CHAPTER- 1

1.1 INTRODUCTION

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. Paralysis is most often caused by damage in the nervous system, especially the spinalcord.

Paralysis is caused by injury or disease affecting the central nervous system (brain and spinal cord) which means that the nerve signals sent to the muscles is interrupted. Even though, there are innovative approaches for curing or treating paralysis patients, but the aim of treatment is to help a person adapt to life with paralysis by making them as independent as possible.

Where we see a problem with these types of devices that are being developed is thatthey 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 a device that will be able to retrain a patient's motion but have they are able to use the device themselves and have it be cheap enough for them to afford without much debt.The 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 systemwill help to monitor the overall need of the patients.

Their messages will be displayed on the LCD screen. In this, we are also having some sensors. The aim is to purpose a novel device which helps disabled people. It will help them to interact with other people with minimum efforts. This device may one day improve the lives of the people with paralysis.

Even though, there are so many innovative approaches for curing these people, but here this 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.

Paralytic patient healthcare system is a system designed to help patient convey various messages to other people like doctor, nurse or family member or caretaker, the system makes use of micro controller based circulate to achieve this functionality.

Physically disabled people many of the times rely on others, even to perform simple action like switching on/off lights, turning on/off fan etc.In order to provide solutions to these activities the system use hand motion-controlled device when even there is motion the rely circuit will be activated which time on/off lights and fan.Patient healthcare system is method in which the doctor or care taker will monitor patient's health from any location any time.

CHAPTER -2

2.1.LITERATURE SURVEY

Smart Healthcare is important for people who need nonstop monitoring which cannot be handed outside hospitals. It's also important at pastoral areas or town lets where near conventions can be in touch with megacity hospitals about their case's health condition.This work presents a smart health monitoring system that uses biomedical detectors to check case's condition and uses internet to inform the concerned.

The biomedical detectors then are connected to Arduino UNO regulator to read the data which is in turn connived to an TV display/ diurnal examiner to see the affair. Body vitals (Palpitation Temperature Moisture) are pivotal factors in determining wellbeing of case and help covering the strategy of treatment as well as record the response of treatment being conducted. While it can be excited and tedious to go for larger population of cases to collect the vitals information on a strict routine, the delicacy and the time pause as well as the estimation of instrumentation increases the threat of false cons.To break this problem, we present a digitally calibrated and real time vital dimension device that can operate in real time, record the data and shoot it for farther consultancy of experts. While it can improve the efficiency of health tracking records the data generated by measurement can also be used for statistical purpose.Objective of this device is to improve the quality and efficiency of health care.

Data is uploaded to the garçon to store and converted it into JSON link for imaging it on a Smartphone. An android operation has been designed in order to fluently see the case's information by their croakers and family members. The Internet of Things (IoT) is a newly emerging term for the new generation of the Internet which allows understanding between interconnected devices. IoT acts as an assistant in healthcare and plays an extremely important role in wide scopes of medicinal services observing applications.

The exponentially growing healthcare costs coupled with the increasing interest of patients in receiving care in the comfort of their own homes have prompted a serious need to revolutionize healthcare systems. This has prompted active research in the development of solutions that enable healthcare providers to remotely monitor and evaluate the health of patients in the comfort of their residences. Clinical usefulness of existing measures might be demonstrated as clinical experience is broadened. At this time, however, it seems that new instruments, or adaptation of existing measures and scaling methods, are needed for individual-patient assessment and monitoring. The significant challenge in the implementation of the Internet of Things for healthcare applications is monitoring all patients from various places.

Thus the Internet of Things in the medical field brings out the solution for effective patient monitoring at reduced cost and also reduces the trade-off between patient outcomeand disease management.Artificial intelligence (AI) is intelligence demonstrated by machines, as opposed to natural intelligence displayed by animals including humans.

Leading AI textbooks define the field as the study of "intelligent agents": any system that perceives its environment and takes actions that maximize its chance of achieving its goals. Artificial intelligence also can be described machines that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving", however, this definition is rejected by major AI researchers An elderly person should be monitored constantly, specifically if he or she has been diagnosed for healthrelated problems before. In the proposed system, a patient's condition is monitored by using multimodal inputs, specifically, speech and video. Video cameras and microphones are installed in smart homes; these sensors constantly capture video and speech of the patient, and transmit them to a dedicated cloud.

CHAPTER -3

3.1 PROPOSED METHODOLOGY

In the proposed system 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. Paralysis is most often caused by damage in the nervous system, especially the spinal cord. Paralysis is caused by injury or disease affecting the central nervous system (brain and spinal cord) which means that the nerve signals sent to the muscles is interrupted.Even though, there are innovative approaches for curing or treating paralysis patients.But the aim of treatment is to help a person adapt to life with paralysis 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.Our goal is to make a device that will be able to retrain a patient's motion but have they are able to use the device themselves and have it be cheap enough for them to afford without much debt.

The proposed system is divided into three parts, Patient Data Acquisition & Device Control (Input, Output&Processing System), Doctor's Panel, Patient Panel (SelfMonitoring & Device Control). Patient data acquisition and device control, Whole hardware setup forms first module. This is the main & primary module of presented system. It collects the sensor's data and feeds to the IoT enabled microcontroller which acts as a brain of this system.
This brain sends all data to web application where doctor & patient can login to monitor health. Microcontroller has Wi-Fi chipset to perform the connectivity with webserver via Wi-Fi network present at patient's place. This module also performs the task of appliance control in patient's room on his requests being generated from web application itself. Doctor's Panel, this is the part of web application where only doctor can login to view all the data of all his/her patients.

This data includes the threshold values of patient's health parameters being sensed by sensors, alert limits, reminders etc.

All the critical data records of patient will be stored here & are accessible only by doctor.

Patient Panel, this is the part of web application where only patient can login to monitor his routine health check records and the threshold values as well as reminders set by his doctor. This panel also gives functionality to patient to control devices in his room which are connected to this system .

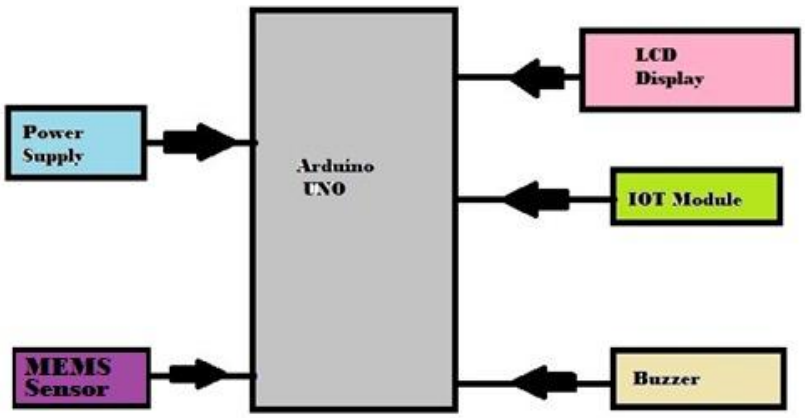


Fig 3.1: Block Diagram

Key words:

- Arduino UNO
- Power supply
- LCD Display
- IoT Module
- Buzzer
- RF Module
- MEMS Sensor

3.2 Hardware Description:

3.2.1 Power Supply

All electronic circuits works only in low DC voltage, so we need a power supply unit to provide the appropriate voltage supply for their proper functioning. This unit consists of transformer, rectifier, filter & regulator. AC voltage of typically 230volts rms is connected to a transformer voltage down to the level to the desired ac voltage. A diode rectifier that provides the full wave rectified voltage that is initially filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation . A regulator circuit can use this dc input to provide dc voltage that not only has much less ripple voltage but also remains the same dc value even the dc voltage varies some what, or the load connected to the output dc voltages changes.

7805 is an integrated three-terminal positive fixed linear voltage regulator. It supports an input voltage of 10 volts to 35 volts and output voltage of 5 volts. It has a current rating of 1 amp although lower current

models are available. Its output voltage is fixed at 5.0V. The 7805 also has a built-in current limiter as a safety feature. 7805 is manufactured by many. companies, including National Semiconductors and Fairchild Semiconductors.

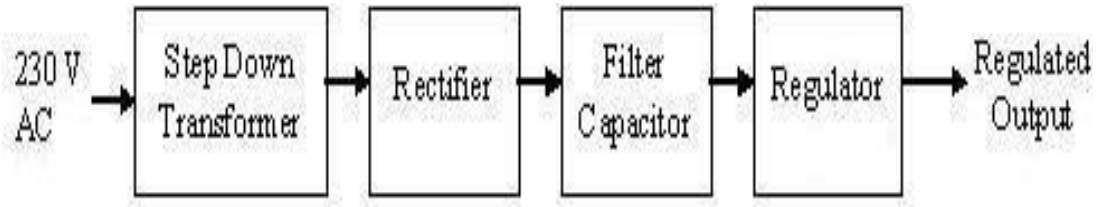


Fig 3.2.i Power Supply

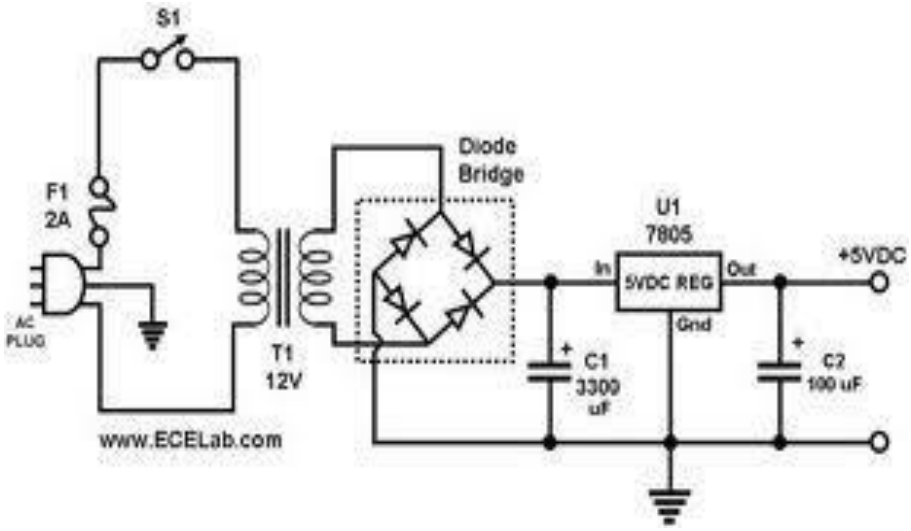


Fig 3.2.ii Circuit Diagram of Power Supply

The 7805 will automatically reduce output current if it gets too hot.The last two digits represent the voltage; for instance, the 7812 is a 12-volt regulator. The 78xx series of regulators is designed to work in complement with the 79xx series of negative voltage regulators in systems that provide both positive and negative regulated voltages, since the 78xx series can't regulate negative voltages in such a system.

The 7805 & 78 is one of the most common and well-known of the 78xx series regulators, as it's small component count and medium-power regulated 5V make it useful for powering TTL devices.

3.2.2 Transformer:

A transformer is a static piece of which electric power in one circuit is transformed into electric power of same frequency in another circuit. It can raise or lower the voltage in the circuit, but with a corresponding decrease or increase in current. It works with the principle of mutual induction. . In our project we are using a step down transformer to providing a necessary supply for the electronic circuits. Here we step down a 230volts ac into 12volts ac.

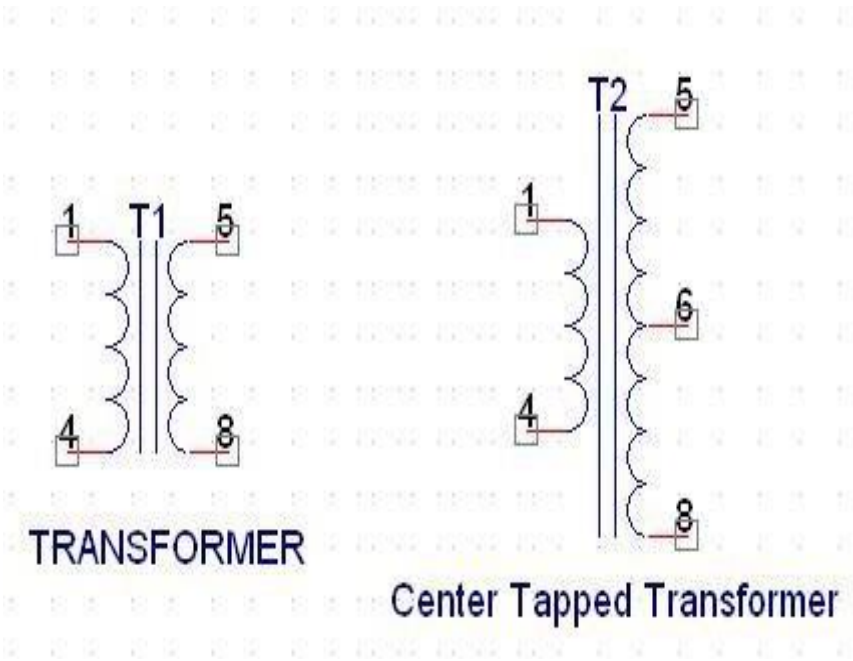


Fig 3.2.2 Transformer

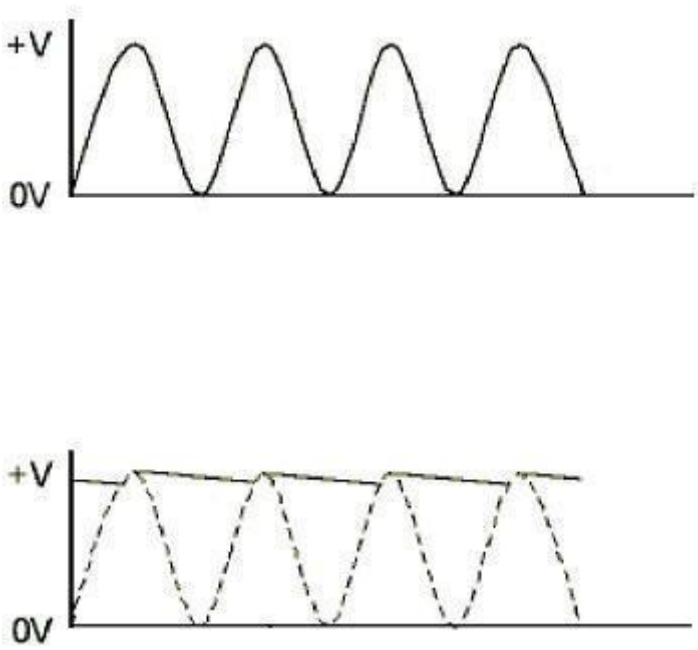
3.2.3 Rectifier:

A dc level obtained from a sinusoidal input can be improved 100% using a process called full wave rectification. Here in our project for full wave rectification we use bridge rectifier. From the basic bridge configuration we see that two diodes(say D2 & D3) are conducting while the other two diodes (D1 & D4) are in off state during the period t = 0 to T/2.Accordingly for the negative cycle of the input the conducting diodes are D1 & D4 .

Thus the polarity across the load is the same. In the bridge rectifier the diodes may be of variable types like 1N4001, 1N4003, 1N4004, 1N4005, IN4007 etc.… can be used. But here we use 1N4007, because it can withstand up to 1000v.

3.2.4 Filter Capacitor:

In order to obtain a dc voltage of 0 Hz, we have to use a low pass filter. So that a capacitive filter circuit is used where a capacitor is connected at the rectifier output& a dc is obtained across it. The filtered waveform is essentially a dc voltage with negligible ripples & it is ultimately fed to the load.



3.2.5 Voltage Regulator:

The output voltage from the capacitor is more filtered & finally regulated. The voltage regulator is a device, which maintains the output voltage constant irrespective of the change in supply variations, load variations & temperature changes. Here we use fixed voltage regulator namely LM7805.The IC LM7805 is a +5v regulator which is used for microcontroller.

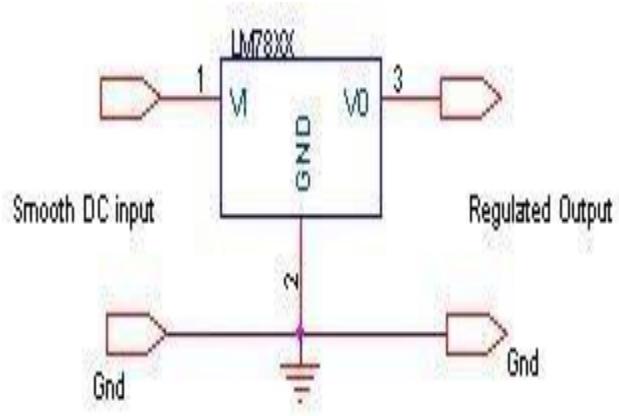


Fig 3.2.5 Volatage Regulator

3.2.6 Features And Description of Regulators :

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

3.3 Arduino:

Arduino is an open source computer hardware and software company, project, and user community that designs and manufacture single-board Microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical world.

Arduino board designs use a variety of microprocessors and controls. The boards are equipped with sets of digital analog input/output (I/O) pins that may be interfaced to various expansion boards or Breadboards (shields) and other circuits. The board features serial communications interfaces, including Universal_Srerial Bus(USB) on some models, which are also used for loading programs from personal computers. The microcontrollers are typically programmed using a dialect of features from the programming languages C and C++. In addition to using tradition compiler tool chains, the Arduino project provides an intergrated development environment (IDE) based on Processing language project.

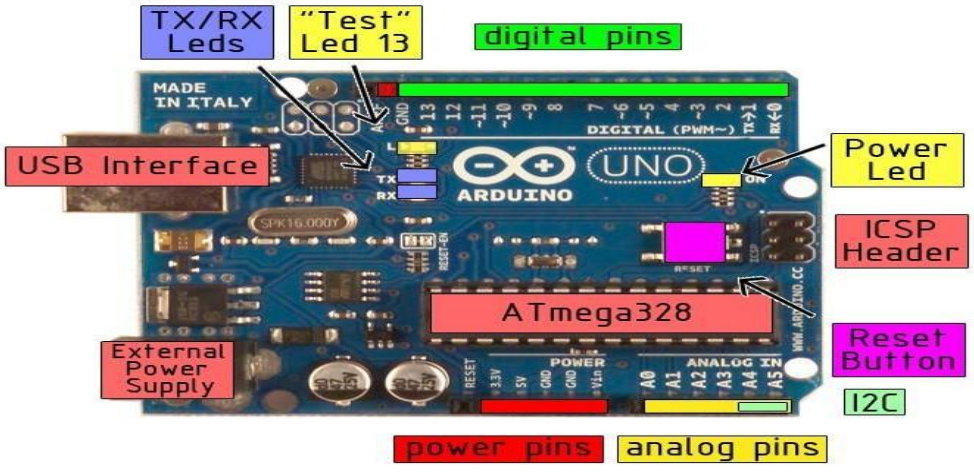


Fig 3.3 Arduino

3.4 Wifi Module:

The ESP8266 is the name of a micro controller designed by Espressif Systems. The ESP8266 itself is a self-contained WiFi networking solution offering as a bridge from existing micro controller to WiFi and is also capable of running self-contained applications. This module comes with a built in USB connector and a rich assortment of pin-outs. With a micro USB cable, you can connect NodeMCU devkit to your laptop and flash it without any trouble, just like Arduino. It is also immediately breadboard friendly. The ESP8266 Wifi module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor

Fig 3.4 Wifi Module

Features of Wifi Module:

- Wi-Fi Direct (P2P), soft-AP
- Integrated TCP/IP protocol stack
- Integrated TR switch, balun, LNA, power amplifier and matching network
- Integrated PLL, regulators, and power management units
- +19.5dBm output power in 802.11b mode
- Integrated temperature sensor
- Supports antenna diversity
- Power down leakage current of < 10Ua

- Integrated low power 32-bit CPU could be used as application processor
- SDIO 2.0, SPI, UART
- STBC, 1×1 MIMO, 2×1 MIMO
- A-MPDU & A-MSDU aggregation & 0.4μs guard interval
- Wake up and transmit packets in < 2ms
- Stand by power consumption of < 1.0mW (DTIM3)

ESP8266 offers a complete and self-contained Wi-Fi networking solution, allowing it to either host the application or to offload all Wi-Fi networking functions from another application processor.When ESP8266 hosts the application, and when it is the only application processor in the device, it is able to boot up directly from an external flash. It has integrated cache to improve the performance of the system in such applications, and to minimize the memory requirements.Alternately, serving as a Wi-Fi adapter, wireless internet access can be added to any microcontroller-based design with simple connectivity through UART interface .

3.5 RF Transmitter:

Arduino/Genuino Uno is a microcontroller board in view of the ATmega328P. It has 14advanced information/yield pins (of which 6 can be utilized as PWM yields), 6 simple datasources, a 16 MHz quartz precious stone, a USB association, a power jack, an ICSP headerand a reset catch. It contains everything expected to bolster the microcontroller; just associateit to a PC with a USB link or power it with an AC-to-DC connector or battery tobegin. Youcan tinker with your UNO without agonizing excessively over accomplishing somethingincorrectly, most dire outcome imaginable you can trade the chip for a couple of dollars andbegin once again once more.

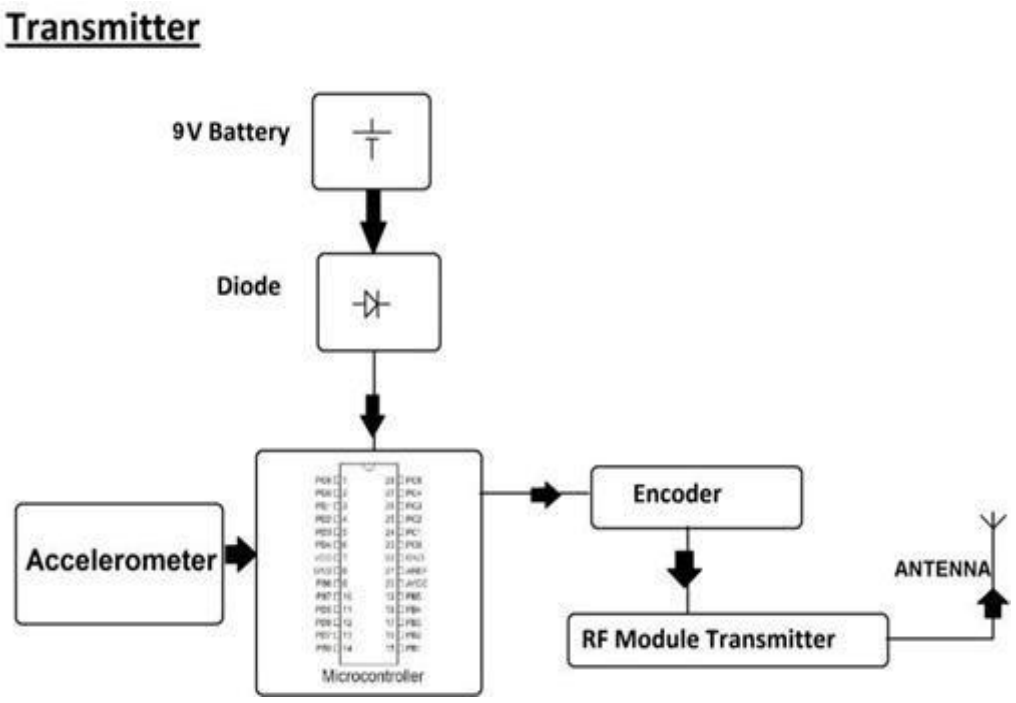


Fig 3.5: Block Diagram of RF Transmitter

The STT-433 is ideal for remote control applications where low cost and longer range is required. The transmitter operates from a1.5-12V supply, making it ideal for battery-powered applications. The transmitter employs a SAW-stabilized oscillator, ensuring accurate frequency control for best range performance. Output power and harmonic emissions are easyto control, making FCC and ETSI compliance easy. The manufacturing-friendly SIP style package and low-cost make the STT-433 suitable for high volume applications. OOK(On Off Keying) modulation is a binary form of amplitude modulation. When a logical 0 (data line low) is being sent, the transmitter is off, fully suppressing the carrier. In this state,the transmitter current is very low, less than 1mA. When a logical 1 is being sent, the carrier is fully on. In this state, the module current consumption is at its highest, about 11mA with a 3V power supply. OOK data rate is limited by the start-up time of the oscillator.

High-Q oscillatorswhich have very stable center frequencies take longer to start-up than low-Q oscillators. The start-up time of the oscillator determines the maximum data rate that the transmitter can send.

3.6 RF Receiver Module:

The RF module, as the name suggests, operates at Radio Frequency. The corresponding frequency range varies between 30 kHz & 300 GHz. In this RF system, the digital data is represented as variations in the amplitude of carrier wave. This kind of modulation is known as Amplitude Shift Keying (ASK). Transmission through RF is better than IR (infrared) because of many reasons. Firstly, signals through RF can travel through larger distances making it suitable for long range applications. Also, while IR mostly operates in line-of-sight mode, RF signals can travel even when there is an obstruction between transmitter & receiver. Next, RF transmission is more strong and reliable than IR transmission. RF communication uses a specific frequency unlike IR signals which are affected by other IR emitting sources. This RF module comprises of an RF Transmitter and an RF Receiver. The transmitter/receiver (Tx/Rx) pair operates at a frequency of 434 MHz. An RF transmitter receives serial data and transmits it wirelessly through RF through its antenna connected at pin4. The transmission occurs at the rate of 1Kbps – 10Kbps.The transmitted data is received by an RF receiver operating at the same frequency as that of the transmitter.

The RF module is often used along with a pair of encoder/decoder. The encoder is used for encoding parallel data for transmission feed while reception is decoded by a decoder. HT12E-HT12D, HT640- HT648, etc. are some commonly used encoder/decoder pair ICs.

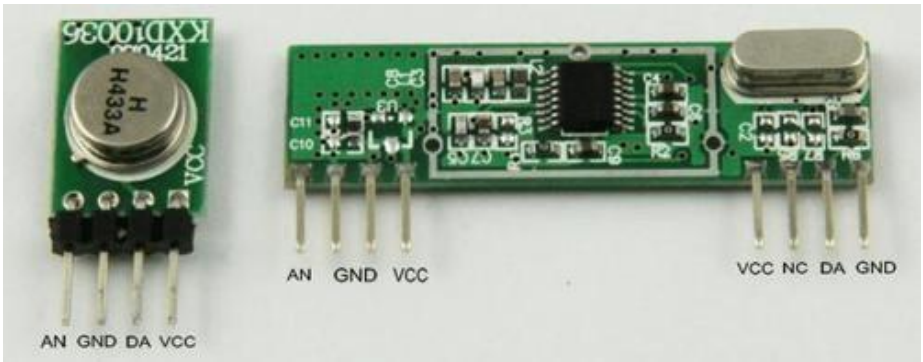


Fig 3.6 RF Receiver Module

❖ **Features**

- Low Cost
- 5V operation
- 3.5mA current drain
- No External Parts are required
- Receiver Frequency: 433.92 MHZ
- Typical sensitivity: -105dBm
- IF Frequency: 1MHz

❖ **Applications**

- Car security system
- Sensor reporting
- Automation system
- Remote Keyless Entry (RKE)
- Remote Lighting Controls
- On-Site Paging
- Asset Tracking
- Wireless Alarm and Security Systems
- Long Range RFID

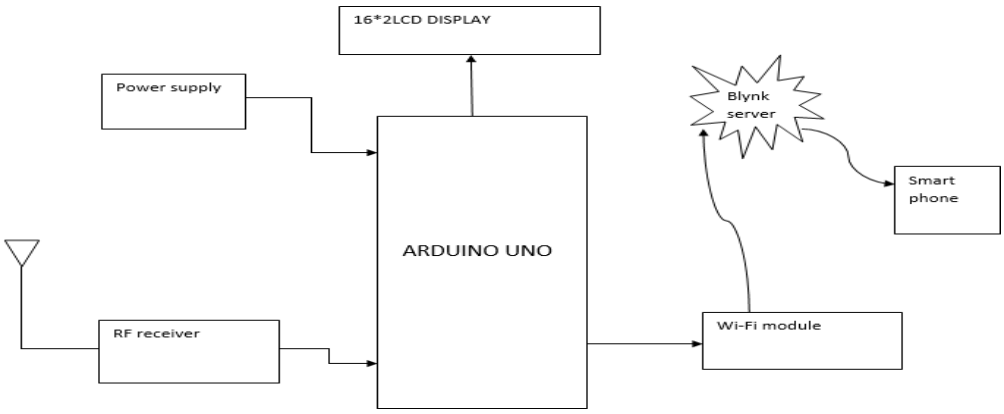


Fig 3.6.i : Block Diagram of RF Receiver

Arduino (open source electronic prototype platform) is the main core of own 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 monitor the paralyzed patient health. For that purpose we used temperature sensor and heart beat sensorto measure the body temperature and BPM respectively. Heart beat sensor or pulse sensor works on the principle of photo phlethhysmography. It measure the change of volume of blood through any organ of the body which cause a change in the intensity of light through that organ. Any pulse sensor has two transmitter and receiver section. In the transmission section. The high intensity of light ray is emitter light is emitter to the organ that emitter light is reflected back from the blood and that reflected light signalis detected by photodiode of thesensor. The directly proportional to the volume of the blood. According to related signal BPMis calibrated.

3.7 LCD Display:

LCD(liquid crystal display) is the technology used for display in notebook and other smaller computers. Like light-emitting diode diode (LED) and gas-plasma technologies, LCD's allow displays to be much thinner than LED and gas-display displays because they work on the principle of blocking light rather than emitting it. An LCD is made with either passive matrix or an active matrix display display grid. The active matrix LCD is also known as a thin film transistor (TFT) display. The passive matrix LCD has a grid of conductors with pixels located at each intersection in the grid. A current is sent across two conductors on the grid to control the light for any pixel. An active matrix has a transistor located at each pixel intersection, requiring less current to a control the luminance of a pixel. For this reason, the current in an active matrix display can be switched on and off mare frequently, improving thescreen refresh time (your mouse will aooear to move more smoothly across the screen.

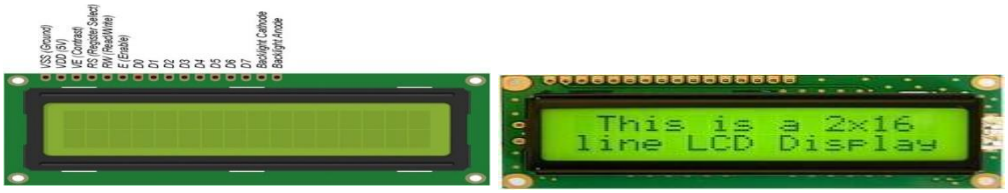


Fig 3.7:LCD Display

Liquid Crystal Display also called as LCD is very helpful in providing user interface as well as for debugging purpose. The most common type of LCD controller is HITACHI 44780 which provides a simple interface between the controller & an LCD. These LCD's are very simple to interface with the controller as well as are cost effective.

The most commonly used ALPHANUMERIC displays are 1x16 (Single Line & 16 characters), 2x16 (Double Line & 16 character per line) & 4x20 (four lines & Twenty characters per line).

The LCD requires 3 control lines (RS, R/W & EN) & 8 (or 4) data lines. The number on data lines depends on the mode of operation. If operated in 8-bit mode then 8 data lines + 3 control lines i.e. total 11 lines are required. And if operated in 4-bit mode then 4 data lines + 3 control lines i.e. 7 lines are required.

3.8 Jumper Wire :

Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed. Jumper wires typically come in three versions: male-to-male, male-to-female and female-to-female. The difference between each is in the end point of the wire. Male ends have a pin protruding and can plug into things, while female ends do not and are used to plug things into. Male-to-male jumper wires are the most common and what you likely will use most often. When connecting two ports on a breadboard, a male-to-male wire.

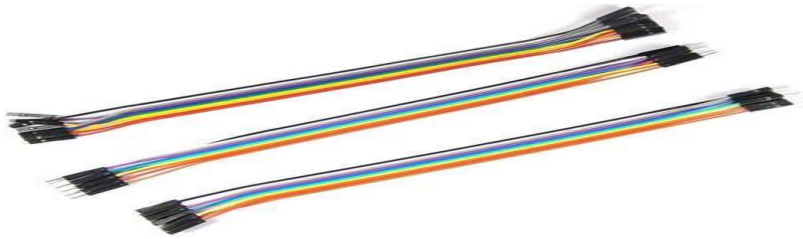


Fig 3.8 : Jumper wire

3.9 Buzzer :

A buzzer or beeper is an audio signalling device, which can be mechanical, electro mechanical or piezoelectric. Typical use of buzzer and beepers include alarm devices, time and confirmation of user input, such as mouse click or key stroke. We have used piezoelectric buzzer at our project as an alert for LPG and fire detection. A piezoelectric element may be driven by an oscillating electronic circuit or other audio signal source, driven with an piezoelectric audio amplifier.

Buzzer alert us by beeping continuously whenever fire is detected keeps on beeping until the fire goes out and a by beeping in pluse mode for it alerts us on LPG leakage. The diagram of piezoelectric buzzer is given below.

Fig 3.7: Buzzer

The **circuit diagram of the water level indicator using the buzzer** is shown below. This circuit is used to sense or detect the water level within the tank or washing machine or pool, etc. This circuit is very simple to design using few components such as a transistor, buzzer, 300K variable resistor, and power supply or 9V battery.

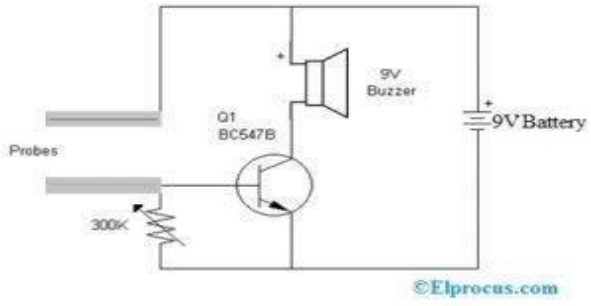


Fig 3.9.i.Water Level Circuit using Buzzer

Once the two probes of the circuit are placed in the tank, it detects the level of water. Once the water level exceeds the fixed level, then it generates a beep sound through a buzzer connected to the circuit. This circuit uses a BC547B NPN transistor, however we can also use any general- purpose transistor instead of using 2N3904/2N2222.

This water level sensor circuit working is very simple and the transistor used within the circuit works as a switch. Once the two probes notice the water level within the tank, then the transistor turns ON & the voltage begins flowing throughout the transistor to trigger the buzzer

3.9.1 Advantages And Disadvantages:

The advantages of a buzzer include the following.

- Simply Compatible
- FrequencyResponse is Good
- Size is small
- Energy Consumption is less
- Sound Pressure is high

The disadvantages of the buzzer include the following.

- Controlling is a little hard
- Generates Annoying Sound
- Training is necessary to know how to repair the condition without just turning off.

3.10. Software Descriptioin :

Software refers to the things which can't be touch and seen. Arduino UNO is needed to be programmed at first so that it could perform the task as instructed. So we first download the Arduino Ide and install it in our computer. After then we connect the board to computer by using USB serial converter. Open the Arduino application and we should select the port of USB and after connection if it blinks LED then it is installed successfully and is ready for programming. By looking at hardware configuration and steps we have to program the

Arduino . Its programming language is simple and clear and it is expanded from of C++ language. So it is more users friendly and easy for programming.

Due to its specified pin programming has become easier too. After that before connecting out Wi-FI module to our microcontroller it is needed to get flashed first. So download and we connect our Wi-Fi module USB Serial Board and started flashing the firmware. After flashing successfullyit will be able run our Wi-Fi module.

Then we need blynk libraries for programming and while programming it we have to insert our internet connected Wi-Fi router SSID and Password so that Wi-Fi module can connect to server which we want use for IOT.

We need toinstall an application named Blynk at our smartphone. After installing Blynk app we have to open it and log in with our E-mail ID. After logging in we create a new project and we should select the board and hardware model and write the project name and after creating it we should instantly get an Auth token at our E-mail ID. Auth token is a unique identifier which isneeded to connect the hardware to our smartphone. We should have to copy that Auth token and upload to Wi-Fi module connected with Arduino.

3.10.1 Arduino Ide :

- Arduino IDE is an open source software that is mainly used for writing and compiling the code into the Arduino Module.
- It is an official Arduino software, making code compilation too easy that even a common person with no prior technical knowledge can get their feet wet with the learning process.
- It is easily available for operating systems like MAC, Windows, Linux and runs on the Java Platform that comes with inbuilt functions and commands that play a vital role for debugging, editing and compiling the code in the environment.
- A range of Arduino modules available including Arduino Uno, Arduino Mega, Arduino Leonardo, Arduino Micro and many more.
- Each of them contains a microcontroller on the board that is actually programmed andaccepts the information in the form of code.

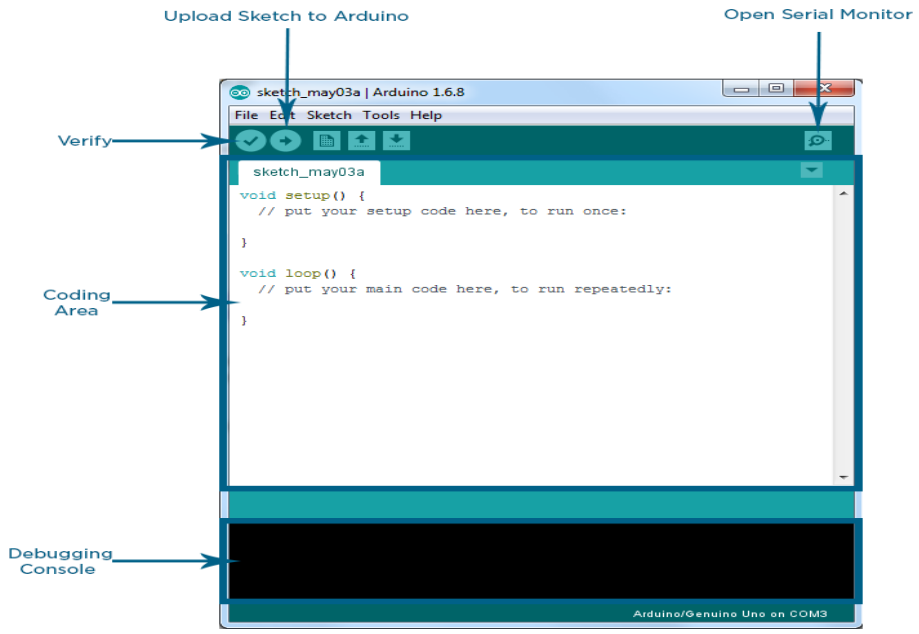


Fig : 3.10.1 Arduino Ide

- The main code, also known as a sketch, created on the IDE platform will ultimately generate a Hex File which is then transferred and uploaded in the controller on the board.
- The IDE environment mainly contains two basic parts: Editor and Compiler where former is used for writing the required code and later is used for compiling and uploading the code into the given Arduino Module.This environment supports both C and C++ languages.

3.10.2 Blynk :

Blynk is a platform with iso and android apps to control Arduino, Raspberry pi and the likes over the internet. It's digital dashboard where you can built a graphic interface for your project by simply dragging and dropping widgets.Blink is not tide to specific board or shield.insted, it's supporting hardware of your choice. Whatever your aurdino or raspberry pi is linked to the internet over wi-fi, Ethernet or this new ESP8266 cheap, blink will get you online and ready for the internet of your things.

It can control hardware remotely, it can display sensors data, it can store data , visualize it and can do many other things too. It is the one of the most popular mobile app for the iot which work with anythings : ESP8266, Aurdino,Raspberry Pi, Sparkfun and many others.

There are three major components in the platform:

- Blynk App- allows to you create amazing interfaces for your projects using various widget we provide.
- Blynk Server – responsible for all the communication between the smartphone and hardware. You can use our Blynk Cloud or run your private Blynk server locally.
- Its open-source,could easily handle thousands of devices and can even be launched on a Raspberry Pi.
- Blynk Libaries- for all the popular hardware platforms –Enable communication with the server and process all the incoming and outcoming a=commands.

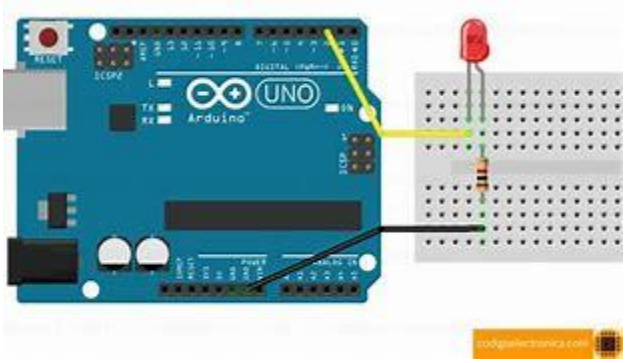


Fig 3.10.2 Blynk

3.10.3 SAW Stabilized Oscillator:

The transmitter is basically a negative resistance LC oscillator whose center frequency is tightly controlled by a SAW resonator. SAW (Surface Acoustic Wave) resonators are fundamental frequency devices that resonate at frequencies much higher than crystals.

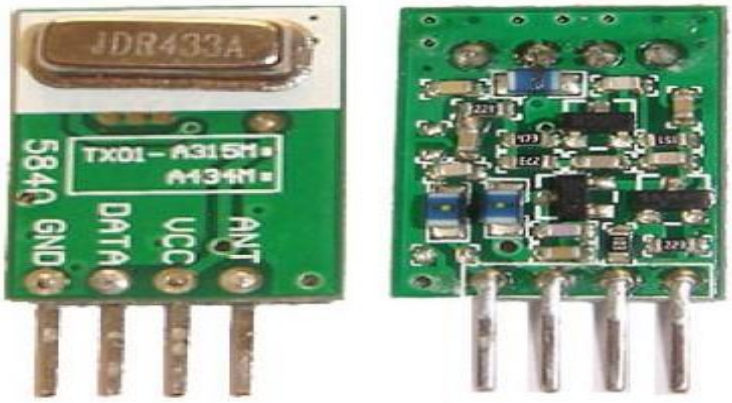


Fig3.10.3.SAW stabilized oscillator

❖ **Features**

- 433.92 MHz Frequency
- Low Cost
- 1.5-12V operation
- 11mA current consumption at 3V
- Small size
- 4 db m output power at 3V

❖ Applications

- Remote Keyless Entry (RKE)
- Remote Lighting Controls
- On-Site Paging
- Asset Tracking
- Wireless Alarm and Security Systems
- Long Range RFID
- Automated Resource Management

CHAPTER-4

RESULT

4.1 Circuit Connection:

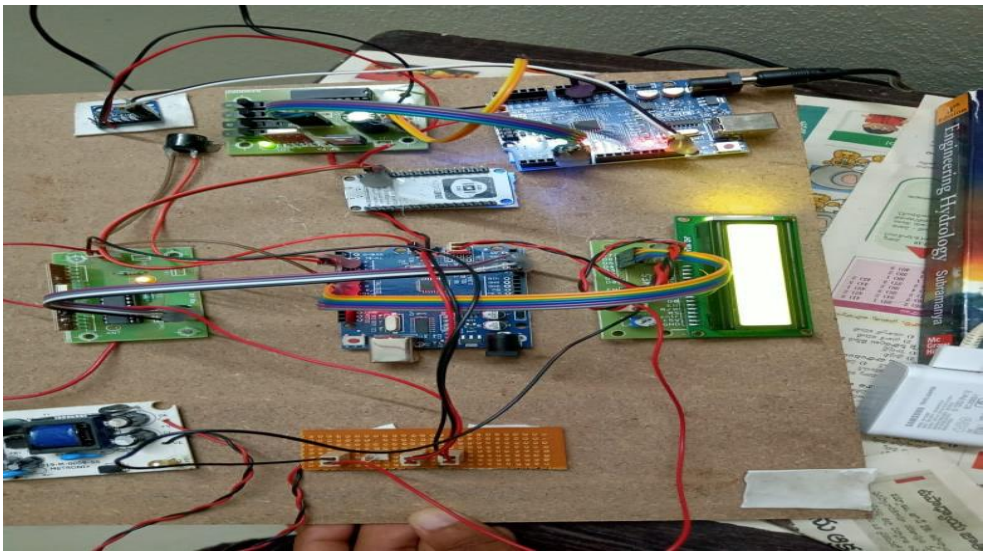


Fig 4.1.Circuit Connection

This is our final circuit connection.There lated message has now been shown on the LCD panel by the help of micro controller.

4.2. LCD Display-Patient Helping System:

Fig 4.2. LCD Display-Patient Helping System

The patient's health will be continuously monitored. If they need to go helping then they can tilt their hand in a particular position, it will be shown on the LCD display.

4.3.LCD Display-Need Food:

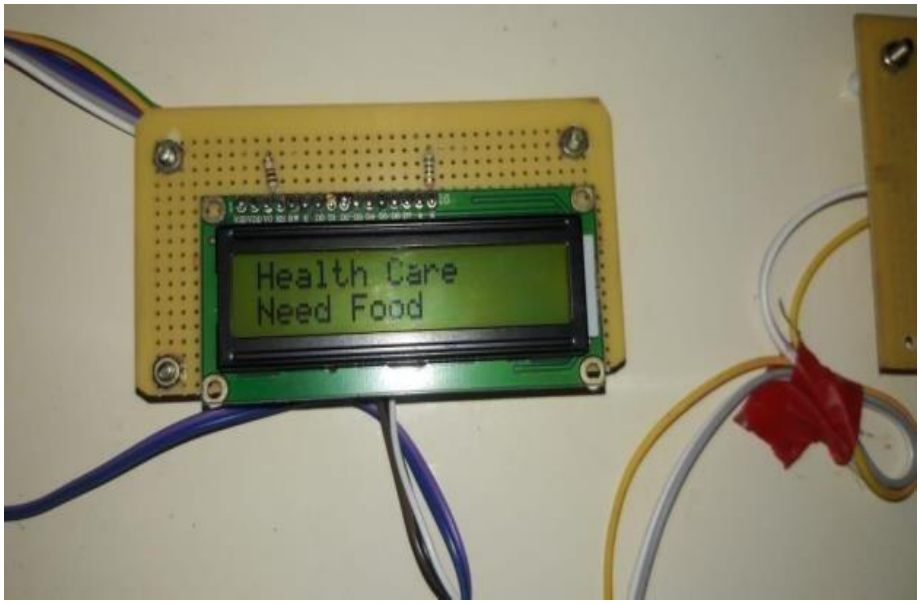


Fig 4.3.LCD Display-NeedFood

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 food and sound an alarm.

4.4.LCD Display-Need Water:

Fig 4.4.LCD Display-NeedWater

The displayed outputs will assist patients in meeting their needs.They need water or their requirements if the angle changed based on their need it will alert the persons.

4.5. LCD Display-Tablets:

Fig 4.5.LCD Display-Need Tablets

Pulse rate and body temperature will be registered, as well as fear ,so that if the patient is in an tablets, or else if they fall down on the floor the in formation will be shown automatically and a continuous warning sound will be produced through buzzer.

CHAPTER-5

5.1.Advantages And Limitation:

❖ **Advantages :**

- Disable people can easily communicate with other people.
- Disable people can ask for help if they need.
- Secured and reliable communication.

❖ **Limitation:**

- Internet is required for communicating the people.
- Fully paralyzed people cannot use because they cannot produce gesture.
- High cost.

5.2.Appliations:

This project can be used in following:

- Hospital for communicating with doctors and nurses.
- Home or office for communicating with other people.
- For asking help to other.

CHAPTER-6

6.1.Conclusion:

- This system is really helpful for paralyses patients.
- This system is reliable and cheap and less weight.so they can buy without debt.
- This system will make paralyses patients to achieve a independent of mobility.
- This is not a trivial task just because it varies from person to person its nature and tasks.
- Therefore,different methods are essential to support these people, and it is our duty,
- In the future engineers,to develop new technologies to help paralysed patients.

6.2.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.
- But there is one disadvantage that will happen increase cost but the increase.

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APPENDIX

Source Code:

```
#include <SoftwareSerial.h>
#include<LiquidCrystal.h>
#include <Wire.h>
#include <Adafruit_Sensor.h>
#include <Adafruit_ADXL345_U.h>
Adafruit_ADXL345_Unified accel = Adafruit_ADXL345_Unified(12345);
SoftwareSerial gsmSerial(2,3);
LiquidCrystal lcd(13,12,11,10,9,8);
const int B = 7;
const int o1 = 4;
const int o2 = 5;
const int o3 = 6;
const int o4 = 7;
void setup()
{

digitalWrite(13,HIGH);
delay(2000);
pinMode(B,OUTPUT);
pinMode(o1,OUTPUT);

pinMode(o2,OUTPUT);
pinMode(o3,OUTPUT);
pinMode(o4,OUTPUT);
digitalWrite(B,HIGH);
digitalWrite(o1,HIGH);
digitalWrite(o2,HIGH);
digitalWrite(o3,HIGH);
digitalWrite(o4,HIGH);
if(!accel.begin())
{

digitalWrite(13,HIGH);

}

else

{
```

```
digitalWrite(13,LOW);

}

lcd.clear();

}

void loop()

{


sensors_event_t event;
accel.getEvent(&event);

if(event.acceleration.x>5)

{

digitalWrite(o1,LOW);

}

else if(event.acceleration.x<-5)

{

digitalWrite(o2,LOW);

}

else if(event.acceleration.y>5)

{

digitalWrite(o3,LOW);

}

else if(event.acceleration.y<-5)

{
```

```
digitalWrite(o4,LOW);

}

else

{

digitalWrite(o1,HIGH);
digitalWrite(o2,HIGH);
digitalWrite(o3,HIGH);
digitalWrite(o4,HIGH);
}

}



#include <SoftwareSerial.h>
#include<LiquidCrystal.h>
#include <Wire.h>
#include <Adafruit_Sensor.h>
#include <Adafruit_ADXL345_U.h>
Adafruit_ADXL345_Unified accel = Adafruit_ADXL345_Unified(12345);
SoftwareSerial IOTSerial(2,3);
// RX, TX
LiquidCrystal lcd(13,12,11,10,9,8);
const int i1 = 14;
const int i2 = 15;
const int i3 = 16;
const int i4 = 17;
const int B = 7;
void setup()
{

IOTSerial.begin(9600);
pinMode(B,OUTPUT);
digitalWrite(B,HIGH);
pinMode(i1,INPUT_PULLUP);
pinMode(i2,INPUT_PULLUP);
pinMode(i3,INPUT_PULLUP);

pinMode(i4,INPUT_PULLUP);
lcd.begin(16, 2);
lcd.setCursor(0, 0);
```

```
lcd.print("Patient Helping");
lcd.setCursor(0, 1);
lcd.print("System");
delay(2000);
lcd.clear();

}

void loop()

{

if(digitalRead(i1)==LOW)

{

lcd.setCursor(0, 0);
lcd.print("I Need Food   ");
lcd.setCursor(0, 1); lcd.print("   ");
digitalWrite(B,LOW);
delay(1000);
digitalWrite(B,HIGH);
delay(1000);
for(i=0;i<5;i++)
{

IOTSerial.print("*<meta http-equiv=\"refresh\" content = \"3\" ><h1
style =\" color:red;text-align:center\">PATINET HELPING</h1><h1
style=\"color:blue;text- align:center\">SYSTEM</h1>");
IOTSerial.print("<h2 style=\"text-align:center\">");
IOTSerial.print("<span style=\"color:red\">I Need Food</span></h2>#");
}

}

else if(digitalRead(i2)==LOW)

{

lcd.setCursor(0, 0);
lcd.print("I Need Water ");
lcd.setCursor(0, 1); lcd.print("   ");
digitalWrite(B,LOW); delay(1000);
digitalWrite(B,HIGH); delay(1000);
for(i=0;i<5;i++)
```

```
{

IOTSerial.print("*<meta http-equiv=\"refresh\" content = \"3\" ><h1
style=\"color:red;text-align:center\">PATINET HELPING</h1><h1
style=\"color:blue;text- align:center\">SYSTEM</h1>");
IOTSerial.print("<h2 style=\"text-align:center\">");
IOTSerial.print("<span style=\"color:red\">I Need Water</span></h2>#");
}

}

else if(digitalRead(i3)==LOW)

{

lcd.setCursor(0, 0);
lcd.print("I Need Tablets ");
lcd.setCursor(0, 1);
lcd.print("          ");
digitalWrite(B,LOW);
delay(1000);
digitalWrite(B,HIGH);
delay(1000);
for(i=0;i<5;i++)
{

IOTSerial.print("*<meta http-equiv=\"refresh\" content = \"3\" ><h1
style=\"color:red;text-align:center\">PATINET HELPING</h1><h1
style=\"color:blue;text- align:center\">SYSTEM</h1>");
IOTSerial.print("<h2 style=\"text-align:center\">");

IOTSerial.print("<span style=\"color:red\">I Need Tablets</span></h2>#");

}

}

else if(digitalRead(i4)==LOW)

{

lcd.setCursor(0, 0);
lcd.print("I Need Help   ");
lcd.setCursor(0, 1);
```

```
lcd.print("          ");
digitalWrite(B,LOW);
delay(1000);
digitalWrite(B,HIGH);
delay(1000);
for(i=0;i<5;i++)
{

IOTSerial.print("*<meta http-equiv=\"refresh\" content = \"3\" ><h1
style=\"color:red;text-align:center\">PATINET HELPING</h1><h1
style=\"color:blue;text- align:center\">SYSTEM</h1>");
IOTSerial.print("<h2 style=\"text-align:center\">");
IOTSerial.print("<span style=\"color:red\">I Need Help</span></h2>#");
}

}

else

{

lcd.setCursor(0, 0);
lcd.print("Patient Helping");
lcd.setCursor(0, 1);
lcd.print("System");
IOTSerial.print("*<meta http-equiv=\"refresh\" content = \"3\" ><h1
style=\"color:red;text-align:center\">PATINET HELPING</h1><h1
style=\"color:blue;text- align:center\">SYSTEM</h1>#");
}

}
```