IEEE WIE Project 2

**May, 2021**

**Ananya Ghosh**

**20MIC0063**

# Report

**IOT BASED INTEGRATED HEALTHCARE SYSTEM DEVICE**

**Problem:**

* Lack of proper healthcare at home for all, especially old-aged.
* It is a problem for the family members to take proper care of a paralyzed patient.
* It is inconvenient for both patient and family members to always regularly take the old people or paralyzed person for medical check-up and tests.
* Due to insufficient health check-ups and routine check-ups, many people die with common diseases like heart attacks, diabetes, pressure fluctuations due to ignorance and not being diagnosed at proper time.
* Costly medical equipment and tests.

**Solution:**

* **IOT BASED INTEGRATED HEALTHCARE SYSTEM DEVICE**
* **Hardware-**

Containing the sensors for various health parameters checking and measurement:

* **Body Temperature**-Temperature Sensor LM35
* **Alcohol Detection**- SEN20 MQ-3 High Sensitivity Alcohol Detector Sensor
* **Pulse**- Heart Rate Pulse Sensor Module
* **Gas cylinder leaks/ toxic gas emission**- MQ-9 Carbon Monoxide MQ 9 CO Alarm Combustible Gas (methane, propane and cryogenic cleaning gases) Sensor
* **Fire**- Flame sensor
* **Heart rate and Oxygen Saturation**- MAX30102 Blood Oxygen Concentration sensor
* **Fall detection**- ADXL335 3-Axis Accelerometer Module
* **Heart ECG monitoring**- ECG Module AD8232 Sensor
* **ESP8266 NODEMCU**- IoT based platform Wifi module. Helps is sending email and message notification to the people outside if their family member is in trouble at home.
* **App-**

To make graphs and keep a track of abnormalities, storing the health data collected. This data can be seen from any part of the world on Real time basis.

* This kit will also help in easy check-up and health data monitoring of paralyzed person or old people. Any abnormalities can be immediately addressed on time.
* **Real time Remote healthcare monitoring achieved**
* Saves money as it is not very costly. If people buy each and every device for measuring each and every health parameter, or summing up their yearlong testing costs, check-up costs and travelling cost( the cost of travelling to the testing centre or calling someone to come home and check) then cost will be way more than this device that I am planning to make as it is an **INTEGRATED HEALTHCARE SOLUTION FOR ALL**

**Who is currently facing this issue (target audience)?**

Everyone

**Specially:** Old-aged and Paralyzed patients

**How is the issue being addressed currently?**

Many companies are bringing out gadgets and devices that can be used at home for medical checkups. But these are all different devices for different purposes, like for bp measurement one device, for ecg another, for sugar another. Hence it is inconvenient for the people to buy so many devices and use them. Many don't understand the working and it is cost ineffective. There is no overall integrated solution.

**My Role in the Project:**

The project was individually made by me.

**What I learned During the project?**

IoT concepts, Hardwares

About various sensors

**Courses I took while working for this project:**

I studied from Youtube videos.

**Libraries Installed:**

**GitHub Repo Link:**

**Workflow of Model:**