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IoT Based Paralysis Patient Healthcare Using Various Sensors

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ABSTRACT: In This paper we introduces an innovative Internet of Things (IoT) solution for the comprehensive healthcare monitoring of paralysis patients. The system employs Arduino as its central processing unit, GSM modem for data transmission to Thing speak cloud, and various sensors to detect and respond to critical health indicators. The primary objectives include suffocation detection using a microphone, fever monitoring through a DS18B20 temperature sensor, and detection ofpatient movement by a vibration sensor placed on the bed.

KEYWORDS: Regular monitoring, cloud storage, optimized alertness, SMS Notification, data collection.

I. INTRODUCTION

In our project paper we conclude that Patient Monitoring System powered by Internet of Things (IoT) technology. This system aims to revolutionize the way paralysis patients are monitored by providing real-time, comprehensive health tracking and automated alert mechanisms. By leveraging advanced sensors, data processing capabilities, and remote communication, the proposed system offers a proactive approach to healthcare management for paralysis patients.In this introduction, we will explore the need for such a monitoring system,the limitations of existing approaches, and the objectives of this project in addressing these challenges. Additionally, we will provide an overview of the key components and functionalities of the Paralysis Patient Monitoring System,highlighting its potential to enhance patient care and improve overall outcomes.

II. LITERATURE REVIEW

Manasa K (2021) discussed about the current days in which IoT plays an important role in the healthcare systems, remote health care monitoring has evolved at such a rapid pace, due to increased use of wearable sensors and smartphones. Even if the doctor is a significant distance away, IoT health monitoring aids in illness prevention and accurate diagnosis of
one's present state of health. This paper describes a wearable health monitoring system, which can continuously monitor the patient's heartbeat, temperature, and other basic room parameters by Arduino. The obtained output is synced to the patient's Thing speak account, allowing the doctor to analyses the data.

III. METHODOLOGY

The paralyzed patient can be monitored through various parameters. In this project we monitoring patient movements, fever, breathing through our respective sensor as DS18B20 one wire temperature sensor that can easily monitor patient fever level in Celsius and also vibration sensor can detect the patient movements and record itself and we use microphone suffocation detection sensor can monitor unusual breathing condition of paralyzed patient this project can implement using several sensor power supply by step down transformer can step down 240V to bridge rectifier then rectifier convert AC current to DC current to main Arduino Uno microcontroller unit to control these tree sensors. LCD display show that live vitals and GSM module used as cloud storing by using of thing speak account, also allowing the doctor to analyse the patients data.

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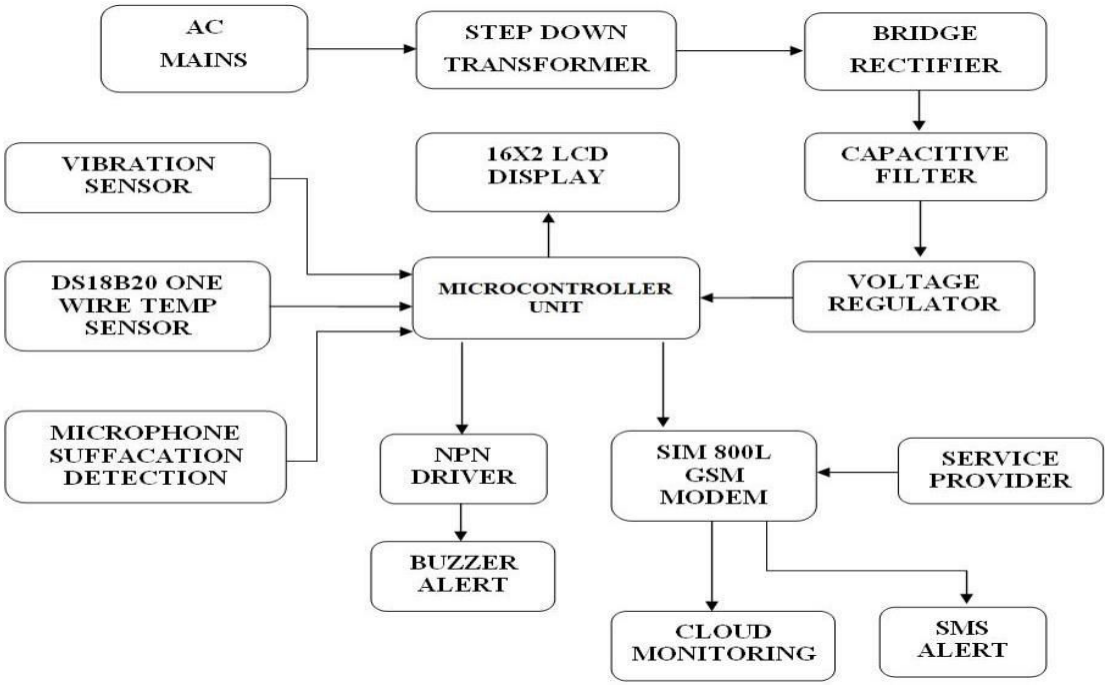
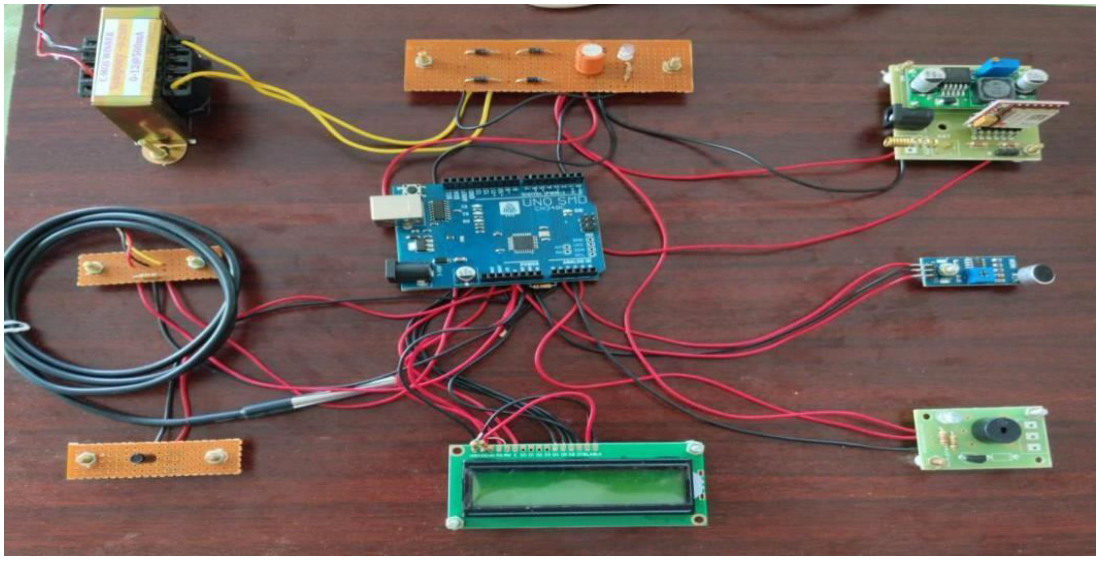
IV. BLOCK DIAGRAM



Step down transformer, bridge rectifier, capacitive filter, voltage regulator, Arduino microcontroller, Lcd display, DS18B20 temperature sensor,microphone suffocation Detection, vibration sensor, sim 800L GSM modem

HARDWARE IMPLEMENTATION



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BLOCK DIAGRAM EXPLANATION :

DS18B20 TEMPERATURE SENSOR :

DS18B20 temperature sensor is body temperature Detection sensor used detect body vital temperature at Fahrenheit for regular purpose at almost (99f-105f) as 37C to 40C at body. So this sensor alert when the temperature that can rise further to signal forward to the microcontroller unit at data wise.

VIBRATION SENSOR:

Vibration sensor also implemented by piezo plate works under piezoelectric effect. This effect produces an internalgeneration of electric charge resulting from an applied mechanical force. The electric charge that accumulates in certain solid materials is generated in response to applied mechanical stress. They can also be used for a very small audio transducer such as a buzzer.

MICROPHONE SUFFACATION DETECTOR:

Condenser microphones come in various designs, including large-diaphragm and small-diaphragm variants, each offering different characteristics suitable for specific applications. They often feature cardioid, omnidirectional, or figure-8 polar patterns, allowing for versatile recording options in different environments. Many condenser microphones includeadditional features such as built-in pop filters, low-cut filters, and pad switches to enhance performance and versatility.

ARDUINO UNO MICROCONTROLLER:

Arduino is an open-source project that created microcontroller based kits for building digital devices and interactive objects that can sense and control physical devices. The project is based on microcontroller board designs, produced by several vendors, using various microcontrollers. These systems provide sets of digital and analog input/output (I/O) pins that can interface to various expansion boards (termed shields) and other circuits.

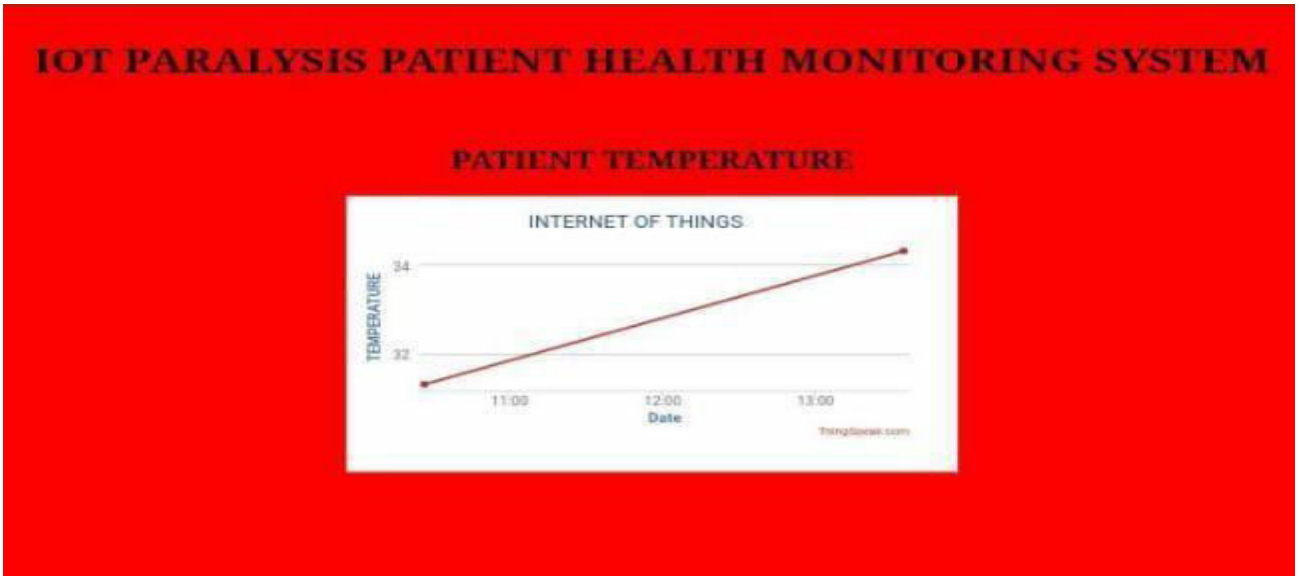
16×2 LCD DISPLAY:

This is an LCD Display designed for E-blocks. It is a 16 character, 2line alphanumeric LCD display connected to a single 9-way D-type connector. This allows the device to be connected to most E-Block I/O ports.

SIMCOM GSM MODEM:

This GSM Modem can work with any GSM network operator SIM card just like a mobile phone with its own unique phone number. Advantage of using this modem will be that its RS232 port can be used to communicate and develop embedded applications. Applications like SMS Control, data transfer, remote control and logging can be developed easily using this.

V. EXPERIMENTAL RESULT



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This project show experimental result of patient monitoring using iot as thing speak cloud server and also show sms alert using gsm modem to cloud server.

VI. CONCLUSION

In conclusion, the Iot Paralysis Patient Healthcare Project represents a significant advancement in healthcare monitoring, offering a comprehensive and technologically advanced solution for addressing the needs of paralysis patients. Through the integration of Arduino-based systems, various sensors, and GSM modem communication, the project successfully enabled real-time monitoring, automated alert mechanisms, and enhanced patient care. The project's results demonstrate its effectiveness in improving patient outcomes, fostering proactive interventions, and providing caregivers with timely information to ensure the well-being of paralysis patients. Moving forward, continued exploration and implementation of Iot technologies in healthcare hold promise for further enhancing patient care and revolutionizing healthcare

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