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HEALTH MONITORING SYSTEM USING RASPBERRY PI

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Abstract - *Currently medical care is the leading dare in the world. In the past years the healthcare has made extensive amount of attention. The main aim was to develop a valid patient observatory system so that the doctors can monitor the patients, who are either hospitalized Recently, the patient monitoring systems is one of the major advancements because of its surpass technology. Currently, there is a need for a modernizes approach. In long- established approach, the doctors play the significant role. There are many basic problems associated with this approach. In the beginning, the medical people must be available on site of the patient every the time and nextly, the patient remains admitted in the hospital. In order to improve the above condition, we can make use of technology in smarter way. From the past years, health sensors along Raspberry Pi performs a major role. Suitable sensors are attached with the human body and monitors his/her physiological parameters. We can buy plethora of health sensors such as ECG sensors, temperature sensors, pulse monitors etc. The price of the sensors depends according to their size, adaptability, and correctness. The Raspberry Pi which is a cheap, adaptable and fully modified. In our system we are measuring patient's parameter with different available sensors. These sensors groups the data i.e. patient's particulars is given to Raspberry Pi and then it is shifted to server*

***Key Words*: Raspberry Pi, Heart beat sensor, ECG sensor, GSM module, Blood Pressure Sensor and monitoring system.**

1. INTRODUCTION

The web of issues could be a rising topic of social, economic and technical significance. Internet Of Things using sensors, Raspberry Pi with accessories used for communication through the internet and changing into the essential a part of the internet, it's engineered with an acceptable protocol that help the interacting and human action with one another and with the users individually. This communication through web helps to search out several applications that are developed supported IOT technology during which each entity like detector devices are connected through the net. Healthcare plays a serious role within the web of things that reduces the problem baby- faced patients and doctors. The homecare is provided rather than costly clinical care and hindrance is provided by the efficient aid service. This service can facilitate every individual by following the essential aid, which results in a lot of advantageous results. IOT technology is increasing to support the price and quality of patient life and additionally ensures lifetime of patients with correct meditation. In typical healthcare undiscovered health issues will be solved through IOT technology thereby ensures healthcare services maintain digital identity for each patient complication will be greatly reduced. The communication between the health sensors device with the pc or smart phone that has the default ability to speak with the server which makes the entire system price scale back and also the complexity of the system is additionally reduced. Hence the structure may also be designed through IOT enabled and M2M compatible. Here the projected paper show a reliable continuous observance by the doctor, solution of patients anyplace within the world supported a aid observance system will be checked. The patients carry a collection of body sensors to gather their body parameters.

2.LITERATURE SURVEY

Various basic physiological parameters of human such as force per unit area, heartbeat, atomic number saturation 8 saturation in blood(SPO2), temperature and fall detection area unit measured using relevant sensors are sent to the board for any process. The computed parameters area unit are then sent to a Raspberry Pi primarily based internet server. This technique is particularly useful for old and unwell patients.

[1] A temperature , respiration, patient's movements and heart beat reading results area unit monitored. These sensor send the gesture to the Raspberry Pi via electronic apparatus and signal acquisition unit(SCU), as a result of the signals levels are low(gain), and then transfer the signals to the Raspberry Pi. Here patient's temperature, body movements in sleep position, respiration, and rate is measured.

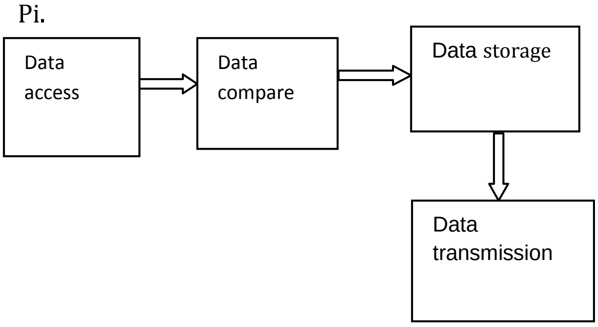
[2]A system is meant to observe the ECG and alternative important parameters. Update the web site information with new health parameters.

[3] To realize distributed temperature watching system is meant mistreatment temperature detector. Heart beat detector is meant to administer a digital output of heartbeat once a finger is placed thereon

[4]The detector measure graphical record signals health detector. These values area unit continuously transmitted mistreatment USB cable into a Raspberry Pi. The mini computer processes the information and displays the worth in the monitor as a terminal console. It will conjointly show graphics similar to three graphical record values.

3.PROPOSED SYSTEM

System is split into hardware and software system section. Software system is accountable for higher operating systems. Hardware is once more classified into transmitter section and receiver section. Implementation of transmitter is very important. Raspberry Pi may be a master device in planned system. A DC power provide of 5V is provided for operating Raspberry Pi. IOT server is connected to the system. It permits the property for knowledge exchange with different devices .The output of temperature device and heartbeat device is displayed on alphanumeric display at user finish too. The output of graph is shipped to the receiver of doctor finish. All the data is initially, processed and keep at the memory of Raspberry Pi. The keep data is then transferred to the receiver by suggests that of IOT server. The receiver section is gift at doctor finish. At receiver section, all the data is received. Monitor displays the results of every de vice that is connected to Raspberry Pi.



4. IMPLEMENTATION

The system is classed into two parts hardware and software whereas hardware unit consists of transmitter section and receiver section and software system package unit consists of software system package languages like python, MATLAB etc. Here we discuss IOT applications that are helpful to health observance. The general operation stages of associate in nursing IOT application embody 1) knowledge access 2) data compare 3) data storage 4) data transmission. The primary and last stages exist on each application whereas the Primary and last stages exists on each applications. Here knowledge access is employed as real time on-board process. The energy consumption of knowledge access will be reduced with MEMS technology. Several IOT applications have the information property and might exploit the compressed sensing paradigm. In health viewing request and wireless network, sensing has been examined and studied on a large scale. The Pi camera is screened on the server. The address of the server is as same s the address of the Raspberry Pi. Data transmission can surpass by uniting radio trans receivers into SOC's which provides low power multi-radio chip. Energy axing in memory loss has undergone important industrial and academic attention in drive in design community. But there are some attribute which are particular to IOT applications that can be utilized for future betterment in the form of energy planning of memory in IOT designed devices.

5.DIFFERENT COMPONENTS FOR PROPOSED SYSTEM

For implementing the health designation system, there is a need of essential parts that area unit appropriate and manipulate health issues. The parts use usually includes temperature sensing element , vital sign sensing element, heartbeat sensor, ECG sensor, Raspberry Pi and GSM

RASPBERRY PI

It is a strong, low cost, and a little card sized device which may be a good platform for interfacing with several devices and connectors for external devices. There are much versions of Raspberry Pi however central processor of all models of Raspberry Pi remains same. The main advantage of Raspberry Pi is that it is oversized. Video process applications are possible exploitation Raspberry Pi like video compression.

TEMPERATURE SENSOR

It is an associate in nursing sensing element that's wont to live temperature with an voltage linearly corresponding to the Celsius temperature. The sensing element has a bonus over linear temperature sensing element because the user has not build the conversion of Kelvin to Centigrade.

BLOOD PRESSURE SENSOR

The pressure device is meant to live human blood pressure. It additionally measures the heartbeat and beat pressure and pulse is additionally recorded by this device. In simple words, pressure of blood against blood vessels walls or arteries is live victimization pressure sensors.

ECG SENSOR

ECG is that method of recording the activity of the guts of a number of your time exploitation equipments placed on the skin. The essential element of the cardiogram is that the instrumentation electronic equipment, that is chargeable for taking the voltage distinctions between leads and amplifying the signals.

COMMUNICATION NETWORK

In health observation system, wireless network is employed to forward activity through a entrance through a cloud. The main network here used is IOT. Different wireless communication technologies are used for

1) Connecting the IOT devices as native networks.
2) Connecting these native networks to the net.

The property technologies square measure NFC, Bluetooth, ZigBee and cellular networks etc.

6. FUTURE ENHANCEMENTS

This system helps to watch health of aged folks that cannot visit the hospitals on regular basis. Primary health checkups are also created simple. Patient's history is saved on the server therefore it edges the follow-ups because it uses data technology for the assessment human errors are removed therefore offers. IOT has enabled medical monitoring to become more widespread and effective. With Internet Of Things technology RPM technology will be monitoring the patients. Medical monitoring system given by IOT automation and real time pop-ups, the patients and their members will have a sense of freedom even if the patient decides to be at home.

7.CONCLUSION

IOT technology is associated integration of assorted technologies that allows completely different devices and use completely different network technologies. The projected system offers better and effective health care services to patients and the information collected is networked worldwide. The proposed model could be a well equipped system wherever the doctor will check his patient anyplace anytime.

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