Abstract—Nowadays the security system of the nation depending upon the enemy’s war and so the security of the soldiers is considered as an important role in it. Every soldier should have this device which tracks the location of the soldier as well it monitors the health condition of a soldier. This device includes GPS module(sim28ML), GSM module(sim900A), Heartbeat sensor, Temperature sensor and a processor (Arduino Uno) and the keypad. The heart beat sensor monitors the heart beat rate of the soldier and the temperature sensor senses the body heat these two parameters comes under the health monitoring system. GSM module and GPS module comes under tracking system of this project. GPS tracks the longitude and latitude with link pattern so that the location of the soldier can be easily tracked and the GSM module sends the message of these three reports periodically to the control room administration. The keypad also fitted with this device which includes additional messages which consists of certain pushbuttons that has a secret code. When the soldier pushes it will send the secret codes to the control room administration.

Keywords— longitude, latitude, Arduino Uno, GSM module, GPS module.

I. INTRODUCTION

One of the most important tasks in military processes, in that the soldier are not able to interconnect with the control room administration. In addition, every organization wants to apply for certain work when they communicate over the network owned and worked with other organizations therefore, without cautions planning and coordination, one group cannot interconnect with the other groups. Present a problem faced by the soldiers are; soldier wants to identify the location. They will not able to get assistance during the terror situation. This device has capability to improve wakefulness according to situation not just for the soldier in battle field, however additionally for all the military personal at base station and they can interchange data namely wireless communication. And also, the soldier’s health of the soldier also cannot be monitored periodically these are the difficulties faced by the soldier. So, this system enables tracking and teledicine. It is possible by M-Health. The M-Health can be defined as medical sensors and communicate technologies for health care. The main concern was to create a light weighted system, which can get desired result.

The main design of this project is divided into two sections namely,

1. soldier section
2. control unit section

Soldier section contains processor (Arduino Uno), heart beat sensor to calculate the pulse rate of soldier and the temperature sensor is used to sense the body heat of the soldiers. GPS is for tracking purpose, keypad is for secret code input, GSM is used to send the input data to control unit
administration. LCD is also fitted to display the data. A power bank is to power the circuit. Control unit section includes the monitor which receive these data periodically.

II. ARCHITECTURE.

III. OVERVIEW OF THE ARCHITECTURE

PROCESSOR (ARDUINO UNO):

Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input (or) output pins of which 6 can be used as a PWM outputs, 6 analog inputs, 16 MHz ceramic resonators, USB connections, a power jack, an ICSP header and a RESET button. It is an open source electronics platform based on easy to use hardware and software. It is able to read the inputs and turn it into an output.

GPS MODULE(SIM28ML):

GPS stands for Global Positioning System is a “constellation” of approximately 30 well spaced satellites that the orbit of the Earth and make it possible for people with ground receivers to pinpoint their geographic location. The location accuracy is anywhere from 100 to 10 meters for most equipment. Accuracy can be pinpointed to within one (1) meter with special military – approved equipment. GPS equipment is widely used in science and has now become sufficiently low cost. It receives the co-ordinates from the satellite for each and every second.

GSM MODULE(SIM900A):

GSM stands for Global System for Mobile Communication (or) GPRS module stands for Global Pocket Radio Service which enables higher data transmission rate. It is a second-generation mobile phone system. It operates in very different carrier frequency band. It mostly operates in 900MHz to 1800 MHz’s. One of the main features of the GSM is the subscriber Identity module.
TEMPERATURE SENSOR (LM35):

LM35 series are actually combined circuit that works as a temperature sensor which has an output voltage directly proportional to degree Celsius (centigrade temperature). It has low output impedance, linearly generated output and accurate essential standardization that makes possible for interfacing to information and control circuitry particularly very easily. It operates easily on single supplies of power and some time may require any plus minus supplies.

HEARTBEAT SENSOR:

Heartbeat sensor is designed to give digital output of heart beat. When a finger is placed on it. When the heart beat detector is working, the beat LED flashes in unison with each heartbeat. The digital output pin can be connected to microcontroller directly to measure the beat per minute (BPM) rate. It works on the principle of light modulation by blood flow through finger at each pulse.

LCD:

LCD stands for Liquid Crystal Display. It is widely used in wide range of application which includes laptop etc. It is available as optional extra is the serial LCD firmware, which allow serial control of the display. This option provides much easier connection and used of LCD module. The firmware enable processor to visually output user instruction or reading onto an LCD module.

IV. RESULT

The final results of this project are described here

COMPLETE PROJECT HARDWARE OF THIS PROJECT:
MESSAGE OF THE LATTITUDE AND LONGITUDE FROM GPS:

<table>
<thead>
<tr>
<th>Longitude</th>
<th>Latitude</th>
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<tbody>
<tr>
<td>77.506446</td>
<td>10.029727</td>
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<td>77.506446</td>
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</table>
TEMPERATURE OF THE SOLDIER IN MESSAGE FORMAT:

MESSAGE FROM GSM MODULE:
SECRET CODE MESSAGE:
V. CONCLUSION
Our project is for a one soldier. The communication between soldier to soldier can be established. This system gives strength to the defense system of our country. This system is accurate, compact, usability and system are very safety to use. All information is sent to the commander so that the commander can take any necessary actions. In future in this project lot of possibilities can be made.

VI. REFERENCES