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IOT BASED IMMOBILITY PATIENTS MONITORING SYSTEM

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ABSTRACT:

The most common disease that results in immobility is Paralysis. Paralysis is the inability to move muscles on your own and with purpose. It can be temporary or permanent. The most common causes are stroke, spinal cord injury, and multiple sclerosis. Paralysis can be a complete loss of movement known as a significant weakness called paresis. Even though, there are innovative approaches for curing or treating paralysis patients, but it still can't make the patient to convey their needs and the aim of our project is to help a person to convey their needs by making them as independent as possible. Where we see a problem with these types of devices that are being developed is that they are very large and expensive machines. They seem to be only available in hospitals and not able to be used at the patient's home or at their convenience. Our goal is to make the patients easy to convey their needs and also monitor the temperature, BPM with the help of LCD display. It's to make a IoT device for immobility patients that will be able to use it themselves and also it is budget friendly for them to afford without much debt.

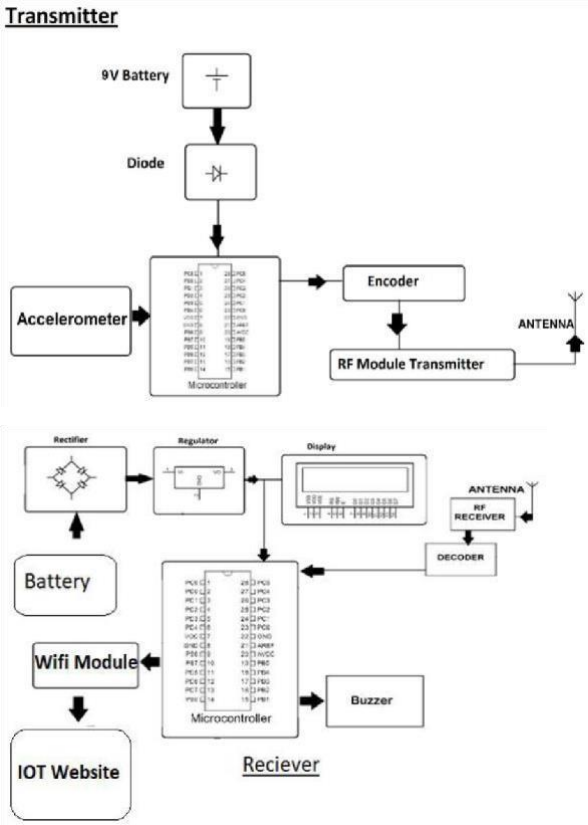
KEYWORDS: Internet of things(IoT), Beats per minute(BPM), Liquid crystal display(LCD).

INTRODUCTION:

Arduino is the main core of our project. It performs all the arithmetic and logical operation and control all the peripheral device connected to it according to the code written. Our project main aim is to convey their needs also monitor the patient health. For that purpose we used accelerometer, temperature sensor and heart beat sensor to sense their gesture and convey the gesture as a message to their needs also to measure the body temperature and BPM respectively. Heart beat sensor works on the principle of photoplethysmography. The heart rate sensor and temperature sensor is connected to the Arduino to give the output signal. The use of accelerometer sensor patient is able to interact with other people by regarding the specific gesture. To communication with the world Gyro sensor is connected to SDA and SCA

pin of Arduino Uno. To convey the message according the gesture and the health condition of the patient here we use 16*2 LCD display and the speaker. Further to notify the patients health to their family member and other loved people we have send the data into internet server. For these purpose we have used ESP8266 WiFi module which internet server where family member, doctors can easily access the patient health condition in their smartphone.

EXISTING SYSTEM:

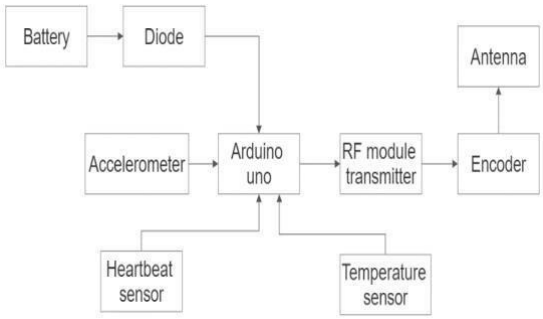


EXISTING PROBLEM:

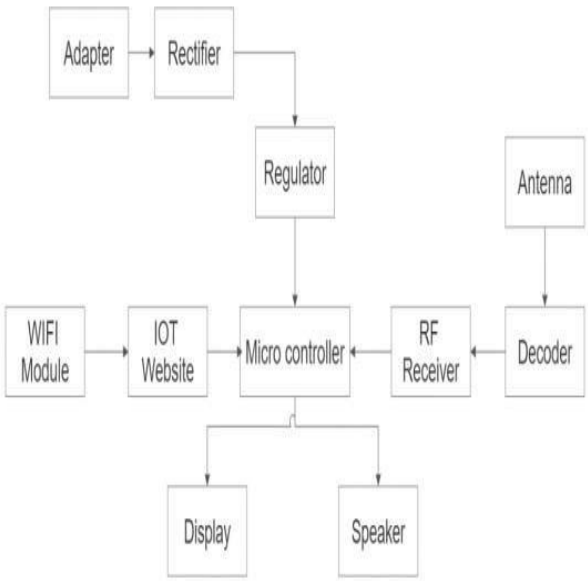
Paralytic patients who have their whole or partial body disabled by the Paralysis attack. These people in most cases are not able to convey their needs as they are neither able to speak properly nor do they convey through sign language due to loss in motor control by their brain.so this a try to overcome these problems with the help of IoT. This make the patients to feel comfort to convey their needs to others.

BLOCK DIAGRAM:

TRANSMITTER:



RECEIVER:



METHODOLOGY:

Step 1: The system makes use of a micro controller based circuitry to achieve this functionality. It makes use of a hand motion recognition circuit and a receiver plus transmitter circuit.

Step 2: The hand motion circuit is used to detect hand movements using accelerometer and gyro and then transmit this information wirelessly over rf to the receiver system.

Step 3: The receiver system is designed to receive and process these commands and display them over the LCD display as well as transmit the data online over to the IoT server.

Step 4: The IoT server then displays this information online, to achieve the desired output.

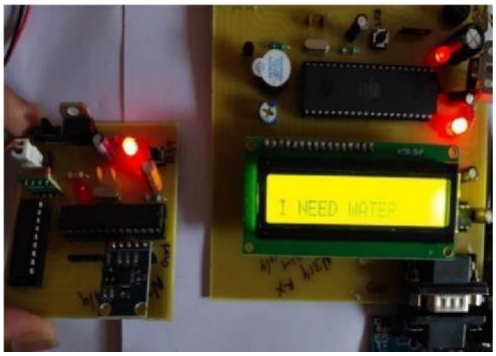
Step 5: This system also monitors patient's heartbeat and temperature, if it exceeds normal value then speaker will be activated and message will be shown on LCD to doctors and caretakers to attend patient.

COMPONENTS DESCRIPTION:

Si.no	Components	Quantity	Price
1.	Arduino Uno	1	3,000
2.	Accelerometer & Gyro	1	1,600
3.	ESP8266 Wi-fi Module	2	1,000
4.	RF Tx Rx	1	1,200
5.	LCD Display	1	500
6.	Crystal Oscillator	2	200
7.	Sensors	2	500
8.	Transformer & Adapter	1	1,650
9.	Microcontroller	2	450
10.	IC & IC sockets	7	1000
	Total cost		11,100

RESULT:

The work of *IOT BASED IMMOBILITY PATIENTS MONITORING SYSTEM* is the medical based project aiming to treat the paralysis patient as independent as possible. This system helps patient overcome barriers to convey their needs without putting efforts. Moreover this can be modified to be used for several purposes where persons mobility is affected. The practical implementation of the idea has been brought successfully.



CONCLUSION:

By taking a overall survey, it can be found that there are many problems existing for the immobility based patients such as paralysis in their leg, hand, vocal tract and also in other body parts. But, This project gives the solution for the questions of the disabled and older people to convey their intension comfortably towards caregiver. The enhancement with basic coding gives the great change outcome of the project. In addition speakers are the added to the project which are used at emergency situation which gives advantage to patients and caregiver for alerting. And we have already tested the time taken for receiving from GSM module to the hardware component, and they need someone beside them all the time to be taken care of. Due to these circumstances, we represent our whole project subject us to know more about and sense health regularity of patient even if any interpretations approach caregiver. So based on the gesture they can convey the message to the care taker and the output is the digital format. Based on the gestures the output is digitalized.

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