

# Soldier Tracking And Information Gathering System Using Gps ,Gsm and Smart Phone

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## ABSTRACT

One of the important and vital role is played by army soldiers for the security purpose of our country, many instruments are mounted on them to view their health status by using bio-sensor systems comprising various types of small physiological sensors, transmission modules .GPS used to log the longitude and latitude of soldier and GSM module can be used for wireless communications that will be required to relay information on situational awareness .So by using these equipment's we are trying to implement the life- guarding system for soldier in low cost and higher reliability, if soldier is in unconscious state the visual alerts are generated in the soldiers wearable materials.

**Keywords** . Renasis RL78 Microcontroller, biomedical sensor, GPS and GSM

## I. INTRODUCTION

There are many concern regarding the safety of the soldiers .As soon as any soldier enter the enemy line it is very vital for the army base station to know the location as well as health status of soldiers. This system is mainly designed for soldier tracking by GPS along with finding the health status by using biomedical sensors and this information is send through sms to the base station by GSM .Both GPS and GSM is to provide the wireless communication and biomedical sensor measuring body temperature, pulse rate. We are using LM35 temperature sensor and it does not require any signal conditioning.If heart beat goes low send the sms to the base station. SIM300 is a Tri-band GSM/GPRS engine that works on frequencies is used in this project.

## II. LITERATURE SURVEY

This paper has an idea of tracking the soldier and navigation between soldier to soldier such as

knowing their speed, distance, height as well as health status to Base station, gets location of soldier from GPS. The base station can access the current status of the soldier which is displayed on the PC[1].

The system work on two way communication. Firstly there can be query from the receiver side to know the status of the soldier. Secondly there can be the automatic response from the system side to know when the heartbeat of the soldier stops that is when the soldier is dead[2]

The purpose of the project is to measure the temperature, heart beat rate and updating this information in PC via ZigBee. The existing system is based on Bluetooth communication which is also reliable but the range of communication is very low of about 10 meter[3].

In this (WBANS) monitor the health status of the soldier. Using oxygen level sensor environmental

conditions are monitored. Any abnormalities in the reading of wireless body area sensor network WBANS is considered as a trigger for GSM to establish the connection between the soldier and base unit[4].

In this project we have come up with an idea of tracking the soldier as well as to give the health status of the soldier during the war, which enables the army personnel to plan the war strategies. Also the soldier can ask for directions to the army base unit in case he feels that he is lost. By using the location sent by the GPS, the base station can guide the soldier to safearea[5].

GPS and a GSM, temperature sensor and heart beat sensor. To design a soldier tracking system using GSM and GPS to provide wireless system for monitoring the parameters of soldier are as – Body temperature & Blood pressure. To find the health status of soldier biomedical sensors are used, a body temp sensor to measure body temperature as well as pulse rate sensor to measure the blood pressure. These parameters are then signal conditioned and will be stored in the memory[6].

One of the fundamental challenges in military operations lays in that the Soldier not able to communicate with control room administrator. In addition, each organization needs to enforce certain administrative and operational work when they interact over the network owned and operated by other organizations. Thus, without careful planning and coordination, one troop cannot communicate with the troops or leverage the communication infrastructure operated by the country troops in the same region[7].

In this project idea of tracking the soldier as well as to give the health status of the soldier during the war, which enables the army personnel to plan the war strategies. Also the soldier can ask for directions to the army base unit in case he feels that he is lost. By using the location sent by the GPS, the base station

can guide the soldier to safe area. The system is composed of two parts, which are portable remote soldier unit and the monitoring centre. The portable remote soldier unit consists of Advanced RISC Machines (ARM) with the embedded operating system, GPS and a GSM, temperature sensor and heart beat sensor[8].

### III. METHODOLOGY

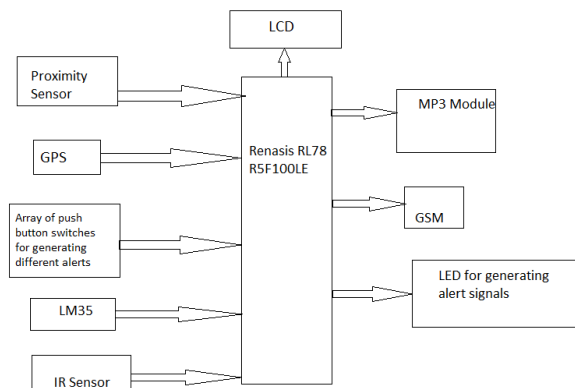


Figure 1. Block diagram of soldier and base unit

This system consists of Biomedical sensors. Here to find the health status of soldier we are using LM35 temp sensor as well as pulse rate sensor. These sensors will measure the body temperature and the pulse rate of soldier is measured using IR sensor and will be stored in microcontroller memory. proximity sensor. Here the soldier is Equipped with the Explosive detection Sensor which may helpful for soldier in suspicious places.

4 x1 Keypad. Here we are giving 4 keys as a facility to the soldier where he can send 4 pre-determined values to the base camp, 4 keys are pressed when there is danger, explosive detected or when weapons are required.

RL-78[R5F100LE] Microcontroller. 16bit, 64pin microcontroller the heart of the proposed system which will coordinate all the control actions. Also provides necessary in the necessary formats. It receives informations from the sensors and GPS ,controller store that in the memory and decodes it and send in the required form to the base station.

## V. CONCLUSION

GPS Receiver. The GPS is used to log the longitude and the latitude of soldier, which is stored in the microcontroller memory. GPS-634R” is a highly integrated smart GPS module with a ceramic GPS patch antenna which we are using in our project.

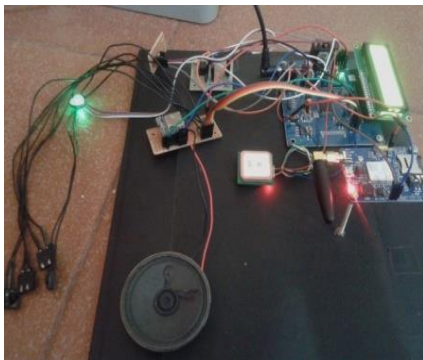
GSM Modem. The GSM unit sends the SMS to the army base camp containing the health parameters and the location of soldier.

Mp3 Module. the Mp3 module is used to generate the Audio signals to play the required Audio Templates LED Indicators. Here we are using the High Brightness LED Array which will get triggered whenever the soldier is under the danger situation.

Android Smart Phone. here the android application installed in the phone will automatically get triggered when the alert trigger SMS is received from the Soldier. The android application can be configure for N Number of soldiers based on the soldiers Identity.

## IV. RESULTS

In our project we have acquired signals using various physiological sensors ,soldier body temperature is measured with the help of LM35 and heart rate is acquired with the help of IR sensor .Various switches which is present in soldier system is used by soldier to give alerts to base station when they are in danger, require weapons and when explosive is detected. The location is fetched using GPS and send via GSM in the form of messages and display on LCD.MP3 module is to generate alert signal.



**Figure 2.** soldier tracking and information gathering system

The main aim is to help the military soldiers in critical time and soldier security purpose. By using GPS,GSM and sensors to measure the heart rate, temperature and pulse rate in real time. Very compact device which can be fit easily on soldier is designed.

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