

Ministry/Organization Name: **Amazon Web Services**

Problem Statement: **Elderly care system**

PS No: **AN319**

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College Code:

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### **Problem:**

Owing to the rapid urbanization and lack of availability of cheap 24/7 manual assistance and monitoring of elderlies and of people with special needs, there is an urgent need to automate the monitoring of this section of the population.

We have chosen to address the following problem areas pertaining to the monitoring of the elderlies-

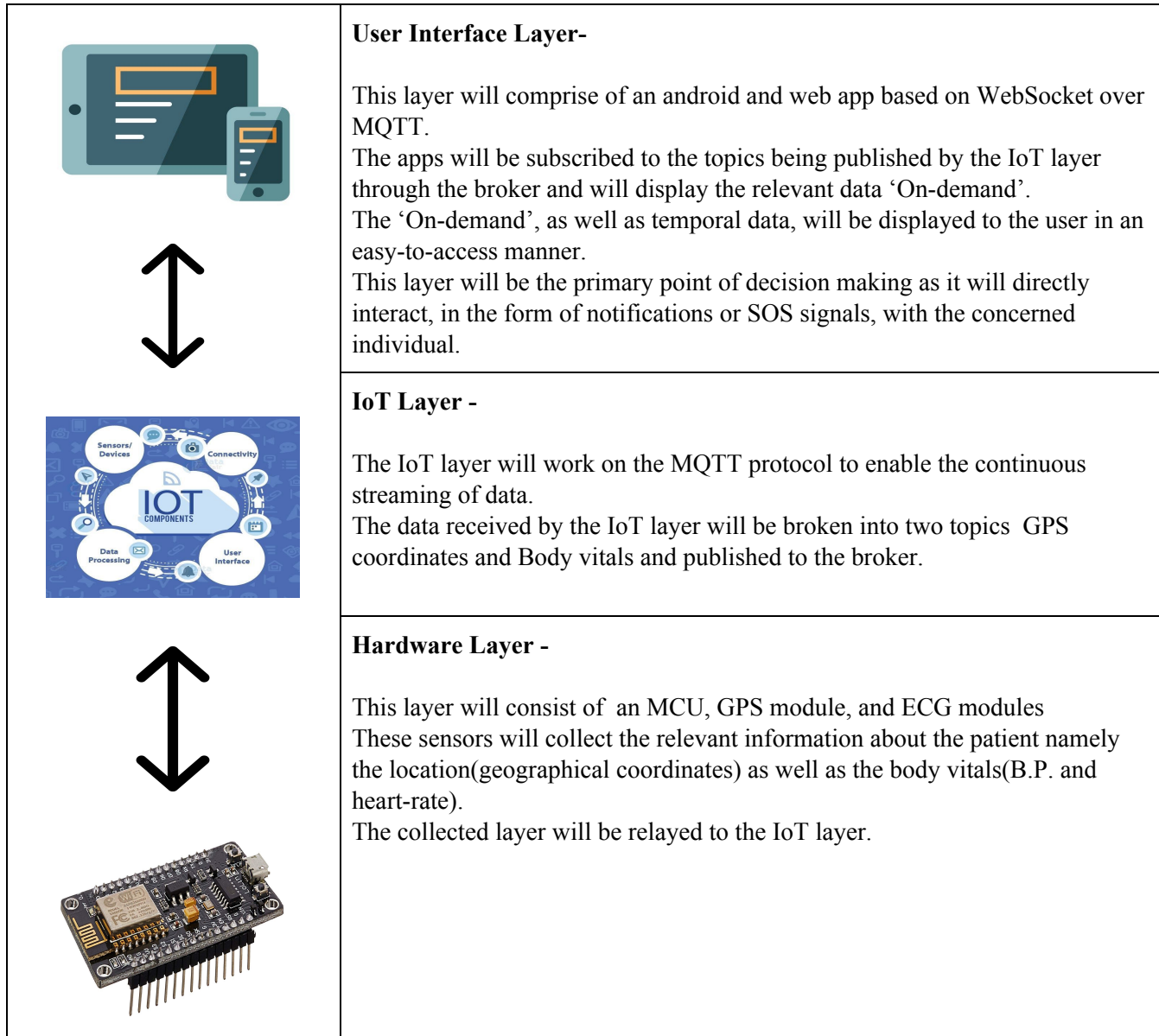
- Elderlies /patients suffering from memory-loss related problems need to be tracked to ensure that they do not wander off of a safe boundary. These people also need to be constantly reminded of their medicine intake routine.
- Patients suffering from BP/heart disease need their vitals to be monitored regularly so as to facilitate quick response in case of emergencies.

### **Solution:**

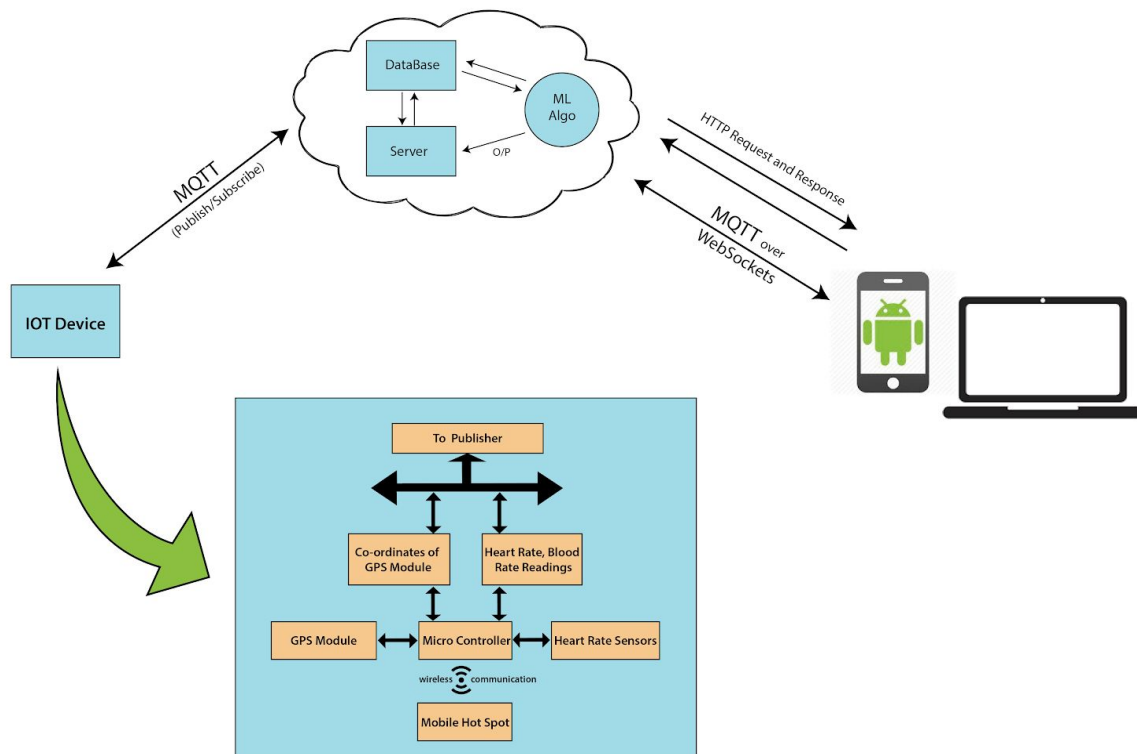
The solution needs to connect both the patient and the concerned individual in a manner that can enable the latter to have the relevant information of the patient at all times.

For this, we propose a system that will collect the relevant data from the patient through various sensors and will relay them to the concerned individual along with conditional notifications or SOS signals through an IoT service to a mobile app on the concerned-user end.

The solution will have a **three-layered architecture**:-



## Activity Diagram:

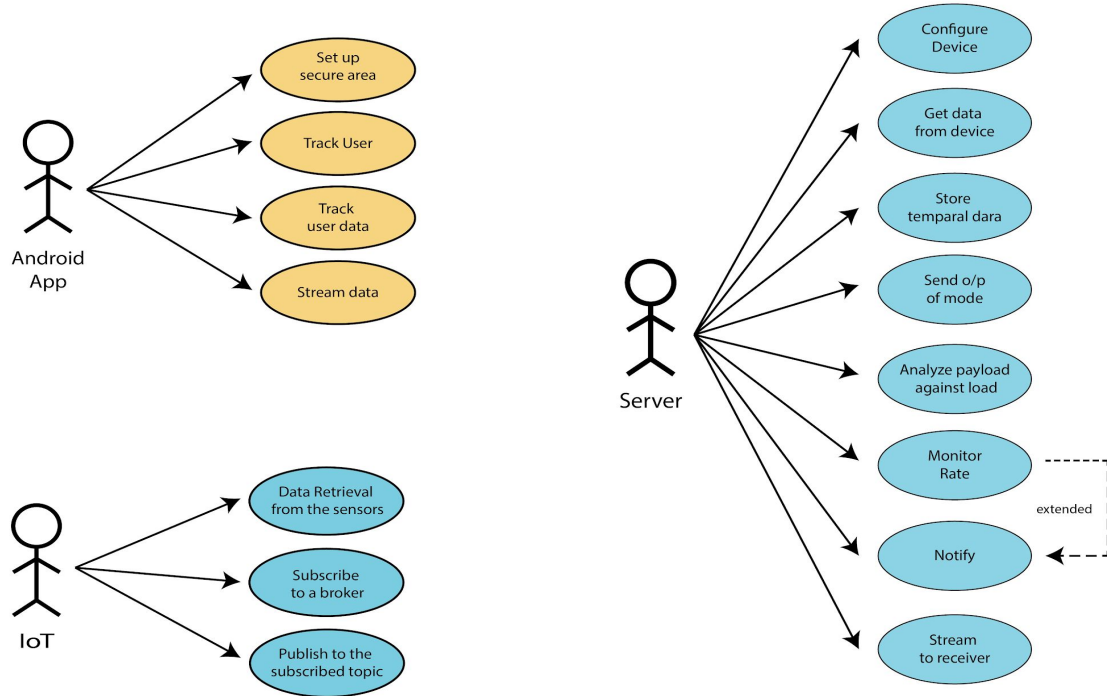


## Features:

- A user-friendly app that will enable the user to customize the 'boundary' as per the location of the patient.
- A strap able device that can be easily attached to the patient without any discomfort.
- On-demand location triangulation of the patient.
- In the event that the patient goes out of the specified boundary, an SOS signal will be sent to the concerned relatives.
- Pictorial as well as a comprehensive record of the vitals of the patient that can be accessed and used as a reference by a medical expert.
- On-demand access to the real-time data of the vitals as well as the location of the patient.

- Predictive analysis of chronic-diseases such as stress, diabetes, end-stage kidney, and heart diseases.
- An 'SOS' will be sent to both the monitored person as well as the concerned person in the case of medical emergencies.

## Use Case



## Tech Stack:



MQTT is a wireless communication protocol based on a publisher/subscriber model which can be used to facilitate data between multiple nodes

MERN Stack is a Javascript Stack that is used for easier and faster deployment of full-stack web applications. MERN Stack comprises of 4 technologies namely: MongoDB, Express, React and Node.js



ESP8266 is a reliable, low cost microcontroller with long range WiFi capabilities.

Android based applications so that millions of people can use the mobile apps.



TensorFlow is a free and open-source software library for dataflow and differentiable programming across a range of tasks.

## **Showstopper:**

- Real-time on-demand monitoring of patient health.
- Prediction of chronic diseases to a high degree of accuracy.
- Periodic medicine intake reminders to the patients as well as the concerned personnel.