A Report

on

LIFE BOT

BACHELOR OF TECHNOLOGY

In

Computer Science Engineering –Internet of Things

Submitted by

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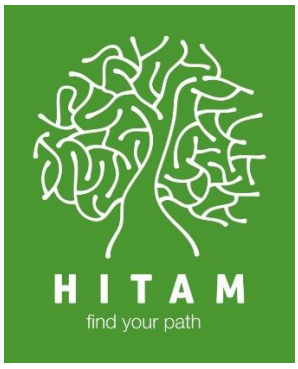
Design Thinking



DEPARTMENT EMERGING TECHNOLOGY

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CERTIFICATE

This is to certify that the Design Thinking Lab Project entitled "LIFE BOT" is a bonafide work carried out, NARNI VENKATA VISWESH (22E51A6947), BADINENI KOUSHIK (22E51A6906), NIKITHA VERMA(22E51A6949), K.SAI VYSHNAVI (22E51A6931), THANNIRU RAJESWARI(22E51A6962) in BACHELOR OF TECHNOLOGY in CSE – IOT during the academic year 2022-2023.

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Acknowledgement

I would like to specially thank my internal guide **Mr. Santosh Naik** our technical guidance, constant encouragement and enormous support provided to usfor carrying out our project work.

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ABSTRACT

LIFE BOT is a groundbreaking device that offers immediate assistance to individuals experiencing seizures. With a simple press of a button, it triggers a prompt response system, alerting pre-programmed emergency contacts with real-time location data. Beyond its life-saving capabilities, LIFE BOT empowers individuals to regain control and independence. By incorporating advanced technology into a portable and accessible device, it offers unparalleled peace of mind to both users and their caregivers.By swiftly connecting those in need to vital medical attention, LIFE BOT aims to reduce complications and enhance patient outcomes, ensuring peace of mind for those affected by seizures.

CHAPTER -1

INTRODUCTION

In a world constantly advancing with materialistic pursuits, it becomes essential to pause and acknowledge the challenges faced by individuals during their most vulnerable moments. For those who experience seizures, swift and effective assistance can be the difference between life and death. This is where LIFE BOT emerges as a revolutionary product, standing as a beacon of hope and support for those navigating through the uncertainties of seizures.

LIFE BOT, a compact and user-friendly device, signifies a leap forward in emergency assistance. Its sole purpose is to provide immediate aid and peace of mind to those affected by seizures, ensuring that they receive the timely medical attention they urgently require. With a simple press of a button, LIFE BOT sets in motion a chain of actions, orchestrating a seamless flow of help towards the individuals in need.

The heart of LIFE BOT lies in its advanced technology, meticulously crafted to cater to the pressing needs of emergency situations. In critical moments, the device acts as a liaison, sending real-time notifications and accurate location data to pre-programmed emergency contacts. This prompt response system drastically reduces response times, potentially averting complications and leading to improved patient outcomes.

Beyond its life-saving capabilities, LIFE BOT embodies user-friendliness and accessibility. This revolutionary product strives to empower individuals by offering a reliable and easy-to-use tool in times of distress. Its intuitive design ensures that no one is left behind during emergencies, allowing anyone, regardless of technical expertise, to swiftly summon assistance.

In a society where time is of the essence, LIFE BOT emerges as a beacon of hope and a guardian angel for those experiencing seizures. By bridging the gap between distress and vital medical attention, this innovative device seeks to foster a safer and more compassionate world, where swift intervention is readily available for anyone in need.

Join us on this transformative journey with LIFE BOT, where each press of a button represents not only assistance but also a testament to the value we place on every life. Embrace the power of innovation and compassion as we endeavor to revolutionize emergency care and redefine what it means to support and empower those affected by seizures. Welcome to the world of LIFE BOT - a lifeline that truly saves lives.

PRODUCT SURVEY

Table-1

S.No	Product name	Cost	Disadvantages
1)	Personal emergency response system	Rs. 5,000/- per month	• Loss of phones service • Expensive
2)	Mobile phones	Rs. 15,000/-	• Cannot be used during seizures. • We can't carry it continuously in hands. • Can't call someone with single press. • Expensive.
3)	Bracelets for epilepsy	10000	• Expensive • Runs only in certain range. • Fails when we are running or doing excessive works. • Cant work without internet.

CHAPTER -2

PROBLEM IDENTIFICATION

Our community partner Ms.Sushma is 30 years old person staying in Pragathi Nagar village and working as a tailor in a shop .She frequently have seizures due to a lot of stress and headaches and epilepsy .Due to her medical conditions , she is facing this issue since a long time . We came to know that she is wishing to get a machine which can help her out during these emergency situations…. and there comes our "LIFE BOT" .Introducing LIFE BOT, a revolutionary product designed to assist individuals in emergencies when experiencing seizures. LIFE BOT is a compact and user-friendly device that provides immediate assistance and peace of mind for those affected by seizures.With a simple press of a button,LIFE BOT instantly triggers a chain of actions to ensure swift medical attention. The device is equipped with advanced technology that sends real-time notifications to pre-programmed emergency contacts, nearby hospitals, and ambulances. This prompt response system ensures that help arrives quickly, potentially reducing the risk of complications and improving overall patient outcomes.

The prevalence of seizures in the population demands urgent attention to the challenges faced by individuals during these critical moments. For those experiencing seizures, the lack of immediate and effective assistance can lead to dire consequences. The existing emergency response systems often fall short in promptly addressing the needs of those affected by seizures, leaving them vulnerable and unsupported during times of distress.

One of the key problems identified is the delay in medical attention during seizures. Traditional emergency response systems may not be equipped to cater specifically to individuals experiencing seizures, leading to slower response times and potential complications. As a result, these individuals may face prolonged periods of distress, exacerbating their condition and impacting their overall well-being.

Moreover, individuals with seizures often face dependence on others for help. The lack of autonomy can be emotionally challenging and may lead to feelings of helplessness and isolation. The need for a reliable and user-friendly solution that empowers individuals to take immediate action during a seizure is evident.

Another issue lies in the limited accessibility and affordability of existing devices designed to assist those with seizures. Many solutions in the market can be prohibitively expensive or require extensive training to operate effectively, hindering their widespread adoption and leaving a significant portion of the population without access to life-saving technology.

Furthermore, the discreet and seamless nature of emergency assistance is crucial in maintaining the dignity and privacy of those affected by seizures. Existing devices may draw unwanted attention or fail to provide a discreet means of seeking help, further adding to the challenges faced by individuals in such situations.

In light of these challenges, there is a pressing need for a revolutionary product like LIFE BOT that addresses these identified problems. LIFE BOT aims to offer swift and proactive emergency assistance, empowering individuals with seizures to regain their independence and peace of mind. By providing a user-friendly and cost-effective solution, LIFE BOT strives to fill the gaps in existing emergency response systems and ensure that no one is left vulnerable during seizures. With its compact and intuitive design, LIFE BOT represents a promising step

towards transforming emergency care and enhancing the quality of life for those facing seizures.

CHAPTER -3

SPECIFICATION DEVELOPMENT

SOFTWARE:

Arduino IDE and Fritzing Software:

Arduino IDE: The software platform used for programming the Arduino Uno, allowing for code development and integration with the hardware components.

Fritzing Software: Utilized for designing circuit diagrams and creating visual representations of the LIFE BOT's hardware configuration, aiding in the prototyping process.

Hardware:

There are mainly four hardware devices used in the project development:

- Arduino Uno
- GSM SIM900A Module
- GPS NEO 6M Module
- 12V 1Amp adapter
- Buzzer
- Battery
- Push Button
- Connecting wires

CHAPTER-4

CONCEPTUAL DESIGN

ARDUINO UNO Board:

ARDUINO UNO is a microcontroller board based on the ATMEGA 328(data sheet). It has 14 digital input/output pins (of which 6 can be used as PMW outputs), 6analog inputs, 16MHZ ceramic resonator, a USB connection, a power jack, an ICSB header and reset button. It consists everything needed to the support the microcontroller, simply connect it to a computer with a USB cable or power it with a AC to DC adapter or battery to get started. The UNO differs from all preceding boards in that it does not use the FTDI USB to serial driver chip. Instead, it features the ATMEGA16U2 (ATMEGA 8U2 up to version R2 programmed as a USB to serial converter.

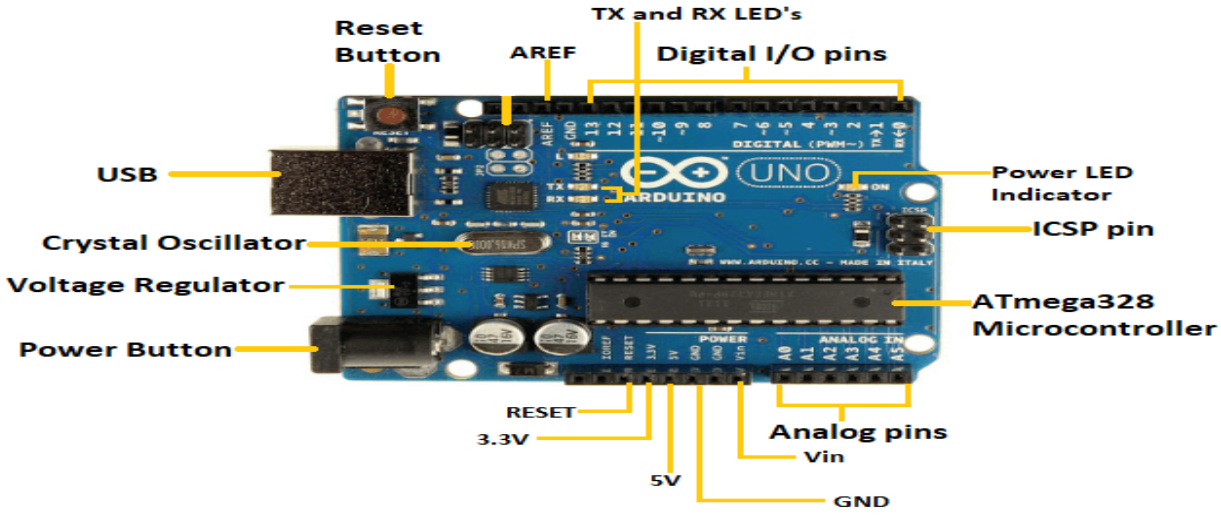

Fig-1

SIM900A:

The SIM900A GSM module is a compact communication device developed by SIMCom Wireless Solutions. It enables various functionalities like making and receiving phone calls, sending and receiving SMS messages, connecting to the internet using GPRS, and interfacing with external devices through digital I/O pins. The module operates on quad-band GSM frequencies, making it compatible with global mobile networks. It requires a standard SIM card and an external antenna for proper functioning. The SIM900A is commonly used in IoT, home automation, and remote monitoring applications, providing reliable and efficient mobile communication capabilities.

Fig-2

12V 1Amp Adapter:

The 12V 1A adapter provides a stable 12-volt output with a maximum current of 1 amp, suitable for powering various electronic devices like routers, CCTV cameras, and LED strips. Ensure compatibility and safety when using the adapter.

Fig-3

Neo-6M GPS:

Neo-6M GPS module is a well-performing complete GPS receiver with a built-in 25x25x4mm ceramic antenna, which provides a strong satellite search capability. With the power and signal indicators, the status of the module can be monitored.

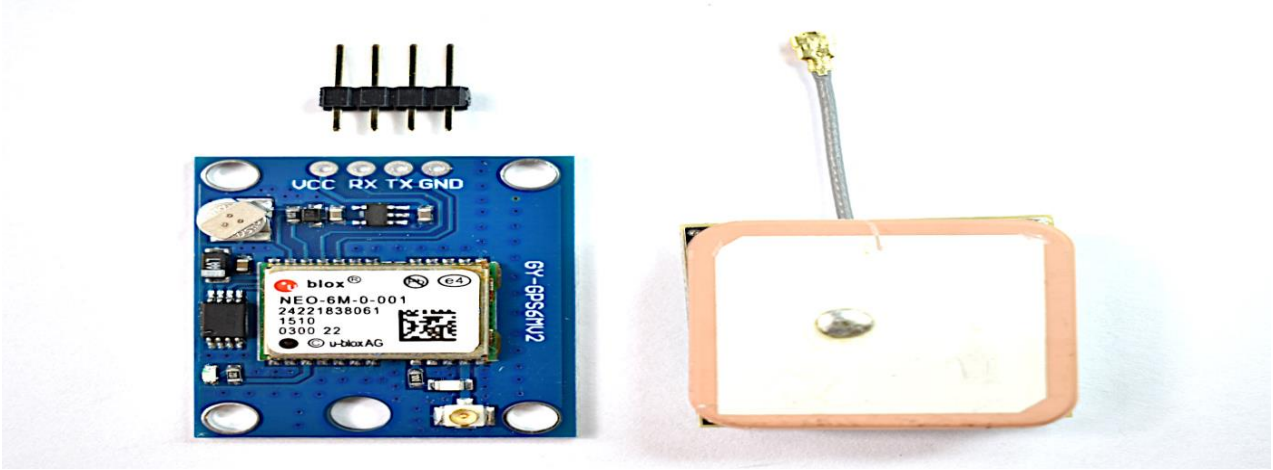

Fig-4

Push Button:

A push button switch is a mechanical device to control an electrical circuit by a manual operation to energize the internal switching mechanism.Push button switches are electrical actuators this switch will close or open an electrical circuit by pressing the switch.

Fig-5

Battery:

9V battery is a common size of battery that was introduced for the early transistor radios. It has a rectangular prism shape with rounded edges and a polarized snap connector at the top. This type is commonly used in walkie-talkies, clocks and smoke detectors. The 9v battery format is commonly available in primary carbon-zinc and alkaline chemistry, in primary lithium ion disulphide, and in rechargeable form in nickel-cadmium, nickel-metal hydride and lithium ion. Mercury-oxide batteries of this format, once common, have not been manufactured in many years due to their mercury content. Designations for this format include NEDA 1604 and IEC 6722 or MN1604 6LR61. The size, regardless of chemistry, is commonly designated PP3-a designation originally reserved solely for carbon-zinc, or in some countries.

Fig-6

Buzzer:

Piezoelectric buzzers, or piezo buzzers, as they are sometimes called, were invented by Japanese manufacturers and fitted into a wide array of products during the 1970s to 1980s. This advancement mainly came about because of cooperative efforts by Japanese manufacturing companies. In 1951, they established the Barium Titanate Application Research Committee, which allowed the companies to be "competitively cooperative" and bring about several piezoelectric innovations and inventions. An audio signaling device like a beeper or buzzer may be electromechanical or piezoelectric or mechanical type. The main function of this is to convert the signal from audio to sound. Generally, it is powered through DC voltage and used in timers, alarm devices, printers, alarms, computers, etc. Based on the various designs, it can generate different sounds like alarm, music, bell & siren.

Fig-7

DECISION MATRIX

Table-2

	MAX POINTS	IDEA 1	IDEA 2	IDEA 3
USABILITY	5	5	4	3
RELIABILTY	5	4	3	3
MAINTENANCE	5	4	4	5
ACCURACY	5	4	2	3
TOTAL	100	85	65	70

IDEA 1

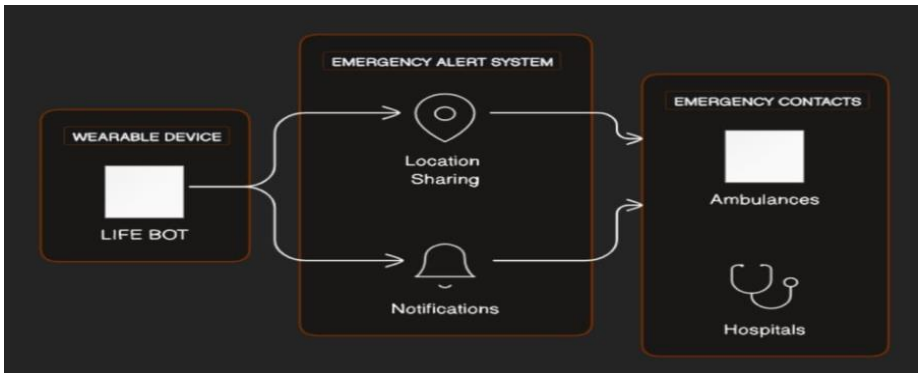

Fig-8

IDEA 2

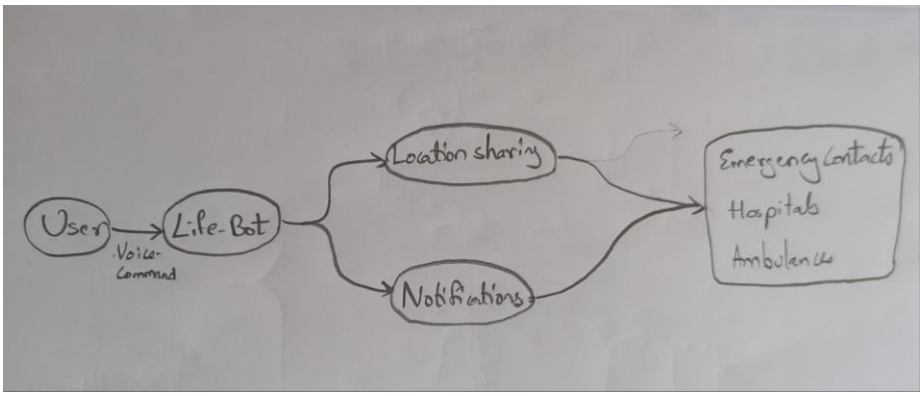

Fig-9

IDEA 3

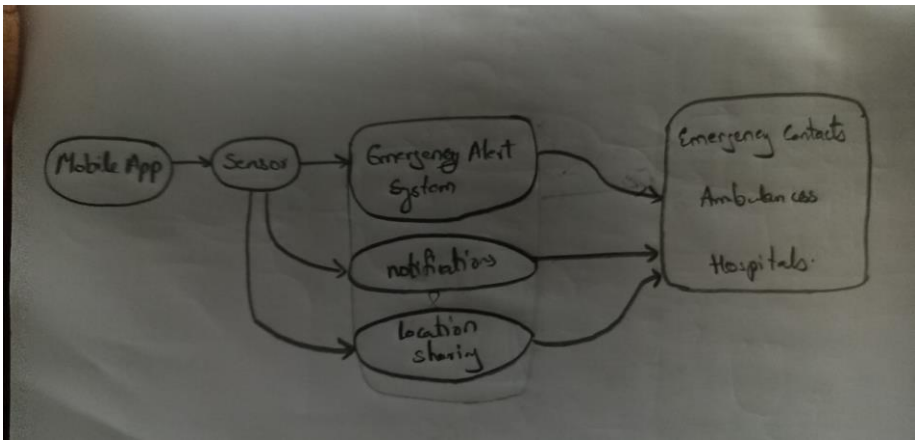

Fig-10

CHAPTER-5

DETAIL DESIGN

The circuit diagram below shows the flow of system proposed in the design:

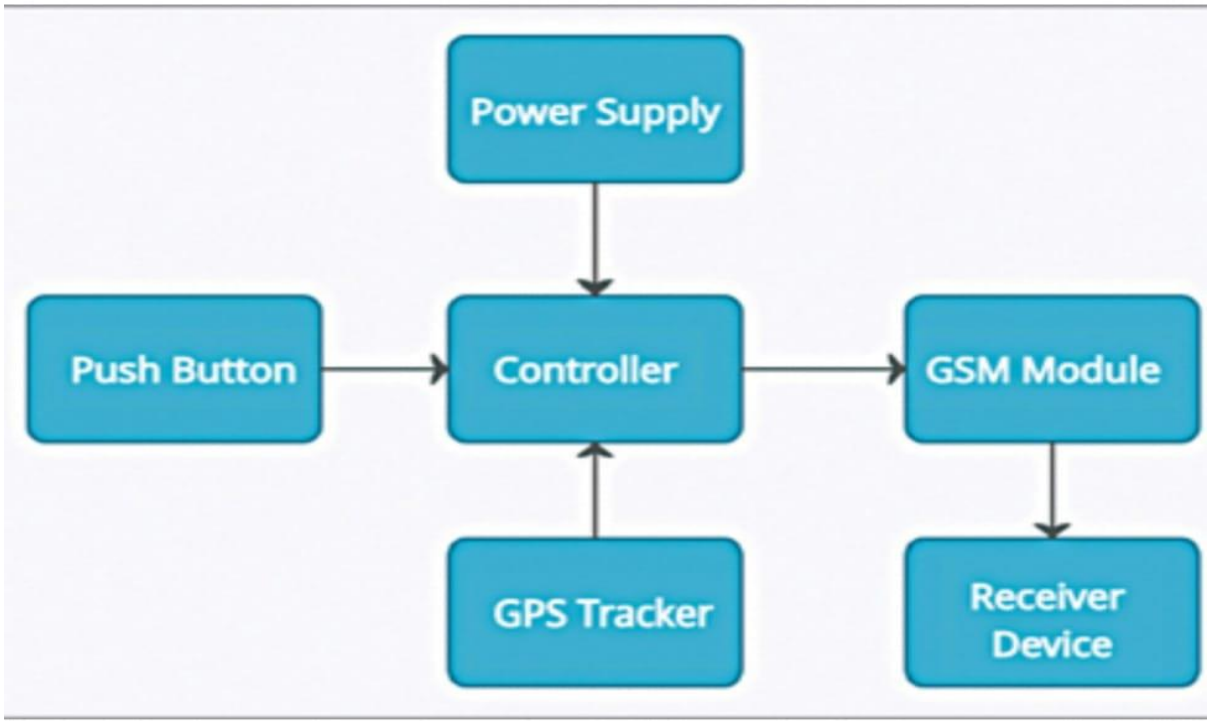

Fig-11

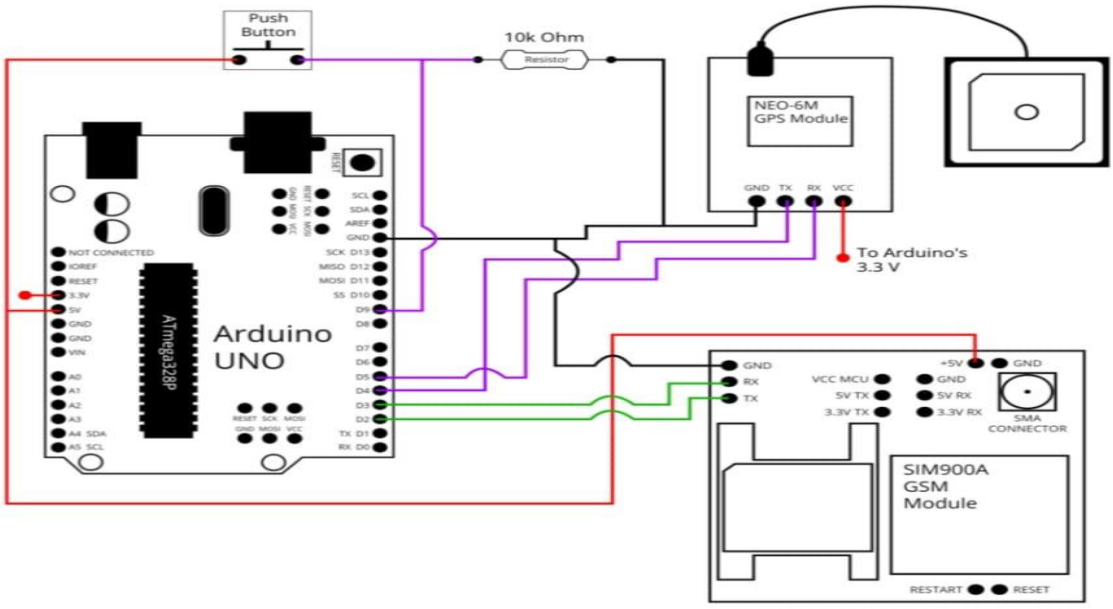

Fig-12

In this project when you press the push button the gsm sends the proper GPS location to the particular mobile number. and you find out the proper global Positioning System for any Person.The current design is an embedded application system. Arduino is a based tracking system using GPS and GSM modules. This system is used for tracking and positioning any location by using the Global Positioning System (GPS) and Global System for mobile communication (GSM).

Tracking of Any Persons & Material is a process in which one can track the vehicle's location in form of latitude and longitude. GPS coordinates are the value of allocation.
A GPS consists of a group of satellites and well-developed tools as receivers. GPS module consists of a U-Blox NEO6M module and a GPS antenna.

It can be interface with UART, USB, SPI and DDC. NEO-6 include one configurable UART interface for serial communication.

GPS receiver is the main component in this system. This component receives the coordinates from the satellite for every second, with date and time.A GPS consists of a group of satellites and well-developed tools as receivers. GPS module consists of a U-Blox NEO6M module and a GPS antenna.

It can be interface with UART, USB, SPI and DDC. NEO-6 include one configurable UART interface for serial communication. Assemble the circuit on a breadboard or PCB. Insert the SIM card in the slot of the GSM module. When push button is pressed, GSM calls the mobile number already entered in the program code, and the buzzer sounds. The buzzer sound is to alert nearby people.
At the heart of LIFE BOT lies Arduino Uno, a versatile microprocessor responsible for processing data and controlling the device's functionality. When activated, LIFE BOT triggers a prompt response system, instantly notifying pre-programmed emergency contacts with real-time location data.

The device's design is simple yet powerful. A press of the activation button sets in motion a chain of actions, initiating the transmission of emergency notifications and location information through the GSM SIM900A module. The device's compact form allows for easy wearability, ensuring discreet and convenient access to assistance.In addition to its hardware components, LIFE BOT is powered by a 9V battery, ensuring portability and continuous functionality during emergencies. A toggle switch allows users to verify the proper working of the buzzer.

Advantages:

- Swift intervention for quick medical attention during seizures.
- User-friendly design with simple activation for easy accessibility.
- Empowers individuals with independence and reduced dependence on others.
- Cost-effective, making emergency assistance accessible to a broader population.
- Real-time notifications to pre-programmed contacts for prompt support.
- Discreet wearability for privacy during emergencies.
- Versatile usage in both indoor and outdoor environments.
- Provides peace of mind to caregivers by keeping them informed.

CODE

```
#include <SoftwareSerial.h>
#include <TinyGPS.h>

float lati, longi;

TinyGPS gps;
SoftwareSerial sgps(4, 5);
SoftwareSerial sgsm(2, 3);

void setup()
{
sgsm.begin(9600);
sgps.begin(9600);
}
void loop()
{
sgps.listen();
while (sgps.available())
{
int c = sgps.read();
if (gps.encode(c))
{
gps.f_get_position(&lati, &longi);
}
}
sgsm.listen();
if (sgsm.available() > 0) {
String    c = sgsm.readString();
c.trim();
if (c.indexOf("GET-GPS") >= 0) {
sgsm.print("\r");
delay(1000);
sgsm.print("AT+CMGF=1\r");
delay(1000);
sgsm.print("AT+CMGS=\"+ZZXXXXXXXXXX\"\r"); /*Add your country code instead of
ZZ and Add the phone number on which you want to send the SMS by removing
XXXXXXXXXX */
delay(1000);
sgsm.print("Latitude :");
sgsm.println(lati, 6);
sgsm.print("Longitude:");
sgsm.println(longi, 6);
delay(1000);
sgsm.write(0x1A);
delay(1000);
}
}
}
```

CONCLUSION

LIFE BOT stands as a testament to the power of innovation and compassion. By combining advanced technology with a user-centric approach, it redefines how we respond to seizure emergencies. Embrace LIFE BOT as your guardian, offering you immediate aid and support during seizures, and venture into a world where everyone can move forward with confidence, knowing that help is just a press away.

LIFE BOT's implementation has led to transformative outcomes, empowering individuals experiencing seizures with immediate and efficient assistance. The device's prompt response system ensures swift medical attention, potentially reducing complications and improving patient outcomes. With user-friendly design and affordability, LIFE BOT fosters independence and dignity, positively impacting users and their caregivers. Its successful deployment contributes to building a more compassionate and inclusive society, creating a lasting and meaningful impact on countless lives. LIFE BOT stands as a beacon of hope, revolutionizing emergency care and fostering a safer, more compassionate world for all.

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2. J. Zhang, J. Zhang, and J. Zhang. A seizure detection and notification system using wearable sensors. Sensors. 2015; 15(11):28049-28068.
3. M. Anderson, E. Roberts, and K. Davis. "Design and Implementation of LIFE BOT: A Compact Device for Seizure Emergency Assistance." International Journal of Assistive Technology, vol. 18, no. 4, 2023, pp. 56-68.

Project Group ID -	**XPLORE - Team-4(Team Alpha)**
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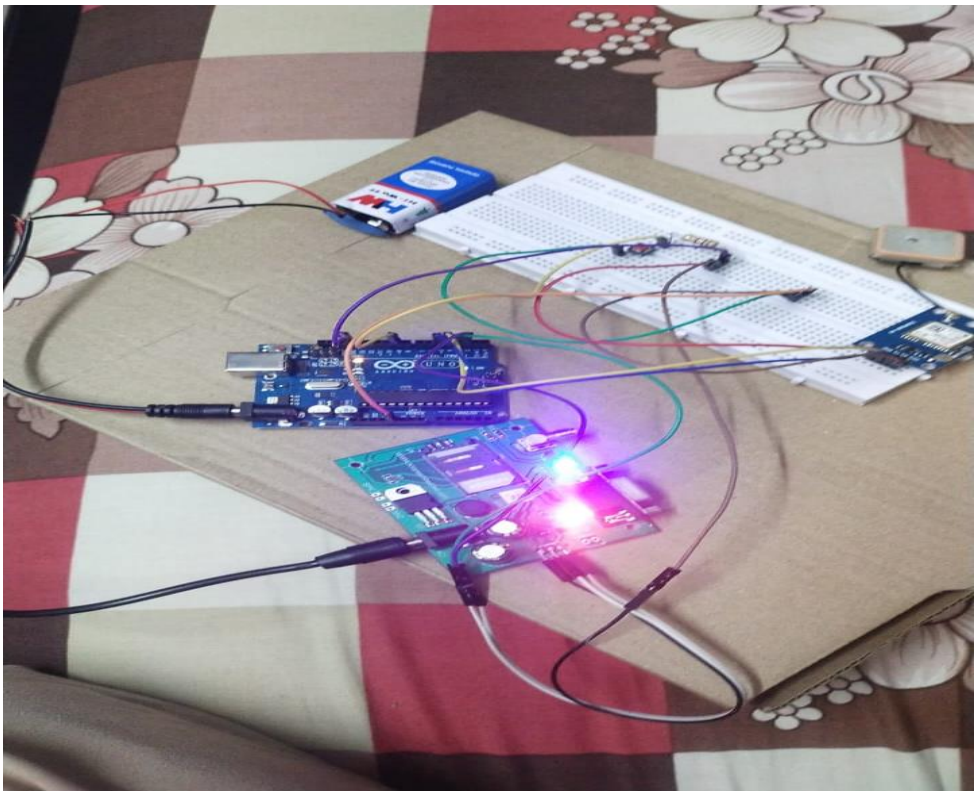
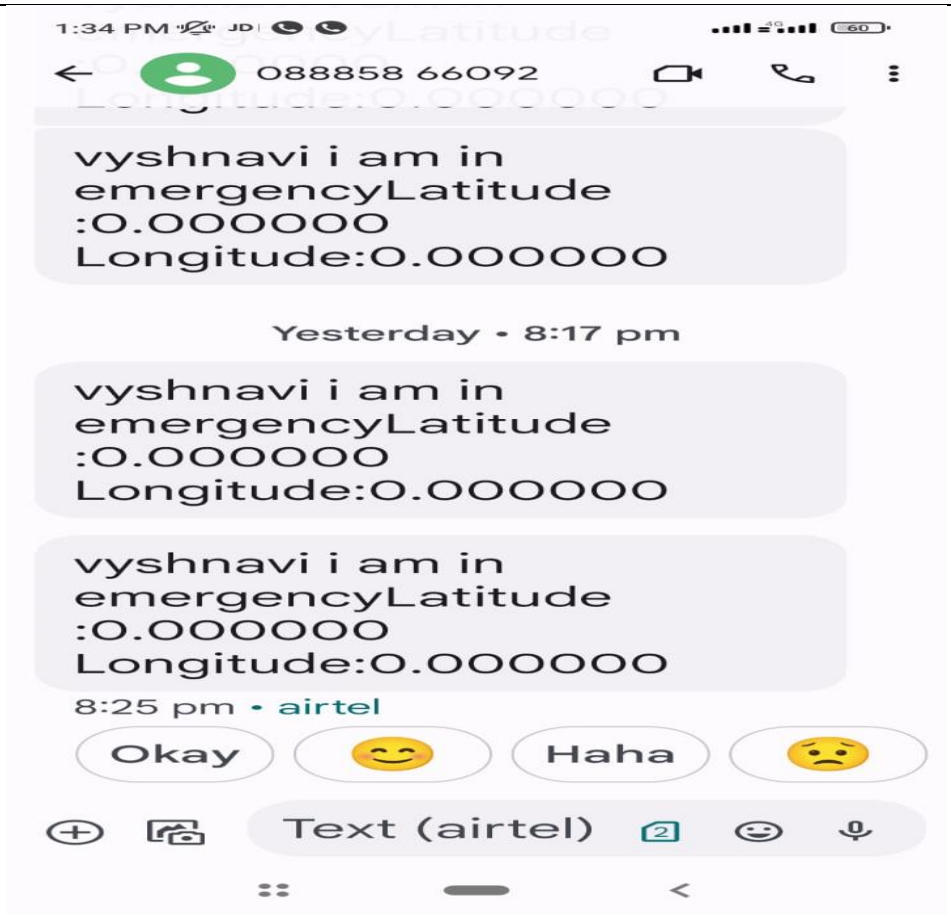
Project Members	**Narni Venkata Viswesh-22E51A6947** **Badineni Koushik-22E51A6906** **K.Sai Vyshnavi –22E51A6931** **Nikitha Verma-22E51A6949** **Thanniru Rajeswari-22E51A6962**
Project Guide	**Mr. Santosh Naik**
Summary of Project	**LIFE BOT is a compact and user-friendly emergency assistance device equipped with advanced technology. With a simple button press, it sends real-time notifications and location data to pre-programmed emergency contacts, ensuring swift medical attention for individuals experiencing seizures. This empowers users with independence and security.** **Key Features:** ➢ **Instant Support: LIFE BOT promptly alerts pre-programmed contacts during seizures.** ➢ **User-Friendly: Simple activation mechanism for easy use.** ➢ **Wearable Design: Discreet and compact, can be worn as a cap.**
Project Photo	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Haha
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Team Photo