

1. **Project Reference Number:** 46S_BE_0405
2. **Title Of the Project:** GPS tracking system for dementia patients
3. **Name Of the Collage:** Guru Nanak Dev Engineering Collage Bidar
4. **Name Of the Department:** Computer Science and Engineering
5. **Name Of the Students:**
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7. **Keywords:** GPS monitoring system, pulse sensor, Temperature sensor, MEMS sensor, LCD display, Buzzer.

8. **Introduction:**

Internet of Things (IoT) based remote health monitoring system have an expansive potential of becoming an integral part of the future medical system. In particular, these systems can play life-saving roles for monitoring of patients with critical health issues. Any health care monitoring system must be free from incorrect data, which may arise because of instrument failure or communication errors. In this project, to detect reliability and accuracy of data obtained by the IoT-based remote health monitoring.

The main aim of this project is to design a Dementia patients health monitoring system using Arduino nano. This project makes a use of pulse sensor is uses to detect the heartbeat, temperature sensor is uses to detect the temperature and MEMS sensor is used to detect the fall detection of the person. This system

consists of GPS module for continuous location tracking and GSM module for sending the alert SMS if the sensor data crosses the set limit. The status of the project will display on LCD module.

The main controlling device of the project is Arduino UNO microcontroller. Arduino will continuously read the data from sensors and will be display on LCD. when the sensor data crosses the set limit this system will sends the alert SMS along with location to the predefine mobile number through GSM and also activate the buzzer for alerts. To achieve this task microcontroller loaded program written in embedded C language.

9. Objectives:

- Design a dementia Patient health monitoring system using different sensor.
- GSM based SMS alert.
- GPS based location tracking.
- Alerts in abnormal condition in the form of buzzer.
- Using arduino nano to achieve this task microcontroller.
- Sensor based heartbeat, temperature and fall detection of dementia.

10. Methodology:

1. Adapter power supply.
2. Arduino Nano.
3. PULSE SENSOR
4. Temperature sensor.

5. MEMS sensor.
6. LCD display.
7. Buzzer.
8. GSM, GPS

The block diagram of the project and design aspect of independent modules are considered. Block diagram is shown in fig:1

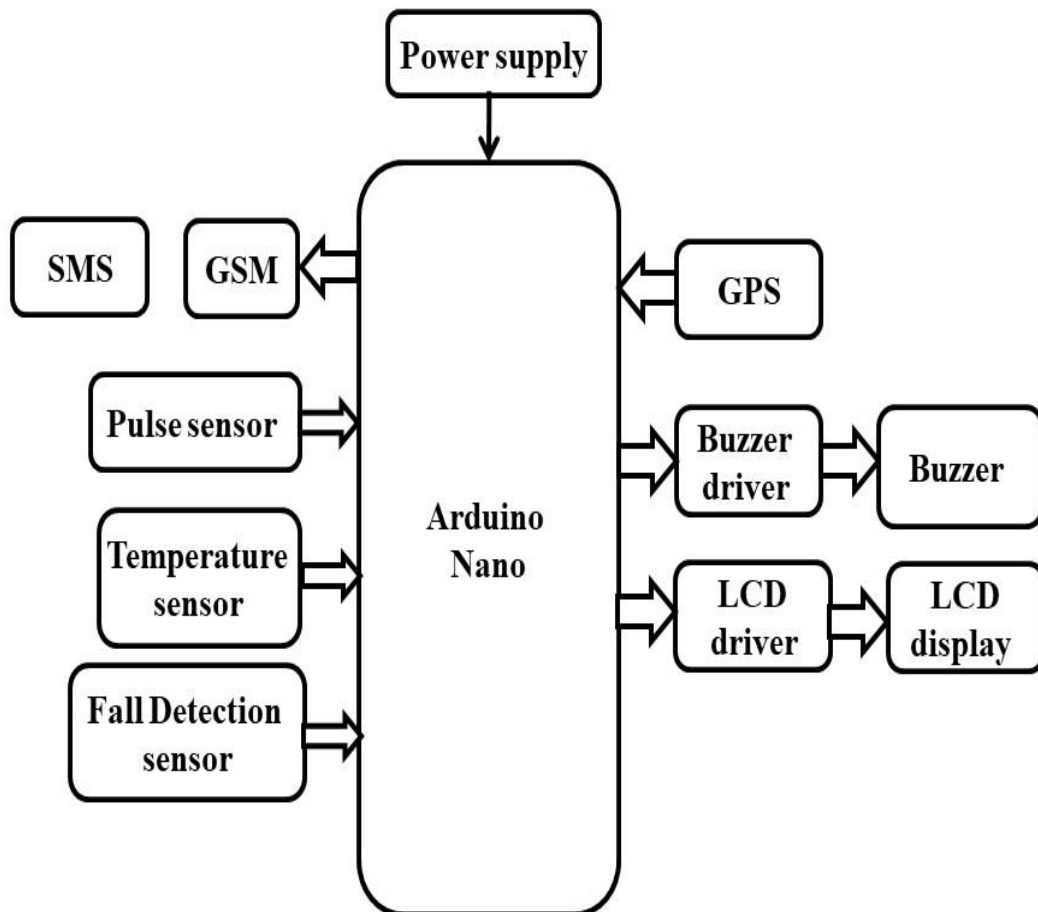


Fig 1: Block diagram of IOT Based GPS tracking System for Dementia patients

11. Project Description:

Schematic diagram and interfacing of ARDUINO NANO microcontroller with each module is considered.

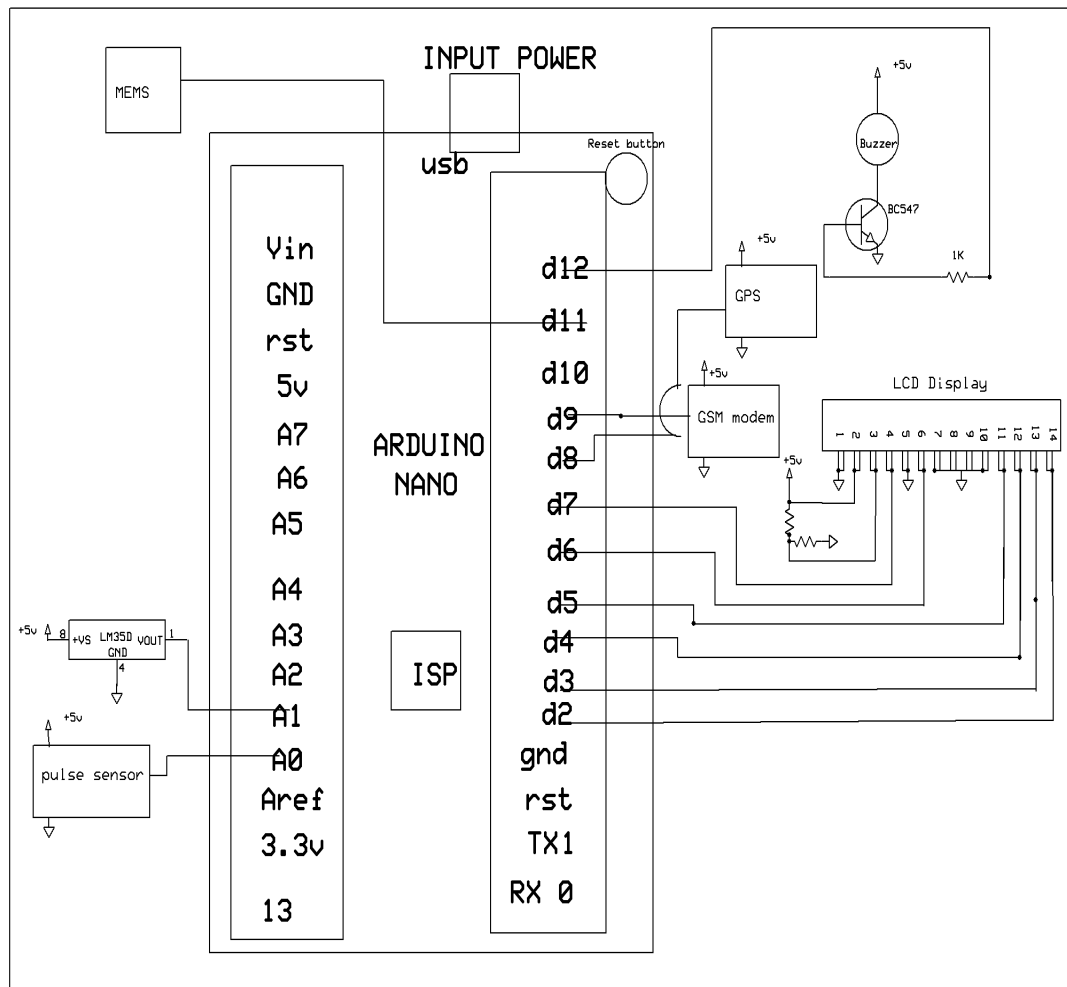


Fig 2: Schematic diagram of IOT Based GPS tracking System for Dementia patients

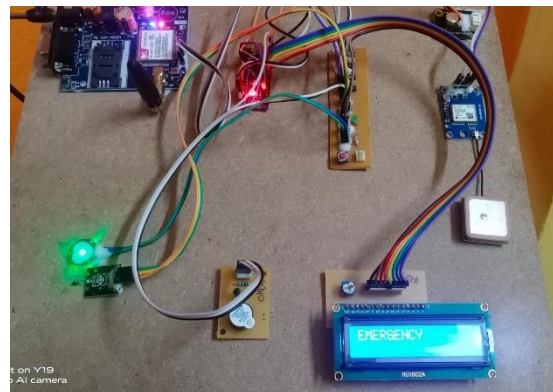
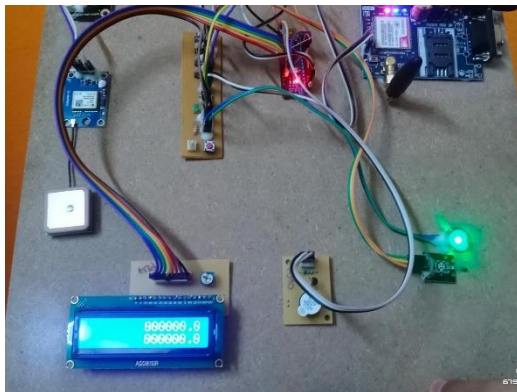
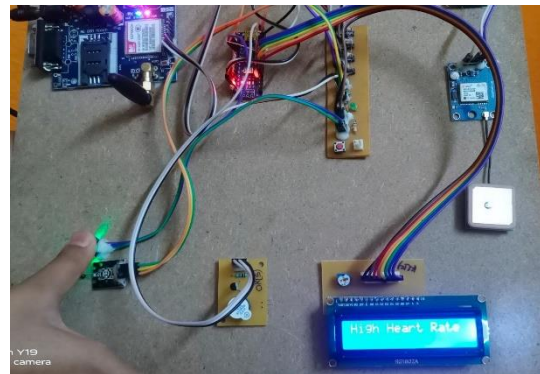
12. Results:

The project “**IOT Based GPS tracking System for Dementia patients**” was designed a dementia patient health and position monitoring and alerting system.

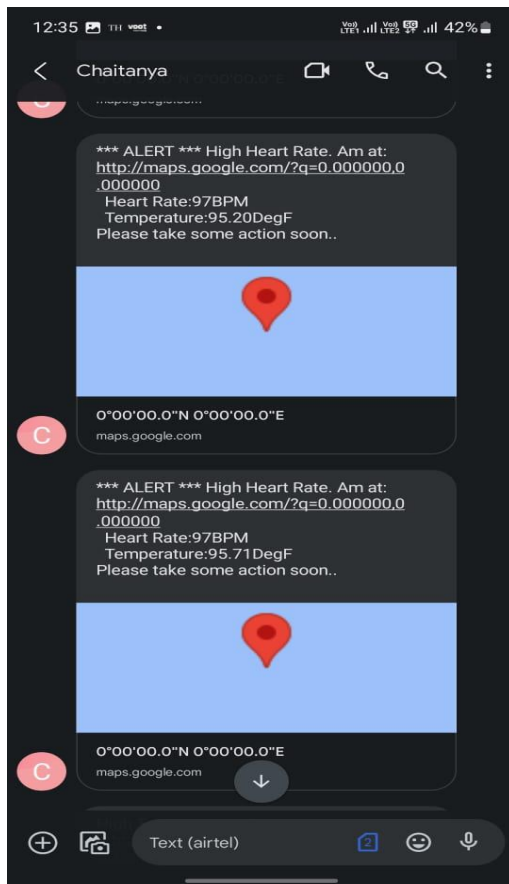
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Output:

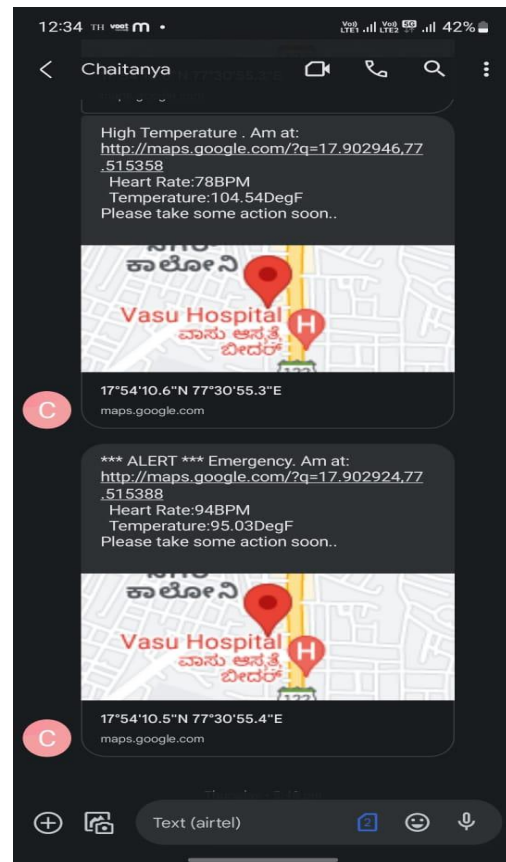
Snap shorts:



Test cases:



Test case 1: when the signal is not Properly caught by the satellite



Test case 2: when the signal is Properly caught by the satellite

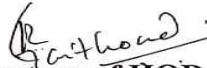
13. Conclusion:

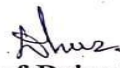
Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the project has been successfully implemented. Thus the project has been successfully designed and tested.

14. Future Scope:

1. We can add more health sensors like BP and glucose sensor.
2. Enhanced Safety: GPS tracking systems can help locate dementia patients who may wander or get lost.
3. Rapid Response: In cases where a dementia patient goes missing, GPS tracking systems can enable quick response times.
4. Geo-Fencing and Alerts: GPS tracking systems can utilize geo-fencing technology, allowing caregivers to set virtual boundaries for dementia patients.
5. Remote Monitoring: As technology advances, GPS tracking systems can incorporate additional features such as vital sign monitoring.


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