ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 4, April 2017

Raspberry PI Based Tracking via Wireless Communication of Health Care from GSM

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ABSTRACT: Wellbeing is the basic capacity people require to see, feel and act adequately all things considered, it speaks to an essential component in the improvement of the individual additionally of nature people has a place with. That is the reason it is important to give satisfactory routes intends to guarantee the proper human services conveyance in light of parameters observing and direct giving of the restorative help. The new advances improvement and execution particularly on Internet and Wireless Sensor Networks generally known as the Internet of Things (IoT), empower worldwide way to deal with the human services framework foundation advancement. This prompts e-wellbeing framework that progressively way supplies a significant arrangement of data important to the greater part of the partners (Patients or Doctor) in any case their present area. Business frameworks here for the most part don't meet the general patient needs, and those that do are typically monetarily unsuitable because of the high operational and improvement costs. The greatest advantage of this venture is self-observing gadgets and the disposal of the need for outsider healing centers to run tests. This ought to give data to the patients and their specialists, paying little mind to the area where they are situated, so as to track and record individual information it is important to utilize sensors. The sensors are mounted on human body as the sensors are activated with surpass in utmost it is advised through message and mail in cell phone.

KEYWORDS: Sensor, Internet of Things (IoT).

I.INTRODUCTION

The Internet of Things (IOT) has become an emerging key technology for future, in which a myriad of sensors, actuators, and smart objects in our daily life are connected to the Internet. These sensors and actuators (e.g., surveillance cameras, home appliances, and environment monitoring sensors) are typically equipped with different kinds of microcontrollers, transceivers, and protocols for communication of sensing and control data. These real life objects, either sensors or actuators, are connected with each other to transfer their sensed data to centralized servers, where information is collectively stored and made available for particular users with proper access rights. The transfer of data from one sensor/actuator node to an IOT server is performed through a new communication paradigm called Machine Type Communications (MTC) or Machine-to-Machine (M2M). The communication technology for the first-hop of a path between an IOT device and an IOT server is mostly expected to be wireless radio access for the ease of installation and deployment.

IOT gadgets utilize remote radio get to advancements, for example, GPRS to make correspondence between hub with servers. Now and again, obliged IOT gadgets may first speak with moderate substances called IOT portals or M2M entryways through Wireless Personal Area Networks (WPAN) or WLAN. The portals thusly forward information from these gadgets toward IOT disjoins, and go about as an interpreter between IOT gadgets and servers. Availability example, 3GPP Long Term Evolution (LTE) and LTE-Advanced, WiFi, ZigBee and Bluetooth or other standard between IOT gadgets and other IOT doors or servers can be given by utilizing various types of remote advances, forremote innovations.

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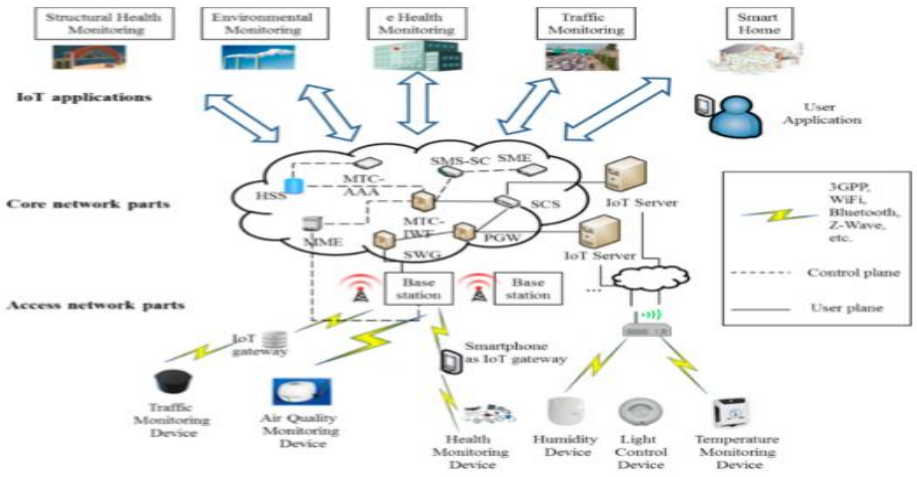

Figure 1. A generic Internet of Things (IoT) network architecture.

Fig 1 demonstrates nature of Internet of Things possibilities offered by the IoT make conceivable the improvement of countless, of which just a little part is as of now accessible to our general public. Many are the spaces and the conditions in which new applications would likely enhance the nature of our lives: at home, while voyaging, when wiped out, at work, when running and at the exercise center, just to refer to a couple. These situations are presently outfitted with items with just primitive knowledge, the greater part of times with no correspondence abilities. Giving these s the likelihood to speak with each other and to expand the data seen from the environment suggest having distinctive situations where an extensive variety of uses can be conveyed. These can be assembled into the accompanying spaces:

- Transportationandlogisticsdomain.
- Healthcaredomain.
- Smartenvironment(home,office,plant)domain.
- Personalandsocialdomain.

At the edge of the IoT are the machines and hardware we utilize each day. These "things" are interconnected over a framework or spine utilizing blends of ZigBee, sub-GHz, Wi-Fi or control line correspondences (PLC) availability to give a hearty bi-directional interchanges interface with moderately long range, low dormancy for quick responsiveness, low power and an adequate information rate to total data from many associated gadgets. This foundation likewise fills in as the passage to the Internet and empowers remote checking and control of gadgets by different systems, service organizations and end clients.

Medicinal services can be depicted as presentation of innovation inside the home condition to give accommodation and solace to screen quiet wellbeing. Adding insight to home condition can give expanded personal satisfaction with the presentation of the Internet of Things (IoT), the exploration and execution of Healthcare are getting more prevalent and progress. The idea of the IoT and utilizing Raspberry Pi involves the utilization of electronic gadgets that catch or screen information.

II. RELATED WORK

The human wellbeing today introduces the essential concentration of an expanding number of contextual analyses and ventures which objective is social insurance upgrades and accomplishing the establishments for a worldwide wellbeing framework. Such frameworks ought to give data to the patients and their specialists, paying little heed to the area where they are situated with a specific end goal to track and record individual information it is important to utilize sensors or apparatuses which are promptly accessible to the overall population. Such sensors are normally wearable gadgets and the devices are carefully accessible through cell phone applications. These self-checking gadgets are made with the end

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ISSN (Print): 2320-9798

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goal of enabling individual information to be immediately accessible to the person to be dissected. The greatest inconvenience of this current system it devours more power in sensors and furthermore more sensors are utilized then in the proposed framework along these lines, these gadgets are not have critical headway in the field of individual wellbeing administration as a result of the power utilization and the cost is higher . Along these lines, we proceed onward to the proposed framework

III.PROPOSED ALGORITHM

The greatest advantage of self-checking gadgets is the end of the need for outsider healing facilities to run tests, which are both costly and long. These gadgets are a vital headway in the field of individual wellbeing administration. To enhance human wellbeing and prosperity is a definitive objective of any monetary, mechanical and social improvement. This idea of the IoT with raspberry pi is utilized to enhance human wellbeing which involves the utilization of electronic gadgets that catch or screen information through sensors mounted on the human body and are told through cloud as a mail and message to cell phone, empowering them to consequently trigger certain occasions

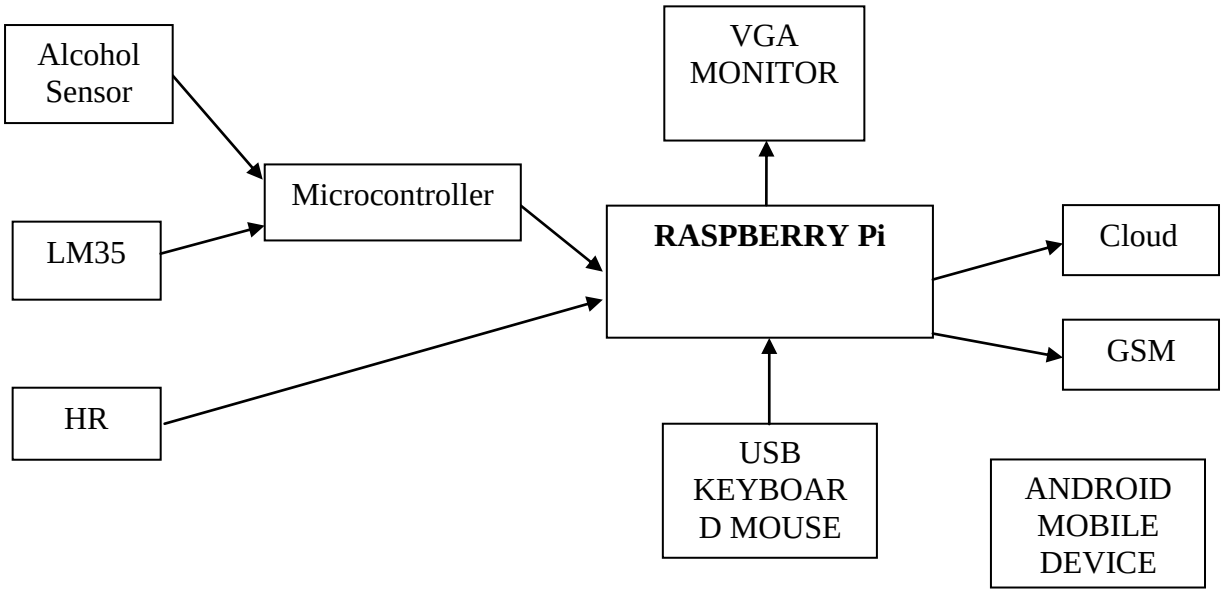

Fig 2 Block Diagram

Hardware components

A. Raspberry pi 2 model B

Fig 3: Raspberry Pi Board

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Raspberry pi 2 Model B is the second era Raspberry pi. It supplant the first Raspberry pi Model B+ in February 2015. Contrasted with the Raspberry pi 1 it has in light of the fact that it has an ARM V7 processor, it can run full scope of ARM GNU/Linux disseminations, including smart Ubuntu centre, and Microsoft windows 10.

B. Micro controller:

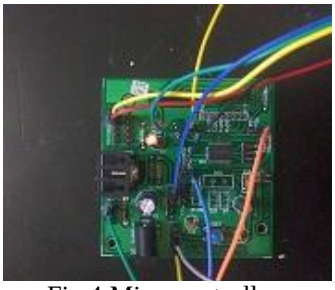

Fig 4:Microcontroller

RL78 microcontroller is a 16-bit CPU center by Renesas Electronics with a CISC engineering for installed microcontrollers created and fabricated by Renesas Electronics and presented. A littler adaptation of the RL78/G13 was presented in 2012, the RL78/G12. Presented with 20, 24, and 30-stick bundles with 2 KB to 16 KB little size blaze memory in spite of the fact that furnishing the G13 usefulness with coordinated +/ - 1% 24 MHz oscillator, reset circuit, a low voltage identification circuit, guard dog clock, information streak with foundation operation, and including practical wellbeing, on-chip with A/D converter testing capacity.

C. Temperature sensor (LM35):

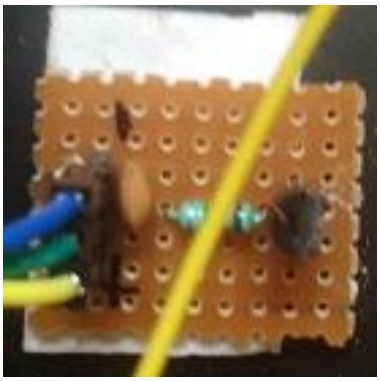

Fig 5: Temperature sensor (LM 35)

It is a sensor used to gauge temperature. The LM35 arrangement are exactness incorporated circuit temperature sensors, whose yield voltage is directly relative to the Celsius (Centigrade) temperature. It gauges temperature more precisely than thermistors. It is fixed and does not experience oxidation. It doesn't require yield voltage to be intensified.

D.Heart Rate Sensor

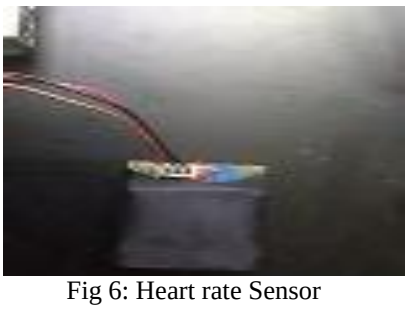

Fig 6: Heart rate Sensor

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The Heart Beat Sensor gives a straightforward approach to concentrate the heart's function.This sensor screens the stream of blood through Finger. As the heart forcesblood through the veins in the Finger, the measure of blood in the Finger changes with time. The sensor sparkles a light projection (little High Bright LED) through the ear and measures the light that is transmitted to LDR.

E.Smoke Sensor

Fig 7: Smoke sensor

Standard measuring circuit of MQ-2 touchy segments comprises of 2 sections. One is warming circuit having time control work (the high voltage and the low voltage work circularly). The second is the flag yield circuit; it can precisely react changes of surface resistance of the sensor. It identify the poisonous gas and advice.

G.GSM

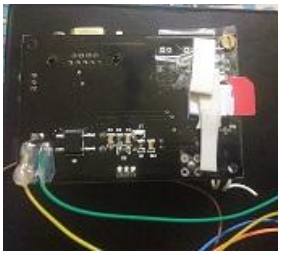

Fig 8: GSM

SIM900 is a Tri-band GSM/GPRS engine that handles frequencies EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz. SIM900 highlights GPRS multi-opening class 10/class 8 (optional) and reinforces the GPRS coding driving forces CS-1, CS-2, CS-3 and CS-4. You can use AT Command to get information in SIM card. The SIM interface reinforces the handiness of the GSM Phase 1 detail and likewise supports the settlement of the new GSM Phase 2+ attestation for FAST 64 kbps SIM (expected for use with a SIM application Tool-kit).Both 1.8V and 3.0V SIM Cards are kept up. .

IV.PSEUDO CODE

Step 1: Temperature sensor
Input: Temperature from human body.
Output: Current human body temperature.
Step 2: Heart Rate sensor
Input: Reading Pulse rate from human body.
Output: Current human body Pulse rate.
Step 3: Smoke sensor
Input: Smoke in a room.
Output: Current room smoke percentage.
Step 4: Raspberry Pi board
Input: output from sensor device and microcontroller.
Output: Changes are sent to GSM.
Step 5: GSM

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Input: Output from raspberry pi.
Output:Alter messages will be sent to mobile phone.
Step 6: Display in mobile phone.
Step 7: go to step 1.
Step 8: End.

V.RESULTS

In this level incorporation of the equipment segments to hardware device into Raspberry Pi connecting between all Modules. GSM Module (SIM 900) used for sending information to mobile phone in message form and Pi board send mail to mobile phone.

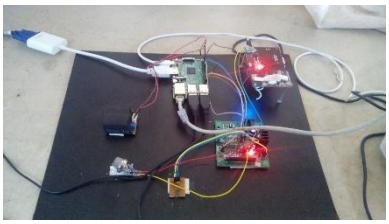

Fig 9: Hardware connection setup for Patient Monitoring system using Raspberry Pi

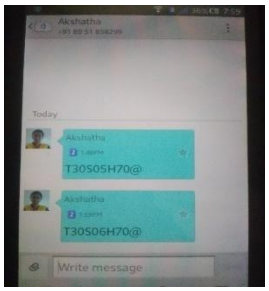

Fig 10: Display of messages over changes of sensors in the mounted on human body

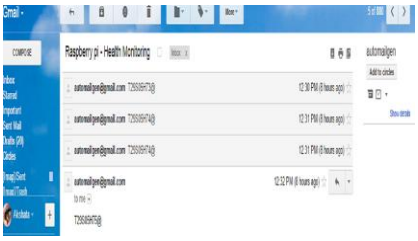

Fig 11: Display of mail over changes of sensors in the mounted on human body

VI.CONCLUSION AND FUTURE WORK

The framework as the name specifies, 'Raspberry PI Based Tracking by means of Wireless Communication of Health Care from GSM' makes the framework more adaptable and gives alluring UI contrasted with other human services framework. In this framework we coordinate cell phones into human services frameworks. A novel engineering for a medicinal services framework is proposed utilizing the generally new correspondence advancements. The framework for the most part comprise segments is a raspberry pi board, sensors and gsm. Sensors is utilized to send a signs for raspberry pi board and through gsm ready message is sent to cell phone. We shroud the multifaceted nature of the ideas required in the human services framework by including them into a basic, yet exhaustive arrangement of related ideas. This disentanglement is expected to fit as a great part of the usefulness is offered by pi board.

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For venture demo concern, we have built up a model module. In future, this venture can be taken to the item level. To make this venture as easy to understand and solid, we have to make it reduced and savvy. Going further, a large portion of the units can be implanted alongside the controller on a solitary board with change in innovation, accordingly decreasing the span of the framework. Going further changes can be executed to upgrade security to larger amounts so as to suit the requirements identifying with information security by utilizing encryption and unscrambling calculations.

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BIOGRAPHY

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