SenSys: A Health Monitoring System

## Overview

Sensys is a health monitoring system that monitors and provides various health services to its customers by constantly analyzing sensor reads from customer’s wearable health/fitness sensors. Customers are freely allowed to choose to wear wearable sensors from a wide range of supported sensors, such as heart rate sensor, body temperature sensor, blood sugar sensor, etc. Their smartphone would then act as a medium to receive sensor reads and transfer them to a monitoring server. This server can gather up information received, analyzes them based on medical knowledge provided by experts to do simple diagnosis. In case the system detects an anomaly in customer’s health based on the sensor reads, it automatically sends the customer warnings or call emergency services. The key features of the system are:

* A smartphone app that is capable of:
  + Login to the server to request and receive a key-credential.
  + Detecting and connecting to various supported sensors at the same time using Wi-Fi.
  + Receiving sensor reads from connected sensors.
  + Sending sensor reads back to main server in intended intervals vary by sensors.
  + Receiving and displaying warning messages from the server.
* Health sensors that are capable of:
  + Reading the respective health information as they were designed to.
  + Automatically broadcasting their availability status when turned on for smartphones to discover them.
  + Can only connect to one smartphone at a time.
  + Being able to send their data to the smartphone they are connected to.
  + Automatically detecting loss of connection and attempting to reconnect.
* A server that is capable of:
  + Sending a key-credential to a customer when his/her/its correct authentication information was received.
  + Receiving customer’s sensor data.
  + Storing and processing customer’s sensor data.
  + Sending feedback/warning to customer’s phone when needed.
  + Calling emergency services when customer does not respond to a critical health warning message within a time period.
  + Being able to handle many customers at once.