

# IoT Based Automated Paralysis Healthcare System

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## ABSTRACT:-

The paralysis is a condition in which there is loss of muscle function in the body components. It can affect any component of the body at any time, then probably one won't feel the pain in the affected area. Technical and Therapeutic innovations are there to amend the quality of life. The goal is to develop a contrivance which should be facile to utilize and should be affordable which consists of a rudimentary health care monitoring system with nursing care. These people can't convey their messages or needs. To surmount this, we came up with the system that avails these patients to exhibit messages by very simple kineticism. This contrivance can be designed to be mounted on the finger.

## I. INTRODUCTION:-

Numerous health monitoring systems are present which makes it facile for the medicos to monitor the patient vitals, but there aren't many systems that are utilized for the communication of the paralyzed patients, the proposed system avails to surmount these difficulties. Though there are a few approaches that avail the paralyzed patients to get utilised to their life with paralysis, by availing them live their lives independently, the quandary is that these types of contrivances are quite immensely colossal and are prodigiously extravagant. They are mostly available only at the hospitals and aren't utilised at home or other places predicated on their accomodation. A patient affected by paralysis loses their competency to communicate which averts them from expressing their rudimentary needs. The inability to communicate is due to damage caused to vocal cords. This transpires when impulses to the larynx are disrupted due to the damage caused in the nerves which go to the vocal cord. The proposed system avails paralyzed patients to communicate and express their fundamental needs utilising simple hand gestures which do not require much

muscle kineticism. Each finger represents messages which are exhibited along with a beep sound when a patient bends the finger or an amalgamation of fingers. Our proposed system is to avail the paralyzed patient to convey the rudimentary requisites and emergency messages by just moving the finger to exhibit the required message in order for the patient to be incentivized as much as possible. It additionally consists of a beep sound to alert the attendee when a message is exhibited.

## Hardware Implementation:-

There are several subsisting systems available for patients with paralysis but this system avails to perpetually monitor and understand the patient's needs. The sensor in the system avails to transmit the patient's message and the message is exhibited on the LCD module. The message will transmute according to the position of the accelerometer. We must then ken their desiderata and avail them on the substructure of their desiderata. They were transmuted according to the position of the accelerometer. These sensors should be for patients with issues. If the patient is in a critical situation, it will sound alert with a buzzer. This system can avail treat patients suffering from paralysis, and it's additionally very frugal and facile to buy without debts.

## Proposed System:-

The proposed system in this paper recognises simple finger gestures to indicate the patient's needs. The sensor (accelerometer) can detect the angle at which the gadget is inclined by measuring the acceleration of the body to which it is attached. The Arduino UNO translates the incoming voltages and then assigns a range to each finger movement. A predefined message connected to the basic necessities and emergency reasons for the patients is saved in the ranges specified to the particular movement of a sensor.

The device is attached to the patient's hand. The patient is initially taught to recognise the

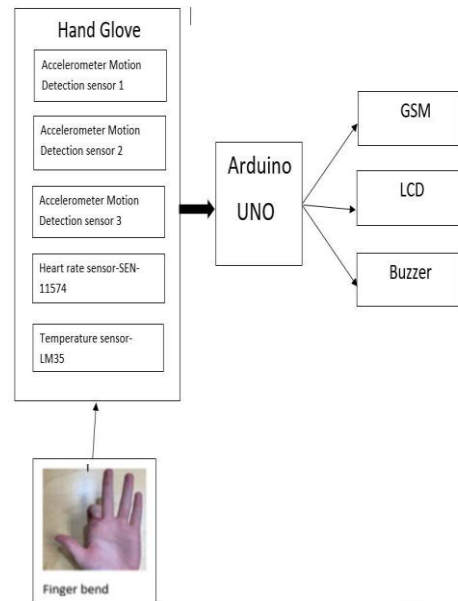
message that will be shown as he or she folds each finger. As a result, when the patient requires assistance, he only needs to bend a finger or a combination of fingers. As the patient bends a finger, the orientation of the accelerometer sensor changes, resulting in a voltage change. The value obtained serves as the device's input. For each range of data provided by the sensors, a predefined message such as "Emergency," "water," "require food," "medication," and so on is kept. When the sensor's steady value changes, the system uses the mapping technique to identify the change and display the associated notifications. A beep sound alerts the attendant when a message is displayed. As a result, the patient is more likely to articulate his core desires.

The recommended method makes it easier for the patient to be as motivated as possible. This system can be tweaked for communication depending on the severity of the person's condition. Our proposed system can also be accessed from any position where the patient is comfortable. The suggested approach is designed to perform efficiently and offer higher levels of accuracy and correctness, allowing for improved message mapping.

**Finger Combination:**

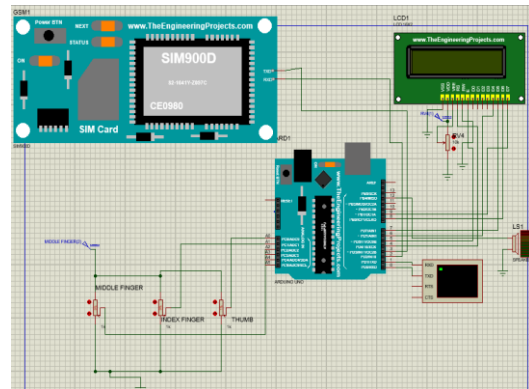
Combination of Fingers raised	Message To Display
Thumb	Washroom
Index Finger	Food
Middle Finger	Water
Index +Middle	Medicine
Thumb+Index+Middle	Emergency
All finger at rest	Fine

**Block Diagram:**



**Fig.1 Block Diagram**

**Simulation:-**



**Figure 3.1: Schematic**



**Figure 3.2: Output on Virtual terminal**

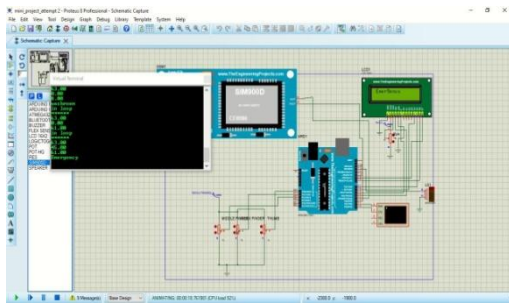


Figure 3.3: Condition for Emergency

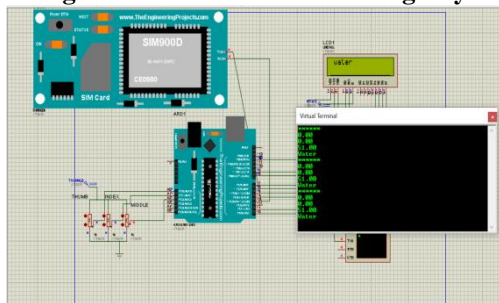


Figure 3.4: Condition for Water

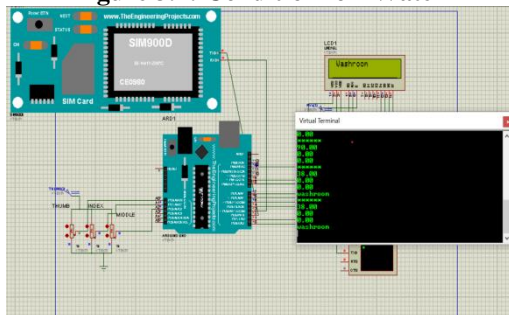


Figure 3.5 Condition for Washroom

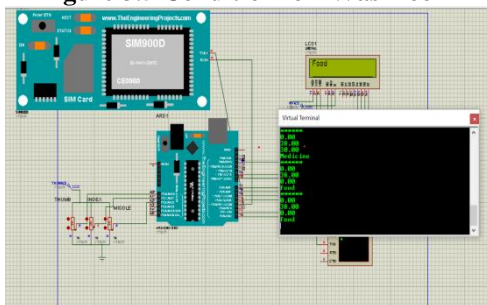


Figure .3.6 Condition for Food

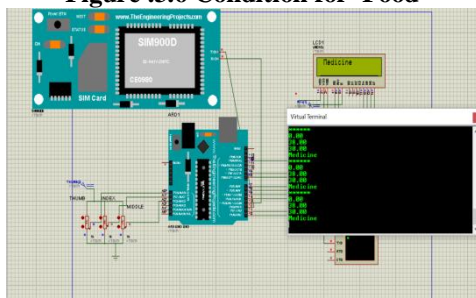


Figure 3.7 Condition for Medicine

## II. CONCLUSION:-

Although there are various systems in place to monitor the health of paralysed patients, there are few that focus on their communication. Communication will be used to bridge the gap between these patients and others in our proposed way, allowing the paralysed to express their desires while also keeping them as motivated as possible. It is also inexpensive enough to be able to buy without taking on too much debt.

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