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Soldier Monitoring System using GPS

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Abstract: To plan an officer global positioning framework utilizing remote framework for observing the boundaries of officer are as Body temperature & Temperature. Biomedical sensors: Here to discover the wellbeing status of officer we are utilizing a body temp sensor to quantify internal heat level as well as heartbeat rate sensor. These boundaries are then, at that point signal molded. One of the principal challenges in military tasks lays in that the Soldier not ready to impart with control room head. Likewise, every association needs to implement certain managerial and operational work when they collaborate over the organization possessed and worked by different associations. Accordingly, without cautious arranging and coordination, one troop can't speak with the soldiers or influence the correspondence foundation worked by the country troops in a similar locale. The reason of this examination was to test the segments of the Soldier Tracking and Performance Estimation System against the assertion of prerequisites as found in the Request for Proposition. Optional points of this examination included assembling information that will permit potential clients of the framework to comprehend its abilities also, limits, just as permit effective arranging of both time and assets essential to guarantee effective and useful utilization of the framework for preparing the soldier.

I. INTRODUCTION

In the present time protection administrations are developing exceptionally quick and accordingly trooper's wellbeing is very significant on the grounds that they secure our country. In this venture we have following the trooper's area and give the wellbeing report of the trooper at the field by utilizing HC-12 module. which is a long reach remote correspondence module and a few distinct sorts of electrical what's more, gadgets parts are utilized like body temperature sensor, beat rate indicator, battery, sun-based plate, and so on in the event that our officer is in any peril his current area is additionally open through Google maps. Each warrior is outfitted with radio handsets so every one of the officers can convey through and this structures the remote network organization. This will totally help the fighter to be protected consistently as the troopers play an indispensable part in our day by day lives so their insurance is likewise our obligation. This gadget officer observing framework can be applied to each officer there to be protected. As per global meeting and processing correspondence and robotization everywhere on the country web is the greatest organization. Thus, because of basic state of officer, we should attempt to consciousness of wellbeing about officer.

II. BLOCK DIAGRAM

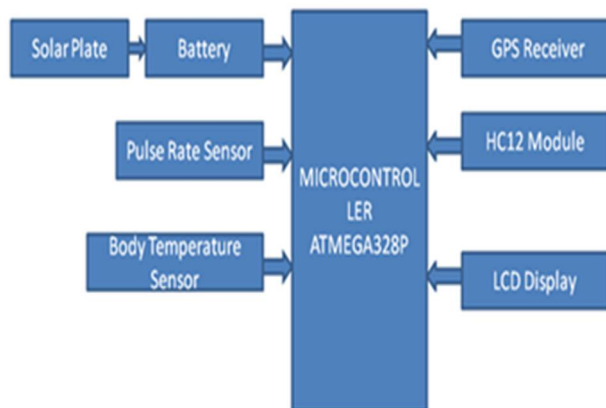


Fig. 3.1 Transmitter and Receiver Block Diagram of our Research Work.

This is the square chart comprising of fundamental square of atmega328p. It's a solitary chip of microcontroller by mega avr family. It has grant engineering 8-bit (RISC) processor center. A principle block interfacing the microcontroller internal heat level sensor, beat rate sensor, HC12 module, sunlight based plate. One is the belt joined to fighter and other is the base station. The belt joined to trooper and It comprise of internal heat level sensor, beat rate sensor. Every one of the sensors are taken care of to the microcontroller just as GPS framework additionally gives it yield to the microcontroller which use to follow the area of fighter. HC12 module is utilized to send and get information as indicated by sensors and behave like Wi-Fi. HC12 module associated in officer belt like it's anything but a cross section geography because of which significant distance issue in woodland will be killed scope of HC12 is up to 1 - 1.8 km.

III. HARDWARE MODULE

Soldier Monitoring System Using GPS has following blocks:

- 1) Embedded AT328p
- 2) Pulse Rate Sensor
- 3) Body Temp Sensor
- 4) HC12 Module
- 5) LCD
- 6) GPS

A. Embedded AT328p

It's anything but a low - power, superior CMOS 8-cycle microcomputer with 8K bytes of Flash Programmable and Erasable Read Only Memory (PEROM). The gadget is produced utilizing Atmel's high-thickness non-unpredictable memory innovation and is viable with the MCS-52™ guidance set and pin out. The on-chip Flash permits the program memory to be reinvented in-framework or by a traditional non-unpredictable memory software engineer. By consolidating a flexible 8-bit CPU with Flash on a solid chip, the Atmel miniature regulator is an incredible microcomputer, which gives a profoundly adaptable also, practical arrangement so many inserted control applications.

B. Pulse Rate Sensor

Heartbeat Sensor is an all around planned attachment and-play pulse sensor for Arduino. It tends to be utilized by understudies, craftsmen, competitors, producers, and game and portable engineers who need to without any problem consolidate live pulse information into their projects. The sensor cuts onto a fingertip or ear cartilage and plugs directly into Arduino. It moreover incorporates an open-source observing application that diagrams your heartbeat continuously. Its working voltage is 3.3V – 5V. The Pulse Sensor can be associated with Arduino, or connected to a breadboard. The front of the sensor is the pretty side with the Heart logo. This is the side that connects with the skin. On the front you see a little circular opening, which is the place where the LED radiates through from the back, and there is additionally a minimal square under the LED. The square is an encompassing light sensor, precisely like the one utilized in PDAs, tablets, and workstations, to change the screen splendor in various light conditions. The LED focuses light into the fingertip or ear cartilage, or other narrow tissue, and sensor peruses the light that skips back. The rear of the sensor is the place where the remainder of the parts are mounted.

C. Body Temp Sensor

DS18B20 Compatible Digital temperature sensor. This is a pre-wired and waterproofed (with heat shrink) version of a 1 Wire DS18B20-compatible sensor. Handy for when you need to measure something far away, or in wet conditions. While the sensor is good up to 125°C the cable is jacketed in PVC so we suggest keeping it under 100°C. Because they are digital, you don't get any signal degradation even over long distances! These 1-wire digital temperature sensors are fairly precise ($\pm 0.5^\circ\text{C}$ over much of the range) and can give up to 12 bits of precision from the onboard digital-to-analog converter. They work great with any microcontroller using a single digital pin, and you can even connect multiple ones to the same pin, each one has a unique 64-bit ID burned in at the factory to differentiate them. Usable with 3.0-5.0V systems.

D. HC-12 Module

HC-12 wireless serial port communication module is a new-generation multichannel embedded wireless data transmission module. The HC-12 is a half-duplex 20 dBm (100 mW) transmitter paired with a receiver that has -117 dBm (2×10^{-15} W) sensitivity at 5000

bps. Paired with an external antenna, these transceivers are capable of communicating up to and possibly slightly beyond 1 km in the open and are more than adequate for providing coverage throughout a typical house. Its wireless working frequency band is 433.4-473.0MHz, multiple channels can be set, with the stepping of 400 KHz, and there are totally 100 channels.

E. LCD

A fluid precious stone presentation (LCD): A fluid gem show (LCD) is a level board show or other electronically adjusted optical gadget that employments the light-adjusting properties of fluid gems. Fluid precious stones don't discharge light straightforwardly, all things being equal utilizing a backdrop illumination or reflector to deliver pictures in shading or monochrome. LCDs are accessible to show self-assertive pictures (as in a general-purpose PC show) or fixed pictures with uninformed substance, which can be shown or on the other hand covered up, like present words, digits, and seven-section shows, as in a computerized clock. They will utilize a similar essential innovation, then again, its an actually subjective pictures are comprise of an enormous number of little pixels, while different showcases have larger components. LCDs can either be ordinarily on(positive) or off (negative), contingent upon the polarizer plan. For instance, a positive character LCD with a backdrop illumination will have the dark lettering on the foundation that is a shade of the backdrop illumination, & a negative character LCD will have the dark foundation with a letters being of a similar shading as the backdrop illumination.

F. GPS Module

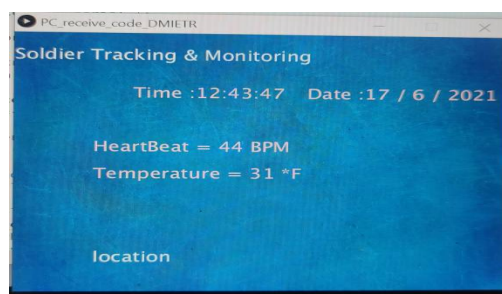
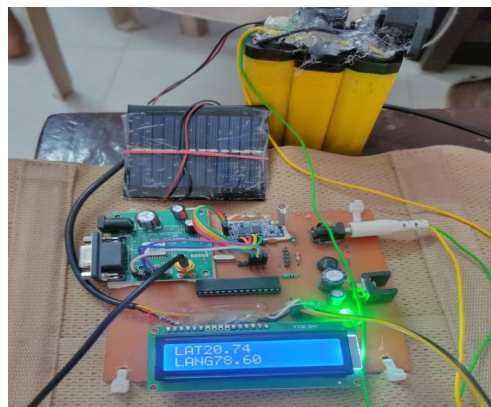
Python we are utilizing for creating GUI application on PC for association with underwriter organization. Python offers mu little choices for creating GUI. Out of all the GUI strategies, tkinter is the most ordinarily utilized technique. It's anything but a standard Python interface to the Tk GUI toolbox delivered with Python. Python with tkinter yields the quickest and most straightforward approach to make the GUI.

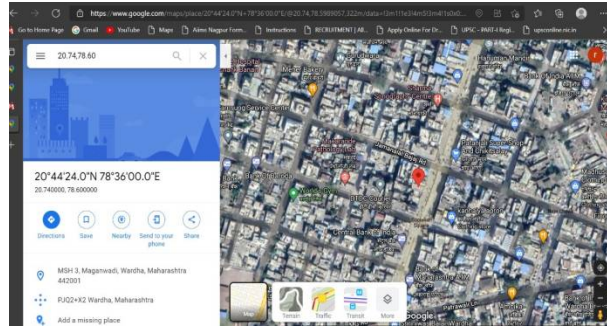
IV. SOFTWARE MODULE

A. Python

Python we are utilizing for creating GUI application on PC for association with underwriter organization. Python offers mu little choices for creating GUI. Out of all the GUI strategies, tkinter is the most ordinarily utilized technique. It's anything but a standard Python interface to the Tk GUI toolbox delivered with Python. Python with tkinter yields the quickest and most straightforward approach to make the GUI.

V. PROJECT MODEL AND OUTPUT





VI. CONCLUSION

We presume that, This framework assists with checking wellbeing boundaries of trooper utilizing heart beat sensor to gauge heart beats and temperature sensor to quantify internal heat level of officer. This framework assists the officer with finding support from armed force base station in alarm circumstance. Likewise this framework gives the area data and wellbeing boundaries of officer to the military control room. Along these lines, this framework gives security and wellbeing to our fighters.

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