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IOT Based Automated Paralysis Patient Monitoring System

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ABSTRACT—

The paralysis condition is a well-known phenomenon characterized by the loss of muscle function in various body parts. It can manifest at any time and in any area of the body, often without causing any pain in the affected region. To enhance the quality of life for individuals with paralysis, our objective is to create an easily accessible and affordable device that combines basic health care monitoring with nursing care. These patients face challenges in communicating their messages and needs. To address this issue, we have developed a system that enables patients to send messages through simple finger gestures. This device can be either attached to the finger or integrated into their clothing.

Keywords—Paralysis, nursing

I. INTRODUCTION

A healthcare monitoring system for paralysis patients based on iot technology represents a groundbreaking solution that harnesses the power of interconnected technology to enhance the care and well-being of individuals living with paralysis. This particular system is designed to help the patient to convey various messages to doctors, nurse and their beloved ones sitting at home or office over the internet. The system makes use of microcontroller based circuitry to achieve this functionality. It utilizes a hand motion recognition circuit and a receiver plus transmitter circuit. The hand motion circuit is used to detect finger movement. This innovative device combines sensor technology, data analysis and real-time connectivity to provide continuous monitoring and provides assistance to individuals who are living with paralysis.

By seamlessly collecting and analyzing vital health data, this device offers the promise of improved quality of life, proactive healthcare interventions, and peace of mind for both patients and caregivers. In this introduction, we will explore the key features benefits and potential impacts of this IoT based healthcare monitoring system the patient. This method is provided by electronic innovation, which reduce human needs and, as a result, improves people's well-being. As a result, a patients condition should be monitored on a regular basis. However, this is difficult task. This can be made easier by deploying IoT technology, which sends a message to a doctor or guardian regarding the patient's condition if any changes in health parameter occur. Thus, the patient is not required to remain in the doctor's presence at all the times. When the patient is at home or in another location, his condition will be continuously recorded. Consistent monitoring of the patient's vital signs, such as basic needs and fall detection. This structure is intended for usage by family members of patient's who does not appear to be in critical condition should be examined for health on a regular basis. In emergency, an SMS is dispatched to a family member or caretaker. The user section orientation part is read by our proposed system. Different messages are sent by folding the gadget which is linked to each fingers. When is receives a motion signal it also gives a voice note and display a message.

This study highlights the significance of healthcare systems are a critical component of each country's and public health. In today's fast-paced world, it is difficult for the people to the continually available for their loved one's who may require assistance as they are passing by a difficult time. Physiological parameters are measured constantly are at regular interval by patient monitoring system.

II. LITERATURE SURVEY

L. Srinivasam, D. Selvaraj, D. Dhanikaran, T.P. Anish-2023 Abstract: In this study a mechanism that enables a disabled people to move any part of his physique capable of moving a broadcast text on LCD instead of sending SMS message using LCD.[1]

Mr. B. Srikanth Reddy Assistant Professor, T. Chandana Sravya2, P. Shamshad, SK. Zaved, T. Rakesh student-2023 Abstract: This document discusses dataset is used on paralysis to develop an approach utilizing machine learning techniques that involved KNN, label encoding and decision trees for data

preprocessing and categorization. The proposed method can quickly access patient's health status, using a decision tree to predict the likelihood of paralysis and KNN to suggest appropriate exercise for patient with difficulties. Ad that machines can read.[2]

K.R Alex Rappai, Vidya Sarode, Victor Thomas, Akash Dubey, Shashank Shukla-2022.

Abstract: They are working on a designing a health care system that will greatly benefit paralyzed and mute individuals. Across the globe, mute individuals rely on gesture-based communication for their interactions. With advancements in embedded systems, the team aims to develop an interpreter system that can convert these gestures in to speech, enabling effective communication. [3]

Chandan V. Jha, Ms. Dipalee. M. Kate-2021.

Abstract: Within this document, the authors encountered medical facilities and non-governmental organizations catering to individuals with disabilities. These individuals lack the ability to move their entire body like an average person. In response to this issue, they suggested a system that enables a disabled individuals to convey a message through the simple movement of any body parts. [4]

Ms. N. Renee Segrid Reddiyar, S. Remina, S. Sabrin, M. Subhashini-2021.

Abstract: This research illustrates that paralysis is characterized by a loss of muscle function in various parts if the body. It has the potential to impact any area of the body without necessarily causing pain in the affected region. Advances in technology and therapy aim to enhance the overall quality of life for individuals affected by this condition. The objective is to create a user-friendly and cost-effective device that integrates a basic healthcare monitoring system with nursing assistance. [5]

III. METHODOLOGY

The Arduino Uno serves as the central processing unit for collecting data from sensors and managing other components. By utilizing flux sensors, changes in the magnetic field caused by the movement of the patient's fingers can be detected. These sensors also have the capability to activate alerts or notifications for caregivers or healthcare providers, indicating potential issues or emergencies. For emergency voice alerts, the APR33A3 module is employed for voice recording and playback functions, which can be transmitted through speakers. To enable communication features, such as sending SMS alerts during emergencies, the GSM 800C module is utilized. Additionally, the LCD Display provides real-time feedback on monitored parameters and system status. The firmware for the Arduino board is written to read sensor data, process the readings, and control output devices. The Arduino IDE is used for writing and debugging the code. Algorithms are developed to analyze sensor data and identify abnormal conditions or emergencies. Furthermore, the logic to trigger alerts or notifications based on predefined thresholds or patterns is implemented.

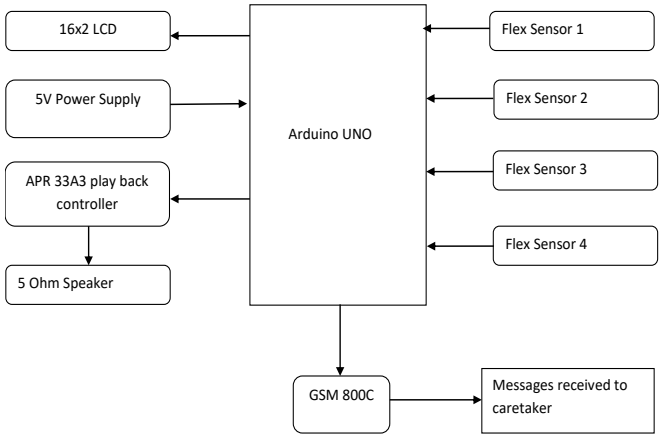

Figure1: Schematic representation of Proposed System

IV. ADVANTAGES

- It allows continuous real-time monitoring of patient's vital signs, movement, and environmental conditions
- Caregivers and healthcare providers have the ability to access patient information remotely, enabling timely intervention and reducing the need for constant physical presence

- The system can send alerts and notifications to caregivers and medical professors in case of emergencies or critical changes in the patient's condition.

V.APPLICATIONS

- This device can be utilized in hospital for communicating with doctors and nurses.
- This device can be utilized in home or office for communicating with other people.
- This system can be utilized by healthcare providers for remote consultations and telemedicine appointments, thereby minimizing the necessity for in-person visits.

VI.RESULTS

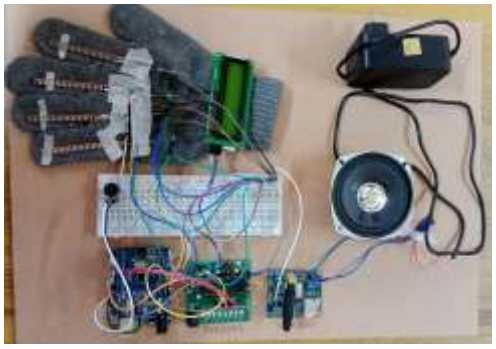

Figure2: Working Model

Figure3: Messages displayed on LCD

The outputs shown will aid patients in fulfilling their requirements. If they requires basic necessities such as water, food, wash room and if any emergency occurs they can fold their respective fingers that will be displayed on LCD. And also the caretaker will receive a message through Blynk and voice note through speaker.

VII.CONCLUSION

Though there already exits a several systems to monitor the paralysed patient's condition, there are few systems that focuses on communication of them. This system proves to be extremely beneficial for patients with paralysis. They are able to seek assistance by making specific movements, enabling them to lead alive similar to that of able-bodied individuals. This system bridges the gap between the patient and others via communication. This system is

dependable and affordable and reduce the weight to make it more convenient for them to utilize. This system relieve their stress by revealing their thoughts and help them to motivate as much as possible

VIII. REFERENCES

[1] Rohith, and K.Pavithra,''IoT-Based Patient Healthcare Monitoring System", International Research Journal of Modernalization in Engineering Technology and Science, vol,4 no.3, 2022

[2] Jemal H.Abawajy; Mohammed Mehedi Hassan, Internet of Things and Cloud Computing Patient Health Monitoring System, IEEE, January 2021.

[3] Mohammad Monirujjaman Khan et al., "IoT-Based Smart Healthcare monitoring system For Covid-19 Patient", Computational and Mathematical Methods in Medicine,vol 2021

[4] Dharini n,Jevvan katiravan,and S.M. Udhaya Sankar,"wireless Sensor Network Based Detection of Poisonous Gases using Prinicipal Compontent Analysis", Computer system and Engineering ,vol,44, no,1,pp,249-264,2022.

[5] Komal B.Sindagi, M.B.Mulik, 2020"IOT" Rukkayya l.Mujawar Ptient Observation System based on Iot, "International Engineering and Technology Research Journal"(IRJET),VOL.7,No.6,pp.

[6] Shruthi Nair, Nimmy Augustine, and Leo Varghese, "Smart Health Monitoring System," International Journal of engineering Research and Technology ,vol.9, no.1-6, 2020

[7] Shivam Arora, and Amita Goel,"IOT Health Monitoring System," Presented at the International Conference on Innovative Computing & Communucations(ICICC) 2020,pp. 1-8,2020

[8] Abhijeet Botre. "Automated system for paralysed", International Journal OF Innovative Research In Electrical, Electronics, and Control Engineering, vol 4, Issue 5,2019.

[9] Alexis Bell, Paul Rogers,Chris Farenell, Brett Sparkman,SccottC Smith ,"Wireless Patient Monitoring System", HIC 2018 IEEE

[10] Gomez-vilda et al., "Vocal based paralysis patient monitoring with stem-cellgrafting, International Conference on pattern Recognition systems 2019