

Soldiers Tracking and Health Indicating System

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Abstract: Peace inside a country is also depends on the soldier who is standing on the border. Soldiers are the back bone of the defense of the country. Soldiers are posted on far long distance and hence many of them lose their lives due to lack of medical help in emergency. Hence safety of a soldier directly affects to the safety of the nation. To assure the safety of soldiers a system is required which will monitor as well as update the health condition of the soldier to the base station. So that at the time of emergency the base or control room knows the exact location and the help needed to the soldiers. Soldier tracking and health indicating system is such a system which tracks the GPS location of soldier and also monitors the health condition like heart rate temperature etc.

IndexTerms - GPS, GSM, Bio-Sensors, Heart rate, Body temperature.

I. INTRODUCTION

Nation's security is one of the very important factors in today's world and it has been always. As the technology is growing faster for the betterment of human being it should also be helpful to the every factor of society. Now a day's information is everything. If by any means we can collect the information about our soldiers who are working on the fields we can achieve a collective goal of security of nation.

Soldiers are the back bone of any country's security. And hence providing aid to them is very important. With the advancement in technology it is a must requirement that soldiers are also equipped with a technology or system which will help them and also provides help when they need it. Wearable technology is such electronic system which will help in achieving such goals. Wearable technology is small electronic devices which can be wear with the clothing or with accessory or can be implanted within the body. Common use of the wearable technology is like smart watches, GPS tags and smart glasses like Google lances etc.

The required system must be less power consuming, not bulky and also provided with the real time data transmission. Using the soldier tracking and health indicating system it can be possible to track the soldier's location and the health conditions of the soldiers and then pass it on to the control room. The system is divided in to the parts first is the soldier unit and second is the base unit. Soldier unit consist of the sensors like temperature sensor for sensing the body temperature of the soldiers, the pulse rate sensor to sense the heart rate of the soldiers body, accelerometer. Soldier unit also has the GPS for tracking the location and GSM to receive and send the data to the base station.

II. PROPOSED SYSTEM

Soldier tracking and health indicating system divides in to two parts they are as follows:

1. Soldier Unit
2. Base Unit

Soldier unit:

It is the unit which is placed on soldier's body having three parts. a) Biomedical sensor, b) Key Pad, c) GPS + GSM UNIT.

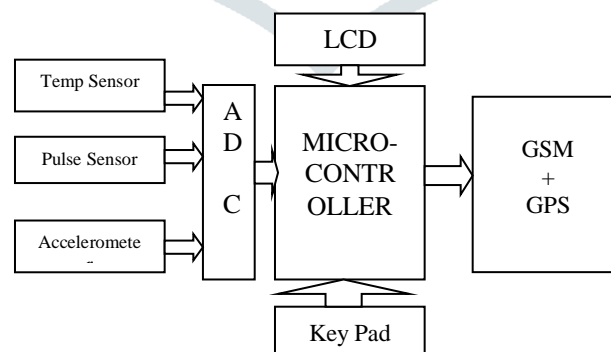


Fig. 1 Block Diagram of Soldier Unit

Biomedical sensor: Bio sensors are been used in the proposed system to get the medical data of the user. It provides the data like heart rate body temperature of the soldier. Which can be further transmitted to the control room or base station for the analysis. The data is also stored the microcontrollers memory.

Key Pad: It is assured that the system is a two way communication so that if the soldier has to ask any questions to base the key pad is provided.

GPS + GSM UNIT : The GPS is used to log the longitude and the latitude of soldier which is stored in the μ c memory. The GSM unit sends an SMS to the Army base camp, containing the health parameters and the location of soldier.

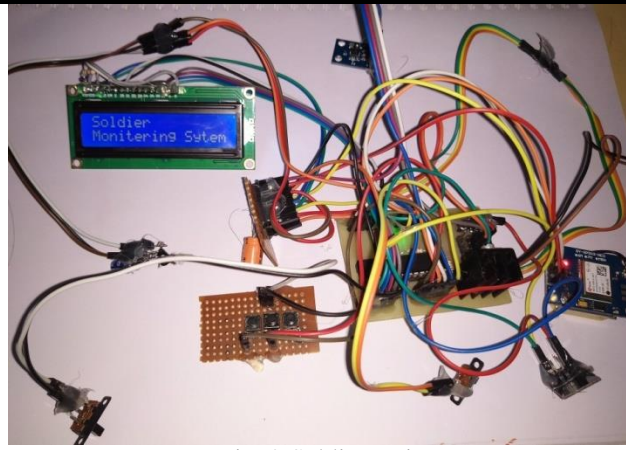


Fig. 2 Soldier Unit

BASE UNIT:

Base unit has two ways to receive the data from the Soldier Unit first is using the GSM and second is using the WIFI ESP module which is attached in the Soldier Unit. In this way army officials can track the Soldier and also can monitor his/her health conditions. Base unit consist of computer to receive and process the data send by the soldier unit.

(Fig showing below is a example for the system it is not the control room for the device proposed in the paper.)



Fig. 3 Base unit or control room

III. DESGIN FLOW

As stated earlier the system consist of two main components one is soldier unit and other is base unit whole function is performed by the base unit it senses the signals, transmit and receives the signals as well. It is the main hardware part of the system.

The sensors used in the system are:

1) LM35DZ Temperature sensor:

It is a Texas Instrument's temperature sensor which provide temperature rated for -55°C to 150°C range. It is suitable for remote application. It required very less power, operates from 4V to 30V. It is also a low cost sensor due to wafer level trimming. It calibrate directly into Celsius.

2) GY- 61 DXL335 Accelerometer:

It is a accelerometer which is placed on the soldier unit kit to find out if he/she is standing or running or walking. It has another purpose to get the exact location estimating the arrival and departure duration can be calculated.

3) Heart rate sensor:

Heart rate sensor is used in the system to tab on the soldiers heart rate. When human body exercises something it changes the heart rate. Hence using the heart rate sensor it is easy to monitor the medical conditions of the soldiers.

IV. RESULT

The system is initialize first image given below is the setup of the soldier unit. It is showing the start up window of the soldier unit. The unit is not connected to any actual body.

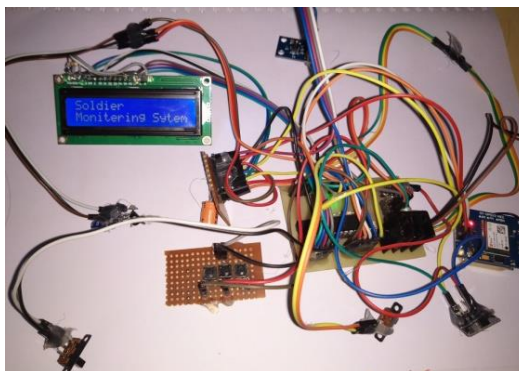


Fig. 4 Initalise of system

As the system starts it send the data to base unit over the gsm or with the help of esp module. The system gets the data like temperature location and acceleration first. It save the data in the microcontroller memory and also transmit it to the base unit.

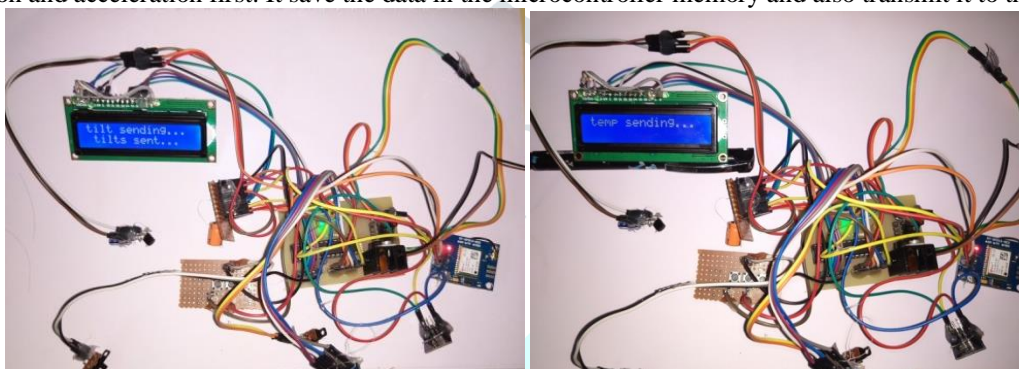


Fig. 5 Temprature and till sending to Base station

Base station also receives the data shows it on the web page it can show the temperature raising graph. The GPS location of the soldiers and heart is also shown on it.

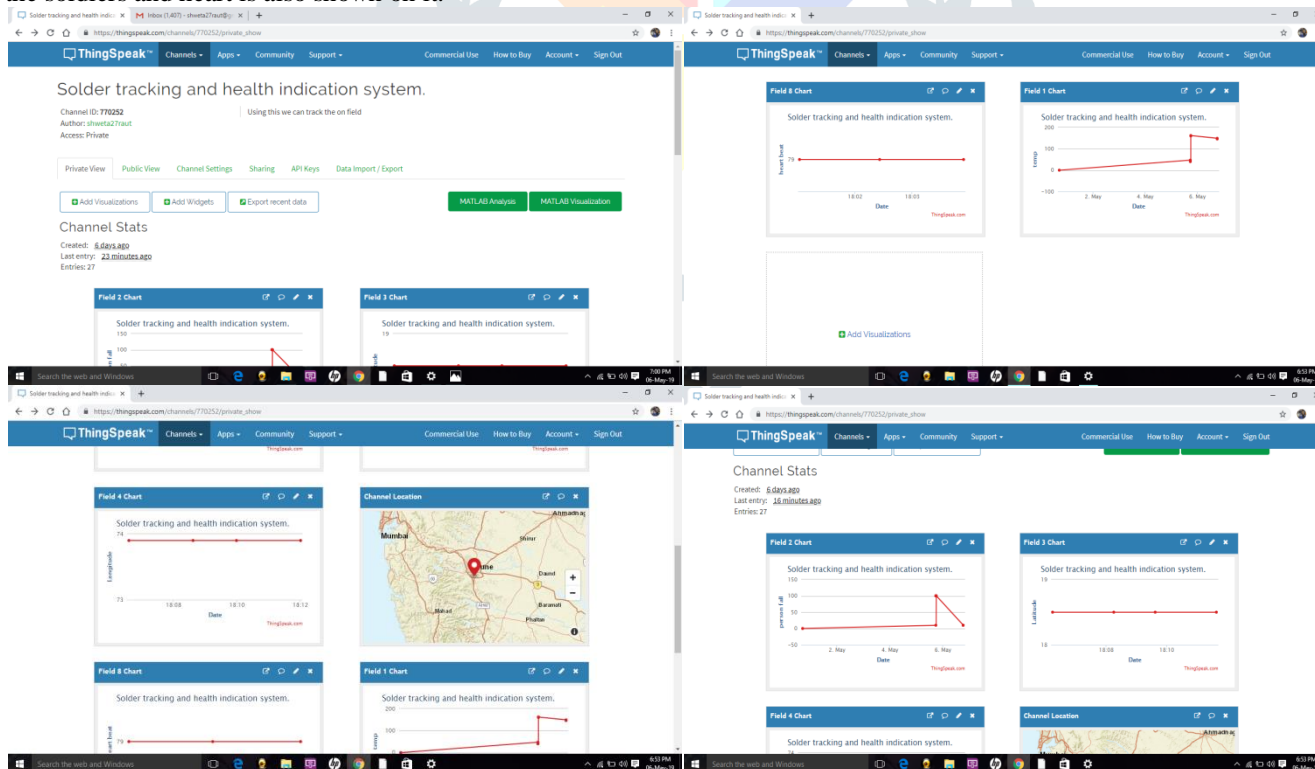


Fig. Base station Reciving Screen

V. CONCLUSION

The system provides the solution on tracking the position and health of the soldier. Proposed system uses the sensor and microcontroller which uses very less power and hence the power consumption of the system is very less. Using such wearable technology we can save the life of many soldiers.

VI. ACKNOWLEDGMENT

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