Automatic Soldier Tracking and Health Monitoring System

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To Cite this Article

Article Info

ABSTRACT

Now a day, battle ground is a main part in any country's safety. One of the main parts is played by the army soldiers. Several steps taken in concerning the protection of soldiers. So for their safety intend, many instruments are on horseback them to observe their medical condition. Bio probes system contains different types of biosensors, transmission system and processing capabilities, and can thus ease low-cost wearable not obtrusive solutions for health monitoring. GPS is to find the longitude and latitude so that direction of soldier can be known easily. These devices are being added to weapons and clothes, and some militaries such as the Israeli Army which are exploring the option of embedding GPS devices into soldiers vests and uniforms, therefore that base station can monitor their soldier's in real time.

INTRODUCTION

This work deals with the keep track of the soldier parameters such as temperature, breathing and heart rate. Arduino Uno can be explained as the system used for monitoring physiological information that includes the parameters like heart beat, body temperature, gases related parameters, etc. based prototype Model where we are monitoring the heart beat rate and temperature of body parameters through the Arduino Uno. The perfect direction and the medical related information of the soldier can be sent to the base station in real time, so that desired steps can be taken by base station. Internet Of Things (IOT) with Global Positioning System (GPS) is used for tracking the location of the soldier and monitoring of the health parameters like heartbeat, gas sensor and body temperature.

LITERATURE SURVEY

[1] Jasvinder Singh, Akshay Chahajed, Samle Pandit, Suchith Weigh "Global Positioning System (GPS) and Internet of Things (IOT) based soldier positioning and health signal system" vol:04 Issue:06 | June-2017: In this paper the security of the nation is depends up on the enemies' warfare and so the safety of the soldiers is considered as vital role in it. Concerning the soldiers safety there are many instruments to view their health status as well as ammunitions on the soldiers. In soldiers security, bio-sensors systems gives different types of small physiological sensors, Biomedical sensor, transmission modules and processing capabilities, and can thus facilitate low-cost wearable unobtrusive solutions for health monitoring. GPS used to log the longitude and latitude so that direction can be known

easily. These devices are being added to weapons and firearms, and some militaries such as the Israeli Army which are exploring the possibility of embedding GPS devices into soldiers vests and uniforms so that field commanders can track their soldier's movements in real time. GSM module can be used for effective range of high-speed transmission, short-range and soldier-to-soldier wireless communications that will be required to relay information on situational awareness, tactical instructions, and covert surveillance related data during special operations reconnaissance and other missions .So by using these equipment's we are trying to implement the basic life guarding system for soldier in low cost and high reliability.

[2] Brijesh Iyer, Niket Patil "IoT Enabled Tracking and Monitoring Sensor for Military Applications", Vol.9(6), Pages 1294-1301, December 2018: The paper reports an internet of things enabled monitoring and tracking sensor for military applications. The proposed sensor is specially designed to cater the safety requirements of soldiers on the battlefield. It employs an Aurdino board for its operation along with various sensors to gauge the remote human vital sign. With the help of global positioning system based location tracking, the sensor provided the accurate location of the human subject in terms of longitude and latitude of place. Further, the designed sensor accurately provided the body temperature of the subject under test. This sensor is a low cost, portable and reliable solution for the military applications.

[3] Shweta Shelur, Nikhil Patil, Manish Jain, Sayali Chaudhari, Smitha Hande, "Soldier Tracking and Health Monitoring System" Volume-3, Issue-1, May-2015; This paper Proposes the national security mainly depends on army (ground), navy (sea), air-force (air). The important and vital role is played by the soldiers. There are many concerns regarding the safety of these soldiers. The defense department of country must be effective for the security of that country. This system will be useful for soldiers, who involve in missions or in special operations. This system enables GPS (Global Positioning Systems) tracking of these soldiers. It is possible by M-Health. The M-health can be defined as mobile computing, medical sensors and communication technologies for health care. In this system, smart sensors are attached to the body of soldiers. This is implemented with a personal server for complete mobility. This personal server will

provide the connectivity to the server at the base station using a wireless connection. Each soldier also has a GSM (Global system for Mobile communication) module which enables the communication with the base station in case of injuries. As soon as any other soldier enters the enemy lines it is very difficult for the army base station to know about the location as well as the health status of all soldiers. In our project we have come up with an idea of tracking soldier as well as to give status of the soldier during the war.

[4] Shruthi Nikam, Supriya Patil, Prajkta Powar and V S Bendre, "GPS Based Soldier Tracking and Health Indication",
International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, vol.288, pp.161-191, 2017: This Paper Proposes the enemy warfare is an important factor in any nation's security. One of the important and vital roles is played by the army soldiers. There are many concerns regarding the safety of soldiers. So for their
security purpose, many instruments are mounted on them to view their health status as well as ammunitions present with them. Bio-sensor systems comprise various types of small physiological sensors, transmission modules and processing capabilities,and can thus facilitate low-cost wearable unobtrusive solutions for health monitoring. GPS used to log the longitude and latitude so that direction can be known easily. These devices are being added to weapons and firearms, and some militaries such as the Israeli Army which are exploring the possibility of embedding GPS devices into soldiers vests and uniforms so that field commanders can track their soldier's movements in real time. RF module can be used for High-speed, short-range, soldier-to-soldier wireless communications that will be required to relay information on situational awareness, tactical instructions, and covert surveillance related data during special operations reconnaissance and other missions .So by using these equipments we are trying to implement the basic life- guarding system for soldier in low cost and high reliability

[5] V Armarkar, Deepika J Punekar, Mrunali V Kapse, Swetha Kumari, Jayashree A Shelke, "Soldier Health and Position Tracking System", International Journal of Engineering Science and Computing, vol.3, no.23, pp.1314-1743,2017: This Paper Proposes To overcome this concerns we had build this project which, using wireless

body area sensor network (WBANS) such as temperature sensor, heartbeat sensor etc. will monitor the health status of the soldier whenever required. Also using GPS we can track the soldier's exact location whenever required. Using oxygen level sensor we can also monitor the environmental condition, so authorities can provide essential aids. The communication is established between the soldiers and authorities via GSM. Any abnormalities in the readings of wireless body area sensor network (WBASNs) is considered as a trigger for GSM to establish the connection between the soldier and base unit and send current location and health status to the receiver. By using all this equipments we had tried to implement the basic guarding system for the soldier in low cost, light weighted, portable and precise device.
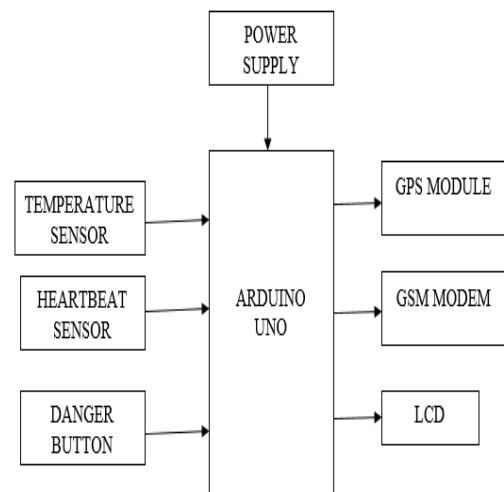
EXISTING SYSTEM

An idea for the safety of soldiers using sensors to monitor the health status of soldiers as well as ammunitions on them. GPS module has been used for location tracking and RF module has been used for high speed, short-range data transmission,for wireless communications between soldier-to soldier that will help to provide soldiers health status and location data to control unit.

PROPOSAL METHOD

In this system we are implementing Arduino based tracking and health monitoring system. Here we are using heartbeat sensor, temperature sensor, GPS module, GSM module and a danger switch. All sensor value are set to some threshold values if any of the value increases then the buzzer will make sound and an SMS will be sent to the control room about health status of soldier. GPS module is used to track the exact location of the soldier and location will be shared via SMS.A danger button is placed if soldier is in any danger condition he will press that button and an SMS will be sent to the control room.

Figure.1 BLOCK DIAGRAM

OUTPUTS
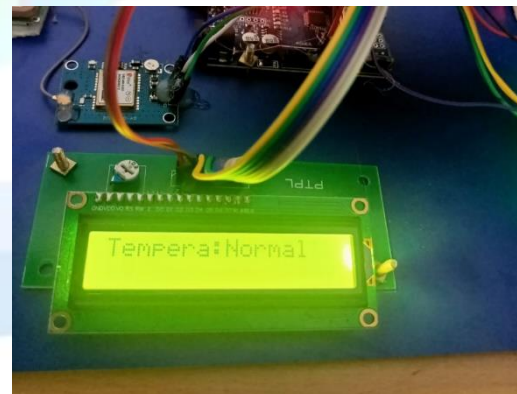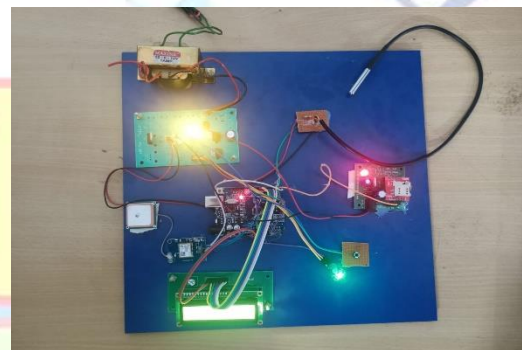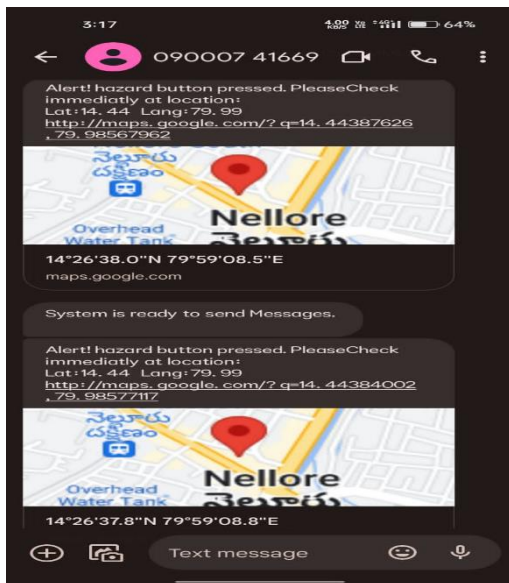
CONCLUSION

The subjective of this paper is to present the information about the Soldier Monitoring system is successfully implemented and executed which can be capable of collect and process the physiological parameters from the human body. In future we can include the solar harvesting system to recharge the DC power source automatically when user is exposed to sun and we can also interface the camera which will helpful to the doctors/concerned persons to view the soldier activities remotely. In the future, we can include the Solar harvesting system to recharge the DC power source automatically when the user is exposed to the sun and we can also interface the camera which will help the doctors/concerned persons to view the patient activities remotely.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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