oxidation, and so forth.
- * The LM35 produces a higher yield voltage than thermocouples and may not require that the yield voltage be intensified.

HEARTBEAT SENSOR



Heart beat sensor is intended to give advanced yield of warmth beat when a finger is set on it. At the point when the heart beat finder is working, the beat LED flashes as one with every heart beat. This computerized yield can be associated with microcontroller straightforwardly to gauge the Beats Per Minute (BPM) rate. It deals with the guideline of light tweak by blood move through finger at every heartbeat.

Precious stone Circuit

This precious stone circuit gives the required

clock heartbeats to the microcontroller to give it the feeling of the reference time

Reset Circuit

This circuit gives the microcontroller the beginning heartbeat required to begin the operation from the begin. Unless this heartbeat is given, the microcontroller doesn't begin working

Control supply

The 230A.C information is given to rectifier circuit and Output get from the rectifier is a throbbing D.C voltage. The yield from the rectifier is given to a channel circuit to channel A.C parts present steady later than correction. Presently, this voltage encouraged to voltage controller to unadulterated steady D.C voltage get.

SOFTWARE DESCRIPTION

This undertaking is executed utilizing taking after software's:

- 1.Express PCB – for planning circuit
- 2.PIC C compiler - for aggregation part
- 3.Proteus 7 (Embedded C) – for recreation part.

Favorable circumstances

- * Fit and overlook framework
- * Reliable
- * Compact size
- * Affordable prize (Low cost)
- * Low Maintenance

APPLICATIONS

- * Used in military applications.
- * This uniform can be utilized for all the climatic applications.
- * Soldiers can work in compelling climatic applications.

RESULT

This task "Sunlight based E-Uniform for officers who work at compelling high temperature or great low temperature." is effectively tried and actualized which is the best sparing, moderate vitality answer for basic individuals.

I. CONCLUSION

Officers 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. In this manner it is our obligation to ensure them. Same is the centrality of this undertaking. So here outline an E Uniform which gives better insurance to the warriors who are working in compelling climate conditions. This venture 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 worked and in the event that it is excessively cool then the warming framework will worked. In the event that this framework might come up short GPS will discover the position of troopers and send messages by means of GSM to the control station. This venture has a huge part in our everyday life .Also it can be utilized as a part of different floods of industrial applications.

REFERENCES

1. E-UNIFORM FOR SOLDIER'S WHO WORK AT EXTREMETEMPERATURE REGIONS Vimal Jyothi Engineering College, Chemperi, Kannur, Kerala, India. ISSN 2091-2730
2. The 8051 Microcontroller and Embedded Systems Using Assembly and C, ISBN 8131710262, 9788131710265 Mazidi and Mazidi