

# IOT Based Paralysis Patient Health Monitoring System

<sup>1</sup>Sharana Basavaraj B, <sup>2</sup>Sai Kalyan Yadav, <sup>3</sup>Prajwal ks, <sup>4</sup> Sai Dheeraj, <sup>5</sup> Sachin D

<sup>1</sup>Assistant Professor, <sup>2,3,4,5</sup> UG Students

Department of ECE, Rao Bahadur Y Mahabaleswarappa Engineering College

\*\*\*

## ABSTRACT:

Paralysis condition is a loss of muscle function in body parts. It can affect any part of the body at any time, then probably person may won't feel the pain in affected area. Technical and Therapeutic innovations are there to improve the quality of life. Goal is to develop a device which should be easy to use and should be affordable which consists of basic health care monitoring system with nursing care. Paralysis patients can't able to convey their messages or needs. To overcome this, a system is developed that helps these patients to display messages by very simple motion. This device can be designed to be mounted on the finger or to be inbuilt in their clothes.

**Index Terms-** Renesas Microcontroller, Accelerometer, Pulse Sensor, GSM.

## 1. INTRODUCTION

Paralysis patients are unable to move their muscles for their purposes. There are so many symptoms and causes for this condition, especially spinal cord injury which affects the nervous system. There are some existing systems for individual comforts. But this system will help to monitor the overall need of the patients. Their messages will be displayed based on sensors input. The aim is to purpose a novel device which helps the disabled people. This device may one day improve the lives of the people with paralysis. Even though, there are many innovative approaches for curing people, but this system will help them to adapt with paralysis by making them as independent as possible. Fortunately, the last decade has seen promising technology advances to address these concerns. In addition, the accelerometer will also give a buzzer sound when patients fall on the floor.

## 2. PROBLEM STATEMENT

“To eliminate dependency of health Staff for a person who is having paralysis or who will be prone to paralysis attack and alerting doctor and caretaker by sending a message about health condition. using IOT Concept.”

## 3. SYSTEM ARCHITECTURE

### 3.1 Hardware Implementation

There are several existing systems available for patients with paralysis but this system helps to constantly

monitor and understand the patient's needs. The sensor in the system aids to transmit the patient's message, and the message is displayed on the LCD display. The message will change according to the position of the accelerometer. Care taker must then know their needs and assist them on the basis of their needs. The temperature sensor, humidity sensor and pulse meter were used in this system. These sensors should be for patients with issues, or gloves; they can feel the temperature of the patient, moisture and pulses. If the patient is in a critical situation, system will send sound alert by a buzzer when the patient is on the floor or when the pulse speed is above normal levels. This system can help treating patients suffering from paralysis, and it's also very cheap and easy to buy with less cost.

### 3.2 BLOCK DIAGRAM

The IOT just is the web of stuff. Independent technologies can collect and transmit data without human intervention via a wireless network. There are endless personal or business opportunities. In the health care industry, remote monitoring has been possible with IOT-enabled devices that release the possibility of keeping patients safe and healthy and that enable doctors to provide superlative health care. Respond to and enable physical objects to collect information and respond to instructions. IOT Concepts come handy in collecting, storing, handling, and manipulating data.

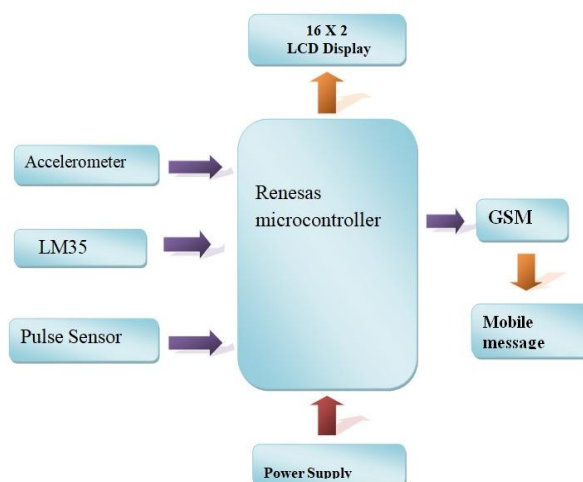


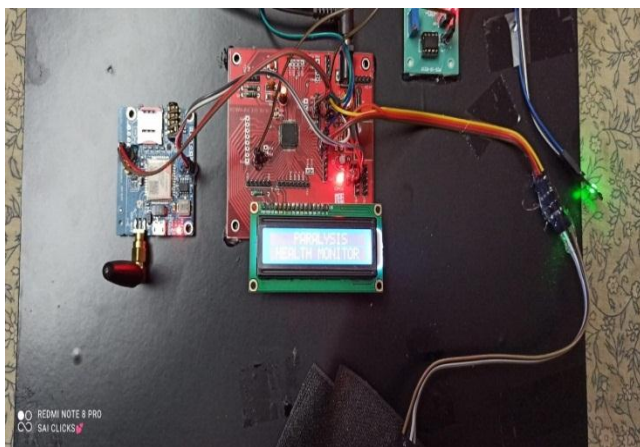
Fig1: Block Diagram of Paralysis Health monitor system

The communications infrastructure that includes protocols and technologies that permit two physical

objects to exchanged is most important. Adafruit IO is a simple and easy-to-use IOT platform for data storage, data viewing and device control. By using the ad fruit web page, this project output is displayed on the mobile. Connect the respective sensors to a node MCU which gets connected to a webpage i.e., ad fruit io. By using this webpage, we can monitor the data gathered by the sensors. Steps to create ad fruit account. Click the sign in button in the top right corner of adafruit.com After that, type the emailed, username and password. Adafruit account will be successfully created. Create the widgets as your wish. Connect the respective sensor which gets connected to a buzzer. Based on the patient needs it will give sound and the output will be displayed on the LCD display and if the patient pulse or temperature become abnormal it will be displayed on the webpage which will be monitored continuously.

#### 4. Result Discussion

##### 4.1 Circuit Connection



This is final circuit connection of system. The related message has now been shown on the LCD panel by the help of micro controller.

##### 4.2 LCD Need Help



The microcontroller has now displayed there later message on the LCD panel. If they need any help they can turn the accelerometer to a certain angle then it sound an alarm.

##### 4.3 LCD Need Water



The performance will be shown depending on the patient's needs. If the accelerometer is set to a certain angle, it will mean that they need water and sound an alarm.

##### 4.4 LCD Need to go washroom



The displayed outputs will assist patients in meeting their needs. If they want to go for washroom, if the angle changed based on their need it will alert the persons.

##### 4.4 LCD Display I am Hungry



The displayed outputs will assist patients in meeting their needs. They need food when they are hungry there, if the angle changed based on their need it will alert the persons.

#### 5. Conclusion

This system is really helpful for paralyse patients. When they need help then they can ask by using predefined movements; they can also survive in this world like normal people by using this movement detection. This system is reliable and cost effective and less weight so they can buy without much investment.

This system will make paralysed patients to become independent of mobility. This is not a trivial task just because it varies from person to person in its nature and type. Therefore, different methods are essential to support these people, and it is our duty, as future engineers, to develop new technologies to help paralyzed patients.

## 6. Future Scope

In future, we can use the chipset to implement this system. All parts are integrated in the chip, so that we can. This chip fits easily with the patient with paralysis. Gloves and bands avoid clothes.

## 7. References

1. Abhijeet Botre et al (2016) "Assistance system for paralyzed" published in International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering, Volume 4, Issue 5.
2. Gomez-Vilda et al (2016) "Vocal-fold paralysis patients treated with stem-cell grafting" published in International Conference on Pattern Recognition Systems (ICPRS-16).
3. Rolag Roy (2016) "Methodologies to assist patients" published in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Volume 5, Issue 3.
4. Hemakshi Pawar et al (2015) "Assistive Interactive Device using Electro - Oculography" published in International Journal of Advanced Research in Computer Engineering and Technology, Volume 4, Issue 1.
5. Alyson Mathews de Carvalho Souza et al (2012) "Hand Copter Game" published in Virtual and Augmented Reality (SVR).
6. Massage Coll et al (2012) "Treatment of Peripheral Facial Paralysis (PFP)" published in Photonics and Optoelectronics (SOPO)
7. Herta Floor et al (2000) "The Thought Translation Device (TTD) for Completely Paralyzed Patients" published in IEEE Transactions on Rehabilitation Engineering, Volume 8, No 2.