Military Jacket Using IoT

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Abstract- The Indian army is that the land-based branch and it's the biggest part of Indian Army. It'll be useful for our country's safety if we have a tendency to try and offer them higher advanced technology instrumentation. During this paper we've explained a way to track the placement of the soldier with the assistance of GPS and conjointly we'll be able to monitor health parameters like heartbeat, rate and blood heat. If the soldier is gashed the fluctuations with the heartbeat and also the rate are measured and can inform the military base station through Wi-Fi module and from GPS we are able to find the wounded troopers. From this info we are able to strategize the longer term war arrange with the particular range of unscathed troopers and conjointly we are able to offer the required medication for the injured one with the placement provided by the GPS. The planned system is consisting of wearable physiological equipment's, sensors and transmission modules that square measure mounted within the jacket for communication between soldier and base station or between soldier and soldier. Hence, it's attainable to implement a coffee value mechanism to safeguard the precious human life on the piece of ground.

Keywords- Indian Army Study, internet, methods.

I. INTRODUCTION

Background: - In current world things, defensive our nation from external and internal threats area unit the foremost vital issue and rely on the military force the military suffers heaps thanks to the inconvenience of knowledge of injuries to its personal which can increase the death/ permanent incapacity toll. With the assistance of the many advanced technologies coming back into implementation, we will give safety to the military personnel. It's necessary to develop a system so as to induce the situation and very important health standing of the troopers which may be half-tracked in real time. Soldier's location is often half-tracked victimization GPS and Wi-Fi module that is employed to supply wireless communication system between soldier and base station. Health standing of the soldier is monitored victimization bio medical detectors like temperature detector and heart beat sensor. We tend to area unit victimization technology of net of Things for the projected system. IoT is just the network of interconnected things/devices that is embedded with sensors, software, network property and necessary physical science that allows them to gather and exchange knowledge creating them

responsive. Using IOT, the standing of the soldier is often transferred from one place to a different over the network. The IOT makes the whole observation method economical, quick and also the selections are often taken in terribly less time. Using GPS, the position and orientation of soldier is obtained. This technique permits GPS trailing of soldier's message that contains temperature, latitude and line of longitude similarly as vital sign of soldier. Here we tend to area unit victimization ARM LPC2148 that permits dynamic and quicker management. Liquid show (LCD) makes the system easy. Here we tend to area unit victimization liquid crystal display show for displaying the Values of gift and most voltage value that area unit gift within the reversible battery. The aim of the paper is to supply medical observation for soldier in real time. In different few comes, keypads area unit wont to input therefore me knowledge by soldier UN agency aren't so helpful and can create the system large in size. To beat this half, we are going to use a push button by that a soldier will request for medication from base of operations station at intervals the wireless transmission and reception vary.

II. MOTIVATION

Basic motivation behind this project gives better protection to the soldiers who are working in extreme weather conditions. The politer plate will help us to provide chilling or warming effect inside the uniform which helps the soldier to bear any kind external environment.

III. PROBLEM STATEMENT

The planned system is a good security and safety system that is created by integration the advancements in wireless and embedded technology. It helps for a winning secret mission. This technique is often utilized in essential conditions. Security and safety for troopers: GPS tracks position of soldier anyplace on globe and conjointly health system monitors soldier's very important health parameters and that provides security and safety for soldiers. The good army jacket is planned in such the simplest way that it might monitor the health, internal temperature also as emergency notification within the variety of short message service for the soldier.

IV. LITERATURE REVIEW

Soldier-Security and Health watching projected by Thanga Dharsni, Hanifa Zakir, Pradeep Naik, Mallikarjuna, Raghu. In 2018, the projected framework is mounted on the warrior's body to trace their welfare standing and current space utilizing GPS. This information is going to be transmitted to the room through distributed computing. The projected frame work involves tiny wearable physiological equipment's, sensors, transmission modules. Consequently, with the employment of the projected hardware, it's conceivable to execute a stripped-down effort part to make sure the necessary human life on the combat area GSM is employed that is digressive and excessive use of sensors unnecessarily. wearable Systems for watching the Health Condition of Soldiers: Review and Application Patrik-Kutilek1, Petr-Volf2, Slavka-Viteckova3, Pavel-Smrcka4 2017, systems for activity of physical and medical information for the medicine of physical and condition have considerably unfold. This study, however, examines the present technologies and usage of the wearable watching systems in military. Wireless detection system for Health and military application Yallalinga, Nirmalkumar S. Benni 2017, upon detection of fall/collapse the device system transmits the knowledge wirelessly, which can be received by the care-taker's mobile. The device could be a belt formed wearable device consisting of measuring instrument (tri-axial) and rotating mechanism. These sensors area unit accustomed classify the posture and dynamics of the user. The most aim of the project is to develop economical algorithms to sight falls and distinguish between falls and non-falls victimization these sensors. During this paper we have a tendency to area unit progressing to style a sensible device for soldier victimization fashionable technologies and techniques. This device would be carried by soldier in warfare. The device are going to be able to sense heart beat and vital sign of soldier and transmit the reading aboard station wherever the accumulative information are going to be displayed. Solder also can send a secret massage aboard station. So as to create the reading correct and precise a formula is intended that could be a correlation of vital sign and heartbeat. Hardware approach, LCD isn't necessary to use if we have a tendency to use computer code interfaces. No cloud process. Secret codes area unit already enforced

Heart Rate, Skin Temperature and Skin humidness and their Relationship to Accumulated Fatigue Decho-Surangsrirat[1], Songphqwaon-Dumnin[1] and Supat-Samphanyut1 2016, the target of this study is to observe the guts rate, skin temperature and skin humidness of the new recruited troopers throughout the last week of multiple weeks coaching amount in hot temperature wherever accumulated fatigue is predicted. The measurements area unit collected throughout their sleep. Experimental results show associate increasing trend of the common resting vital sign in multiple participants.

V. METHODOLOGY

The System are often increased for creating it device to device communication during this means a soldier will communicate with alternative soldier with none dependency of base station additionally exploitation Biotechnologies it are often a lot of versatile in collection near info mechanically in warfare. Sound is often interring canary to the device so a sound is output every time a pulse is received. Warning or abnormalities (such as terribly high or terribly low heart rates) are often displayed on the liquid crystal display or indicated by associate diode or a buzzer. The complete health observation system, that we've got projected are often integrated into compact unit as small as a telephone or a radio carpal joint watch. This can facilitate the troopers to simply carry this device with them where they're going.

Modules:

I. Arduino Uno: -

Arduino UNO microcontroller is employed in our project. Arduino is open supply constituent and code Company that incorporates a immense project and user community that styles and utilizes microcontroller primarily based development boards and Arduino Uno is one in all Farm Automation System with IoT Application them that is predicated on ATmega328. It's fourteen digital input/output pins wherever six of them are often used as Pulse dimension Modulation (PWM) outputs. It additionally has six analog inputs, In Circuit Serial Programming header, a sixteen MHz oscillator, USB port, an influence jack and a button. The board is often battery-powered via USB line or associate degree external power offer. The operation voltage of Arduino is from six to twenty volts. The Atmega328 has thirty two KB of memory. We have a tendency to use it to manage the glass motors, water pump, servo and sensors. This issue is chosen for low value, general ability, the expansive learning resources out there, and also the DIY community already exploitation the platform.

2. Heart Beat Sensor: -

Heart watching detector is such a sort of detector which provides AN output of heart beat once figure is placed thereon. Whereas the centre beat detector is functioning, the beat LED flashes in unison with every heartbeat. It works on the principle of sunshine modulation by blood flow through

finger at every pulse. The detector clips onto a tip or ear lobe and plugs right into Arduino with some jumper cables. It conjointly includes AN ASCII text file watching app that graphs your pulse in real time.

3. GPS: -

The GPS unit is put in in addressing system so base camp will track their movements and real time data altogether weather, in the least times kind anyplace on globe. It uses a 3rd generation POT (Patch Antenna on Top) GPS module. This POT GPS receiver providing an answer that top position and speed accuracy performances moreover as high sensitivity and following capabilities in urban conditions provides normal NMEA0183 strings in \raw" mode for any microcontroller. The module provides current time, date, latitude, line of longitude of the soldier to the microcontroller. This is often a standalone GPS Module and needs no external parts except power offer decoupling capacitors. It's engineered with internal RTC duplicate battery. It will be directly connected to Microcontroller's USART. The module has choice for connecting external active antenna if necessary. The GPS signal is applied to the antenna input of module, and a whole serial knowledge message with position, rate and time data is given at the serial interface with NMEA protocol or custom protocol.

4. Temperature Sensor (LM35):-

LM35 TEMPERATURE sensing element is employed to discover the particular temperature of the inner jacket and therefore the outward surroundings. The output voltage of this IC sensing element is linearly comparative to the Celsius temperature. The operational voltage varies of this LM35 ranges from -55 to +150 c. The temperature sensing element conjointly, measures and monitor by battery temperature. The LM35 series are exactness microcircuit temperature sensors, with Associate in nursing output voltage linearly. So the ensured accuracy (at +25c) LM35 has a bonus over linear temperature sensing element graduated in Kelvin, because it isn't needed to figure an oversized. There are totally different styles of temperature sensors which can measure temperature, like thermometer, thermistor, semiconductor temperature sensors resistance temperature detector (RTDs), and so on. Supported necessity, totally different reasonably sensing element is employed for activity temperature in many applications.

VI. SYSTEM MODEL
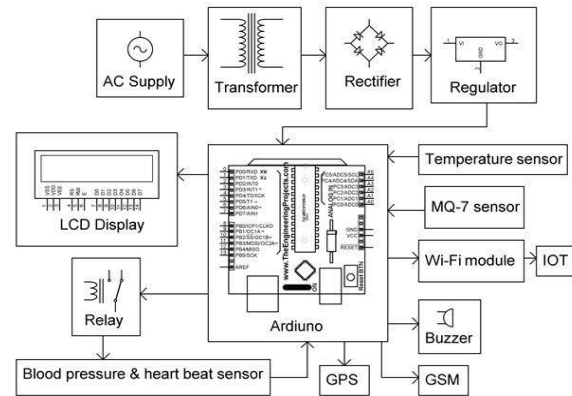
VII. FLOW CHART
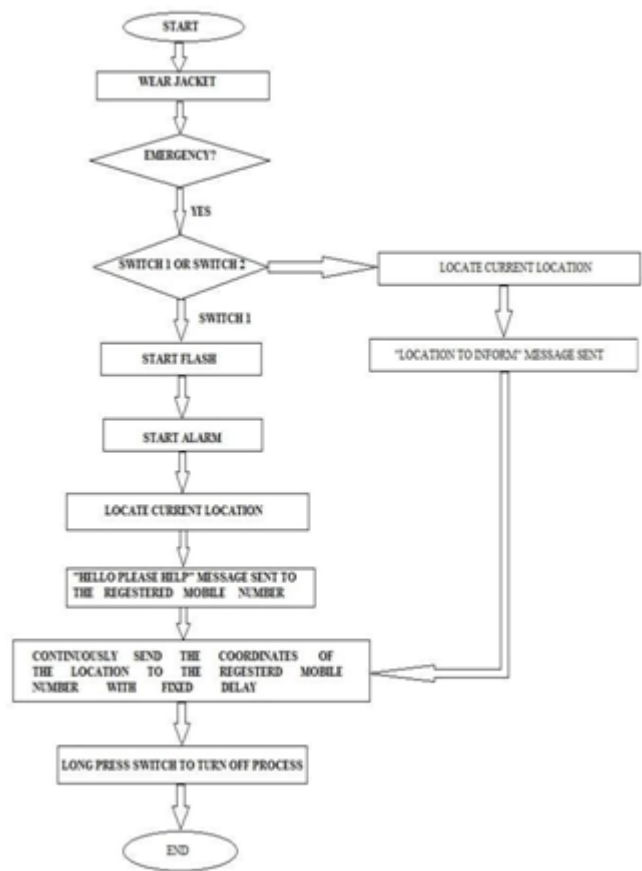
VIII. CONCLUSION

Soldiers square measure one among one amongst one in every of the imperative parts in a nation. Since they're the strength World Health Organization secure our nation day and night living behind rest and rest. AN E-Uniform provides higher insurance to warriors World Health Organization operating in compelling climate conditions. This is often worked in 2 modes summer mode and winter mode. Within

the event the climate condition is too hot then the cooling framework can worked and within the event that it's too cool then the warming framework can work.

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