Io T BASED PATIENT MONITORING & MEDICATION ASSISTANCE SYSTEM

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Abstract: Patients' temperature and heartbeat will be monitored using IOT in this study. So that we may convey real-time information to a large number of people, as well as an emergency message to a physician or other consultant through internet, we can use this method. The speaker is activated to notify the caregiver to administer the medication from the pill boxes on-hand. Death rates in India are rising due to heart attacks, and doctors aren't doing enough to check on patients during this time period. We must constantly monitor the health of our patients in order to ensure that they get the best possible care. There are certain drawbacks to the conventional technique, such as the patient's requirement to be in the hospital for a length of time and the doctor's need to be there at all times, while monitoring the patient's health. The best way to prevent these issues is to make use of

Smarter use of current technologies. We'll be able to save a lot of lives this way because of the convenience. Here, we're utilising the Raspberry pi3 model as the fundamental principle.

Keywords: Webcam, speakers, temperature sensor (DS18B20), blood pressure sensor and a GSM module are all included in the Raspberry Pi 3 development kit (RPi 3).

INTRODUCTION

In order to manage a variety of prescription regimens for older patients, the Intelligent Pillbox is a must-have. The primary controller was chosen to be the Raspberry Pi. A programmable speech system, an interactive user interface, and a GSM notification system are all included in this prototype. There is a strong emphasis on elderly and other vulnerable populations in the design of this gadget. Users are the focus of this device's design.robust for the patients. It is quite beneficial for the elderly. Those who are old or illiterate who either forget to take their medication or cannot read the name of the medication would greatly benefit from this. Heart rate and body temperature sensors for the elderly are being implemented here. The discipline of medical assistive care has grown

in prominence in recent years. WHO defines Assistive System "As systems and services connected to supply ofassistive goods... that allows individuals to live healthy, productive, independent, and dignified lives; and also able to engage in education, the market labour, and civic life.". Software-based devices, hardware-based devices, and implants for prosthetic limbs all fall under the umbrella of AT. Pregnant women, people with intellectual and developmental impairments, people with special needs, those suffering from catastrophic illnesses, children, and the elderly are among the medical priority categories (although this may vary depending on the locale). All of them might benefit from the use of assistive technology to lessen their need on

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specialised medical care. More than 2 billion individuals will need at least one assistive device by 2050, and many older people may need two or more. There is a shortage of patient-related data

blunders in healthcare due to this. Modern information and communication technologies (ICTs) have the potential to greatly improve

information. An successful Healthcare/loTgateway might be critical to inpatient treatment, hence research and development are important.

I. EXISTING TECHNOLOGY

In the current framework, sign language is the only means of communication for persons who are unable to speak. However, the general public is unable to understand gesture-based communication. As a result, it becomes difficult for a speech-impaired person to communicate. Five flex sensors were used to build a glove. This method has flaws since it lacks a foundation for disseminating information.

PROPOSED METHOD

II.A cutting-edge computerised speak me framework shown in our research was developed to make communication between persons with disabilities easier. A cutting-edge electronic talking device combines three different frameworks. The ability to capture images, manage data, and produce high-quality audio are all included in one package. Individual development toward calmness was slowed by communication between a common person and conversation. Client order conversation was uncovered using LCD. Individuals may also communicate with others who have difficulty hearing. Input from clients isn't the only option. This device has a wide range of uses. This means that the consumer may go anywhere he or she wants. It's

patient safety by making medical information more readily available. The Internet of Things (loT) is a worldwide network architecture that utilises data collection and transmission capabilities to connect real and virtual devices. The Internet of Things (loT) has a significant impact on patient care because it provides real-time access to medical

prudent from a monetary standpoint. Anyone can find money for it this way.

III. HARDWARE SYSTEM

Fig: Block diagram

By constructing an electronic chatting framework, we want to assist the silent networks. Discourse-impaired people may benefit from the use of an electronic talking framework like this one. This project relies on a Raspberry Pi as its primary controller. Finally, a camera has been developed for those who are unable to communicate verbally. They don't have to deal with any issues with their communication at this time. The design parameters of the Raspberry Pi may be quickly changed without having to rewrite the whole application code. The camera was strategically placed so that everyone may benefit from the electronic talking framework for conversation, including those who are unable to speak for themselves without the aid of the camera.

IV. METHODOLOGY

With four ARM Cortex A53 processors running at 1.2GHz, 32Kb of Level 1 and 512Kb of Level 2 reserve memory, a Video Core IV graphics processor, and a 1GB LPDDR2 memory module on the back, the Raspberry Pi 3 demonstrate B has been specifically designed for use with the Broadcom BCM2837 System-On-Chip (SoC). The 40-pin GPIO (General Purpose Input/Output) and Bluetooth Low
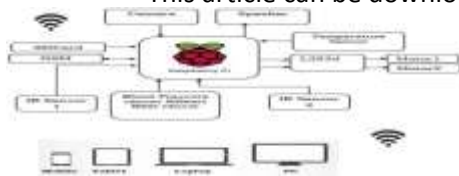
Energy (BLE) capabilities are also included. The BCM43143 Wi-Fi is on board. A 5V USB control supply of up to 2.5 Amps is also included in this model. Raspberry Pi 3 Model B is the finest Raspberry Pi PC currently on the market. With a clock speed of 1.2GHz and 1GB of RAM, the Raspberry Pi can handle even the most intensive tasks. Association shrewd says the board should be able to convey and receive information swiftly from and to the board. Double band 802.11b/g/n/air conditioning 802.11b/g/n/air conditioning underpins for 2.4GHz and 5GHz 802.11b/g/n/air conditioning on the Raspberry Pi 3 Model B, which ensures twofold all through. Gigabit Ethernet over USB 2.0 has made it possible for wired Ethernet to expand. execution is additionally supported, with an extraordinary throughput of around 300Mb.

Fig: Raspberry Pi 3 Model B

Blood Pressure Sensor: Blood Pressure & Pulse reading are shown on display withFor external integrated circuit processing and display applications, there is a serial out. Displays the systolic, diastolic, and pulse rate. The wristwatch-like shape is small enough to slip over your wrist. Pumping is eliminated thanks to the wrist-style design.

Fig: Blood pressure sensor Temperature Sensor

(DS18B20) The DS18B20 digital thermometer provides 9-bit to An alarm feature with nonvolatile user-programmable higher and lower trigger points for Celsius temperature data. The DS18B20 connects with a central CPU through a 1-Wire bus, which by definition needs just one data line (and ground). Over the range of 10°C to 85°C, it is accurate to within 0.5°C of the actual temperature. DS18B20 may also be powered directly from the data line, eliminating the requirement for a separate power source.

Fig: Temperature sensor DS18B20

IR Sensor: An infrared sensor is a device that uses infrared light to pick up information about the environment. Infrared radiation is either emitted or detected by this device. An infrared sensor can also measure the heat radiated by an item and detect movement. To the naked eye, infrared wavelengths are imperceptible. The infrared part of the electromagnetic spectrum is between the visible and microwave spectrums. Wavelengths of infrared radiation generally range from 0.75 to 1000 m. It is possible to divide the infrared spectrum into near IR, mid IR, and far IR wavelengths. The near infrared spectrum encompasses the wavelength range of 0.75 to 3 m. Mid-infrared radiation has a wavelength between 3

and 6 m, whereas far-infrared radiation has a wavelength greater than 6 m.
Fig: IR Sensor

USB Camera: A camera is an optical device that may be used to capture images and send

them to a different location, or it can be used both ways. The obscura (Latin for "dull chamber") is the origin of the phrase "camera," which refers to both static photographs and moving images, such as movies or chronicles. The camera obscura is used to make it. On a fundamental level, the eye's


operation mirrors that of a high-tech camera.v

Fig: USB camera

Speaker: Make your audio project have a bigger effect by using these USB-controlled sound boosters. We tested a colossal number of various models in an effort to identify those with a better-than-average repeat response so that you may enjoy high-quality audio output while listening to music. It also has a volume control dial so you can fine-tune it to your heart's content. Basically, connect your Raspberry Pi, Wave shield, etc. to a regular 3.5mm stereo jack.In order to get control, connect the USB cable toas well as a readily available, very valuable liquid

stone introductions

anything that can be used to transfer data through USB

be in charge – This(LCD). Displays havehow it's done may be shownWith a USB focus point or
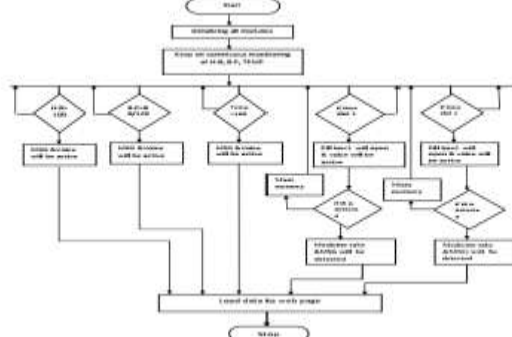
The current draw is 200-400mA, thus the volume should be kept to roughly half (which is still raucous). You may draw up to one apex at maximum volume. One of our 5V 1.5A

divider connections will operate perfectly and reliably if a PC is not open.

screen, implying that it will be thin. In no way should this section be confused with level screen, which indicates that the PC's screen is level rather than twisted. LCD displays outperform CRT panels in terms of screen strength. The process of making an LCD screen involvesthe battery pack you have on hand may be put to good usecontrol from a a USB A toelectric voltages hitting liquid pearl cells, allowing 64 particular shades for each cell.2.1mm connector in case you would lean toward not to cut the line.

Fig: Speaker

Monitor: A PC screen is a show connector that features information arranged by the PC's video card. Right when a video card or

 In LCDs, there is only one level of certainty, and obtaining a reduced level of confidence will result in a dull peripheral surrounding the new level of assurance.

FLOWCHART

The representations card is always changing.images created by converting bits of information from 0s to bitsPhotos are seen on the screen that is directly connected to them. Cathode shaft tube screens are among the many options available (CRT)

IV.   **CONCLUSION**

V.The combination of wireless sensor networks with cloud computing will lead to a new generation of technology in many areas, including patient monitoring at low cost,

decreasing the number of occupied hospital beds, and boosting the performance of medical personnel. Data mining methods are also used to obtain and evaluate patient information. The method described in this work uses past patient data to make judgments in real time, reducing the need for human data collecting in the process. We are hoping to expand the system's capabilities by adding additional sensors and collecting data from a greater number of patients in the future. The combination of wireless sensor networks with cloud computing will lead to a new generation of technology in many areas, including patient monitoring at low cost, decreasing the number of occupied hospital beds, and boosting the performance of

medical personnel. Data mining methods are also used to obtain and evaluate patient information. The method described in this work uses past patient data to make judgments in real time, reducing the need for human data collecting in the process. We are hoping to expand the system's capabilities by adding additional sensors and collecting data from a greater number of patients in the future.

VI.   RESULTS
TEST CASES OF RESULT
Sensor readings including temperature, heart rate, and blood pressure are shown here, as well as

the time the medication was taken, in addition to the medication itself, which is shown in the pill box. If there are any problems with the sensors or a pill box, the message to consult someone will be active even if the medicine is not taken from any pill box.

Fig: Pill Box data monitoring

Project Module

Fig: Video Monitoring

Message Monitoring

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