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SOLDIER HEALTH AND POSITION TRACKNG SYSTEM

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Abstract— *in present world situation nation's security being most important, the enemy warfare is given more priority. The provision of this security is facilitated by military, army, and air-force and navy, hence we can say that our soldiers are the main backbone of our country. Without the existence of these soldiers we cannot imagine a secure nation. But providing security to these soldiers has many concerns, specifically the soldiers at the war fields. Even in the present criteria where there is a vast development in the technology, in case of navigational technology the army is still using rudimentary techniques. A soldier's life being very important to us it is necessary to keep a track on the location and health status of the soldier who is entering the war zone. In this project we are mainly concentrating on saving a soldier during crisis by sending the location and health status parameters of a soldier to the base station. This technology will help us to minimize the time consumed by the army authorities to search the soldier and to aid him. In this system we use a raspberry pi which has in built GPS module that tracks the soldier and send the location to the base station. Here we use different sensors such as heartbeat sensor, temperature sensor, oxygen sensor which provides the health status of the soldier to the base station. The most important factor of this technology is that, it is wearable.*

Keywords—*Raspberry Pi, LM35, MQ5, Heartbeat sensor, Track, Location.*

I. INTRODUCTION

The consolidated unit of Hardware and programming constitute an "Inserted System" which is likewise coordinated together to fabricate a framework which helps in plan objectives like speed and proficiency. The fundamental preferred standpoint of installed frameworks is the adaptability to pick wanted equipment and programming segments to outline the coveted framework which plays out the coveted undertaking. This paper depends on the previously mentioned benefits of the installed framework. There is a need to build up a wearable innovation which isn't massive and disperses next to no power in the resistance part with the goal that the area and fundamental wellbeing parameters of the warriors can be followed continuously when he is on the front line. Utilizing this Soldier route framework the base station can control the warrior to achieve the coveted goal. The principle quintessence of this paper is that it is an Internet of Things (IOT) based paper. IOT frameworks are frameworks that comprise of interrelated machines(mechanical or computerized), figuring gadgets, creatures, people groups and different items which have one of a kind functionalities and utilizing the IOT their information can be exchanged starting with one place then onto the next finished the system without the PC to PC and human to PC intercession. The importance of IOT in Soldier Navigation and Health Monitoring framework is that the continuous area and wellbeing parameters of the warrior on the war zone are momentarily sent to the base station without the trooper inputting anything. The IOT influences the whole checking to process quick, effective and the choices can be taken in less measure of time. The Raspberry Pi 3 is utilized as a passage for showing the sensor esteems over a server known as Thing talk. Likewise, Raspberry Pi 3 gives better insurance and separation from stray interruption.

II. RELATED WORK

Shruti Nikam and et.al clarify in this paper the following of the area of the officers when they enter the foe arrive. For following their area GPS (SR87 arrangement) module was utilized which is very delicate and it can track up to 20 satellites during an era that aides in finding the precise position of the trooper.. LM35 sensor and heartbeat rate sensor was utilized that are not exceptionally mind boggling and can be effortlessly fitted in a small gadget. ARM processor (LPC2138) which takes after the standards and essential hypothesis of on a 32 bit ARM7 TDMI-S CPU and which gives

a fast correspondence. ARM processor is interfaced with graphical LCDs to show different parameters like tallness, speed, and body temperature and heartbeat rate.

Richard B. Marth and et.al have presents a coordinated route framework for the officers. DRM (Dead Reckoning Modules) and GPS constitute the principle parts of this incorporated framework. DRM replaces the requirement for a compass as it permits solid and without hands route. DRM comprises of a simple circuit and a computerized circuit. Simple load up has magnetometers, accelerometer, temperature sensor and a barometric altimeter. These segments are valuable to decide the even segment of attractive field, number of steps taken by troopers, temperature and so forth. RS232 serial interface ports are utilized by DRM for correspondence. Kalman channel is utilized as a part of mix mode that makes utilization of the two GPS and DRM. This channel can alter the progression estimate, body counterbalance and additionally fake hops in GPS position. Subsequently, the coordinated route framework enables fighters to centre on the mission as a result of programmed pace check and sign of the heading and separation to waypoints which encourages warriors to keep away from snags in their way.

Xinfeng BA and et.al have exhibited a framework that screens the wellbeing status of officers, fighter following and Beidou satellite route framework which is likewise a wired correspondence framework is utilized for two-way short message correspondence signs securing and warrior situating. The equipment framework has two ports: Handheld gadgets and Wireless Pulse Acquisition framework. Handheld gadget comprises of S3C2410 installed processor, Bluetooth modules, fringe circuit and correspondence terminal module. Msp430 single chip microcomputer, beat flag intensification circuit, beat sensor and Bluetooth module are segments of Wireless Pulse Acquisition System. Indicated warriors are sent short messages by means of the Beidou route framework.

Vongsagon Boonsawant and et.al have proposed a fundamental model framework in light of remote sensor systems for checking temperature in a building. Xbee remote correspondence module which depends on the IEEE 802.15.4 standard was proposed for that sort of a framework. WSNs are blend of remote correspondence and installed framework permitting transmission of information among different sensor systems. Arduino board that accompanies ATMEGA168 is effectively interfaced with ZigBee modules. This framework comprises of two sorts of hubs facilitator and end gadgets that were conveyed inside SIIT building which gathered temperature readings each 60 minutes.

Harshavardhan B. Patil and et.al have introduced the plan and execution of biomedical parameter observing arrangement of patients. The distinctive wellbeing parameters estimated incorporate ECG checking, beat rate, circulatory strain and body temperature. The framework comprises of two areas: transmitter segment (patient's side) and beneficiary segment (specialist's side). The patient is remotely checked and every one of the information from biomedical sensors are transmitted to microcontroller unit Arduino Uno and after that ZigBee module is utilized to transmit this information to beneficiary area which is available in the specialist's lodge. This venture ends up being exceptionally useful for specialists, as they can examine the wellbeing state of patients and give fundamental analysis and cure the patients rapidly.

III. MOTIVATION

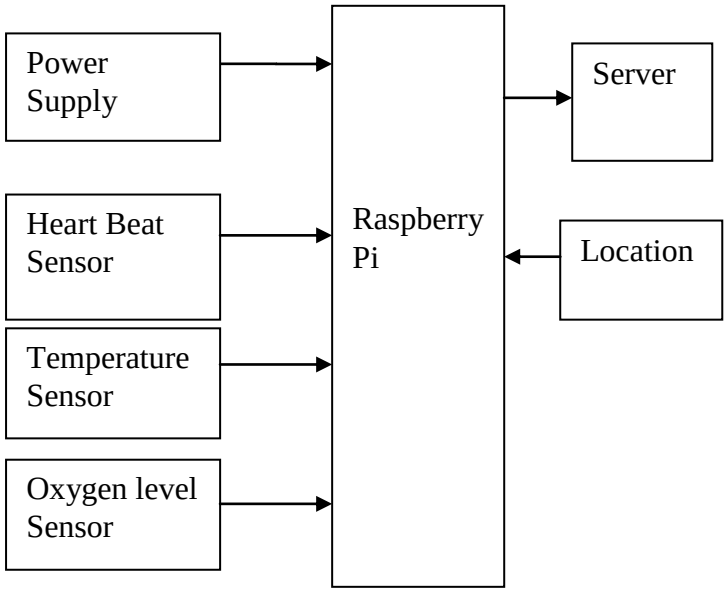
Need for the armed force base station to recognize the wellbeing status of the fighter and his surroundings is an absolute necessity for warriors behind foe lines. Following the area of warrior may help him if he's off kilter and visually impaired exploring. Checking wellbeing parameters gives us affirmation of the fighter's security and his condition. These two together may help safeguard activities and direction of a harmed trooper. From the writing overview it was discovered that the greater part of the frameworks utilized require a considerable measure of room and some were cumbersome relying upon different microcontrollers or advances utilized. There were couple of frameworks which utilized the preparing energy of more up to date frameworks like Raspberry Pi, which are likewise simpler to program and more centred around executing thoughts as opposed to supporting hardware.

IV.PROPOSED METHOD

This paper which, using wireless body area sensor network such as temperature sensor, heartbeat sensor etc., will monitor the health status of the soldier whenever required. 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. Any abnormalities in the readings of wireless

body area sensor network considered as a trigger and send current location and health status to the receiver. By using all these equipment's we had tried to implement the basic guarding system for the soldier in low cost, light weighted, portable and precise device.

V.SYSTEM DESIGN

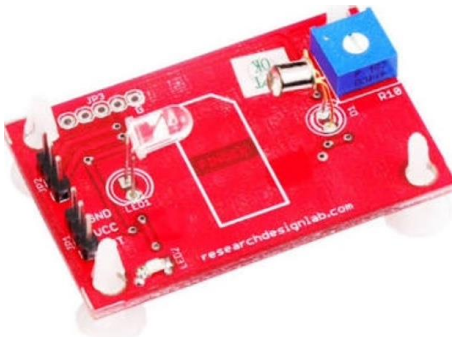


In this paper, we can track the trooper's correct area at whatever point required. Utilizing oxygen level sensor we can likewise screen the natural condition, so experts can give fundamental guides. The correspondence is built up between the fighters and experts. Any variations from the norm in the readings of remote body zone sensor organize considered as a trigger and send current area and wellbeing status to the beneficiary. By utilizing this gear's we had attempted to execute the fundamental guarding framework for the fighter in minimal effort, light weighted, convenient and exact gadget.

- RASPBERRY PI

"The Raspberry Pi is a low cost, credit-card sized compute that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is capable little device that enables people of all ages to explore computing, and to learn how to program in languages like scratch and python."

- HEARTBEAT SENSORS



Heart beat sensor is intended to give advanced yield of warmth beat when a finger is put on it. At the point when the heart beat identifier is working, the beat LED flashes as one with every pulse. This computerized yield can be associated with miniaturized scale controller straightforwardly to quantify the Beats every Minute (BPM) rate. It takes a shot at the rule of light adjustment by blood move through finger at each heartbeat.

- TEMPERATURE SENSOR

At the point when the voltage expands then the temperature additionally rises. We can see this task by utilizing a diode. A case for a temperature sensor is LM35. The LM35 arrangement are accuracy coordinated circuit temperature sensors. Whose yield voltage is directly corresponding to the Celsius temperature.

- OXYGEN SENSOR

They are utilized as a part of gas spillage identifying hardware's in family and industry, are reasonable for distinguishing of LPG, flammable gas, town gas, keep away from the commotion of liquor and cooking exhaust and tobacco smoke.

VII.FUTURESCOPE

In this paper, we can track the trooper's correct area at whatever point required. Utilizing oxygen level sensor we can likewise screen the ecological condition, so specialists can give basic guides. The correspondence is set up between the fighters and specialists. Any variations from the norm in the readings of remote body territory sensor organize considered as a trigger and send current area and wellbeing status to the beneficiary. By utilizing this gear's we had endeavoured to execute the fundamental guarding framework for the trooper in minimal effort, light weighted, convenient and exact gadget.

VII.CONCLUSION

From the above execution we have inferred that the correspondence jumps between the troopers and specialists at the base unit is beaten utilizing Raspberry pi, the exact area and wellbeing parameters are known utilizing Raspberry pi and remote body region sensor organize individually and all data is send to the base station with the goal that field administrator will make vital move.

VII.REFERENCE

[1] Shruti Nikam, Supriya Patil, Prajkta Powar, V.S.Bendre, "GPS BASED SOLDIER TRACKING AND HEALTH INDICATION SYSTEM", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol. 2, Issue 3, March 2013.

[2] Richard B. Marth, Robert Levi, Dr. I. Newton Durboraw, Kenneth Beam, "The Integrated Navigation Capability for the Force XXI Land Warrior".

[3] Ping Wang, Xinfeng BA, "Layout of Soldier Status Monitoring and Command and Control System Based on Beidou System", 2012 second International Conference on Computer Science and Network Technology.

[4] Vongsagon Boonsawat, Jurarat Ekchamanonta, Kulwadee Bumrungkhet, and Somsak Kittipiyakul, "XBee Wireless Sensor Networks for Temperature Monitoring", Sirindhorn International Institute of Technology, Thammasat University, Pathum-Thani, Thailand 12000.

[5] R. Archana, S. Indira, "Trooper Monitoring and Health Indication System", International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064, 2013.

[6] Harshavardhan B.Patil, Prof.V.M.Umale, "Arduino Based Wireless Biomedical Parameter Monitoring System Using Zigbee", International Journal of Engineering Trends and Technology (IJETT) – Volume 28 Number 7 - October 2015.

