LOCATION TRACING AND HEALTH MONITORING SYSTEM FOR SOLDIER'S USING INTERNET OF THINGS (IOT)

S.Sathishkumar[1], J.Dhivagar[2], V.Prem[3], B.Saikrishna[4]

[1]*Assistant Professor, Department of Information Technology, A.C.E, Hosur*
[2]*Student, Department of Information Technology, A.C.E, Hosur*
[3]*Student, Department of Information Technology, A.C.E, Hosur*
[4]*Student, Department of Information Technology, A.C.E, Hosur*

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ABSTACRT: *Nowadays, the nation's defense system is based on the enemy's battle, and the soldiers' safety is regarded as critical. When it comes to the soldiers' protection, there are a range of resources available to monitor their health. The proposed device employs GPS to map the soldier's location as per their direction. So the direction will be identified easily. The proposed GPS device, which will be used for tracking the soldier's welfare and their current location. Also, it can be placed in soldier's waist. Information will be sent to the command center via IOT. The proposed system is made up of small physiological devices, sensors, and transmitting modules that can be worn on the body. As a consequence, using the proposed equipment, it is a moderate method to preserve precious person's life on the frontline can be introduced. The use of GPS and GSM in the design of this device results in a wireless system for tracking the soldier's position as well as monitoring his heart rate and body temperature.*

Keywords: Soldier health, GPS, Node MCU, AES, IoT, etc

1. INTRODUTION

The army, navy, and air force all keep an eye on the country's stability. Soldiers who risk their lives for their country play a significant and crucial role. There are several questions about the soldier's wellbeing. Since soldiers entering enemy lines often die leading to a shortage of communication, this is important for the military access point to be aware of the position and medical outcomes of all soldier's. As there was no adequate medical assistance or contact among soldiers on the frontline and military access point officials, India has already lost a large number of soldiers in battle. A military conflict between India and Pakistan began on September 29, 2016, when Indian soldiers carried out a surgical strike across the border area in Pakistani-controlled Azad Kashmir, causing "major casualties." Indian soldiers are known for their bravery, and despite insufficient ammunition and safety measures, they have a long list of victories to their credit. This project that will effectively monitor the soldier's health status and precise location in order to provide him with appropriate medical attention as soon as possible. GPS is used to monitor soldiers, and Global System for Mobile Communications allows us to

access the communication in wireless way. This is critical for the army access point to assess exact location and soldier's welfare. This technology aids the army rescue control unit in reducing rescue, time, and search effort. The most significant part of this project is the wearable technology.

Objective

Bio-sensor devices, which are made up of a variety of small physiological sensors, can be used to create a low-cost wearable health monitoring solution. The soldier's longitude and latitude can be monitored using GPS. This system can be inserted in the vestsor uniforms of soldiers, allowing commanding officers to monitor their actions in real time. To be able to have warmth or cold depending on the ambiance as the temperature rises or falls.

In today's world, a nation's security is the most important factor, and a nation's security is dependent on its army power. It would be virtually impossible to defend a country without the soldier. The army access point will instruct the soldier to reach the exact location using this soldier navigation device. As a result, the emphasis of this paper is on monitoring a soldier's position using GPS, which is also useful in quick communication among soldiers that is used to transmit situational awareness information such as biomedical sensors, wireless touch, and GPS navigation.

A thermostat sensor and a cardiogram sensor make up biosensor. IOT is the major key feature. Interconnected systems (physical or electronic), electronic systems, humans, and various materials with distinct functions make up these structures. Their data can be moved from one location to another over the network using the IoT without the need for system to system or person to system contact. Remaining part will be carried out as follows. The history and related works are presented in Section II. In Section III, we present a rationale for our framework methodology as well as an overview of our proposed block diagram. The conclusion is summed up.

2. LITERATURE SERVEY

1.Soldier Health and Position Tracking System, Akshita V. Armarkar , Deepika J. Punekar , Mrunali V. Kapse, Sweta Kumari, Jayshree A. Shelk, International Journal of Engineering Science and Computing, March 2017.

GPS used to monitor soldiers, and Global System for Mobile Communications allows us to access the communication in wireless way. We use biomedical sensors such thermostat sensor and a cardiogram sensor to track soldier's health parameters. Soldiers can be better equipped in the event of climatic changes by using a respiratory rate sensor to measure ambient blood pressure.

2.IoT Based Soldier Navigation and Health Monitoring System, Krutika Patil, Omkar Kumbhar, Sakshi Basangar, PriyankaBagul, International Journal of Electrical, Electronics and Computer Systems (IJEECS) ISSN (Online): 2347- 2820, Volume -5, Issue-1, These device records everymetrics in daily basis and sends them to the army access point. The humidity sensor, temperature sensor, and pulse sensor are among the various types of sensors used in this device, all of which aid in measuring the soldier's welfare that specific army official.

3. GPS Based Soldier Tracking And Health Indication System, Shruti Nikam, Supriya Patil, Prajkta Powar, V.S.Bendre, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering Vol. 2, Issue 3, March 2013 In this paper, we concentrate on monitoring a soldier's position using GPS, which helps command centre to aware about the soldiers real time location and direct them consequently.

4. HEALTH MONITORING AND TRACKING SYSTEM FOR SOLDIERS USING INTERNET OF THINGS (IOT), NIKETPATII; BRIJESHIYER, 2017 INTERNATIONAL CONFERENCE ON COMPUTING, COMMUNICATION AND AUTOMATION (ICCCA), IEEE. The proposed device, which uses GPS to track the soldier's welfare/desired location, same will be placed on waist of the soldier. These data will be sent to the control room via the Internet of Things. The proposed system is made up of small physiological devices,sensors, and transmitting modules that can be worn on the body.

5. GPS And IoT Based Soldier Tracking & Health Indication System, Jasvinder Singh Chhabra, AkshayChhajed, ShamleePandita, SuchitaWagh, International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056 Volume: 04 Issue: 06 June- Soldiers can interact wherevervia RF, DS-SS, and FH-SS, allowing them to interconnect with team members at any time. Circuit complexity and power consumption are reduced. The devices are small and compact, making them easy to transport.Soldier ensuring safety soldier's position is tracked via GPS.

3. PROPOSED METHODOLOGY

A country's army must be powerful and effective in order to show a key part in corrent fast-paced world. Soldiers with advanced technologies are important for building a strong army. Army personnel have health tracking systems attached to them to keep an eye on their well-being. The frame is a piece of wearable physiological technology that includes sensors and transmitting modules. Health-related sensors such as pulse sensors and body temperature measuring sensors can be used with the proposed hardware to create wearable gadgets for health monitoring. The latitude and longitude of the staff are determined using GPS. It is a feasible technology that has the ability to save human lives.

Nowadays, the nation's defense system is based on the enemy's battle, and the soldiers' safety is regarded as critical. When it comes to the soldiers' protection, there are a variety of resources available to monitor their health. The proposed device employs GPS to map the soldier's location in terms of direction. So the direction will be simply found. The proposed device, which uses GPS to observer the soldier's welfare, current position, will be placed the soldier's suit. This information will be sent the army base via IOT. The proposed system is made up of small physiological devices, sensors, and transmitting modules that can be worn on the body.

This proposed system uses a live track programmed to control and track the soldiers' health. The proposed device is included in the person equipment. Temperature sensor, Atmega 328, blood pressure tracker, GPS receiver Temperature and heart rate sensors are used to constantly track the soldier's fitness. The Global Positioning System (GPS) it helps assess position. The Arduino (ATmega 328P) processor processes and collects information in wireless communication, also uses the live track application to show the soldiers' status and location. Body temperature was taken into account for verification in this proposed experiment.
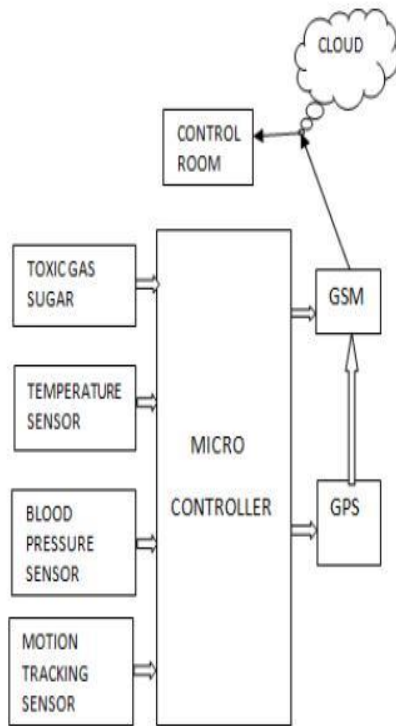
4. RESULT DICUSSION

ARDUINO-UNO BOARD

The Arduino Uno is a Microchip ATmega328P-based, designed by Arduino.cc. Digital and analogue (I/O) pins on the board used for connect to various expansion blocks (shields) as well as other connectors.

The ESP8266 is a low-cost Wi-Fi chip that includes a complete TCP/IP stack as well as a microcontroller unit (MCU). The ESP32 isthe successor to these microcontroller chips.
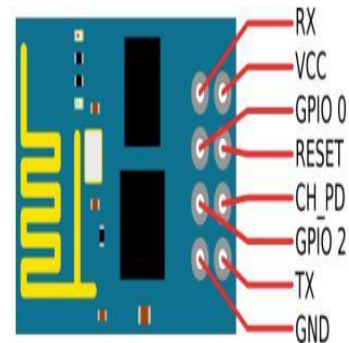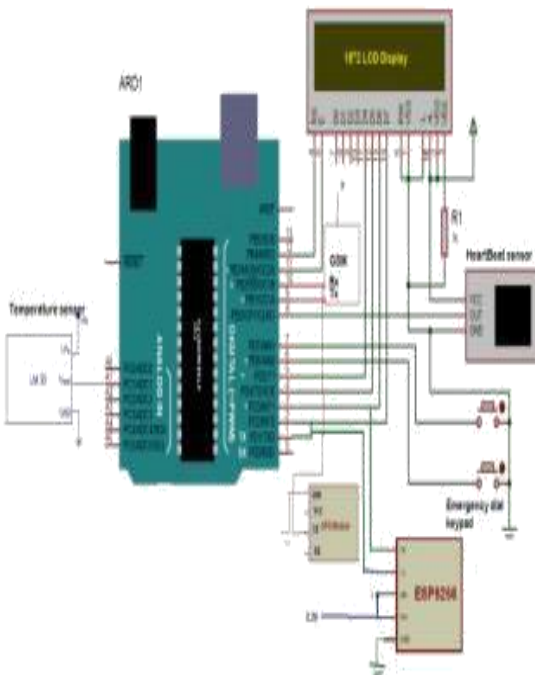
Global Positioning Systems (GPS):

Global Positioning Systems (GPS) Transmit signals to ground-based devices. The precision of most equipment is between hundred and ten meters. The primary function of the Global Positioning modem provide exact and current longitude and latitude of the soldier. Satellite data is obtained by the GPS modem. Then, using serial communication, it sends this data to the Microcontroller.

GSM:

Mobile phones use the GSM network of a mobile phone service provider to identify local cell phone towers. It's a specialised modem that accepts a SIM card and works with a mobile operator's subscription. AGSM module resembles a cell phone in appearance. The majority of GSM cellular modems have a built-in SIM card holder.

CONCLUSION

Soldiers can connect with the base station at all times using RF, DS-SS, and FH-SS, allowing them to interconnect with their team mates every time they want to. The use of a 328 controller and low-power peripherals reduces the system's total power consumption. The modules used are small and compact, making them easy to carry. Soldiers' positions are tracked by GPS anywhere on the globe, and their critical health criteria are monitored by a health system, ensuring their security and protection. As a result, the idea of a positioning and navigate device are extremely helpful soldiers

FUTURE ENHANCEMENT

In this paper, we suggest an IOT based welfare checking for soldiers (IOT). In recent decade's GSM-based monitoring method have become the maximum used procedures for tracing soldiers' life in frontline. There are two sections: hardware, software. The hardware section includes sensors and interfacing displays, power supply, and microcontroller, while the software includes the

Internet, web server, hardware programming, and server side scripting, as well as a database for storing details about soldiers' health.

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