**INFO 5100 Application Engineering and Development Final Project Statement**

**Internet of Things (IOT) : Smart City Project**

Develop an IOT application that will enable a city to monitor the vital signs and other health conditions of its population (these include symptoms and pre-existing diseases such as cancer, diabetes, etc). The city residents are required to participate in this initiative. They will be using their phone devices to enter their vital signs and health conditions at regular intervals. Residents will be given sensors to install in their homes to monitor and broadcast the quality of air and temperature in the house at different times of the day. In addition, the city will install quality of the air sensors in different parts of the city to monitor air quality as well.

You are required to build a Java application to simulate how IOT works for smart city applications. The social benefit here for the city to figure how to allocate its funds for improving the quality of life for its citizens. Since the time is limited it is okay to use pre-prepared data points for all the sensors. Also, allow for a mechanism where the user can input these attributes into their phone app). Or you can use random number generators for the data points. Each of the data points must be within a specified range consistent with the specific data type. We suggest that you research what are the normal and abnormal ranges on the different parameters.

The following are some ideas for what we recommend that you

1. Use the Eco-system system engineering model we developed in class to implement the following 3 different use-cases such as the user, Health official, Mayor’s office. Two dashboards with summarization, averages, etc. For example, for a particular neighborhood, what is the average blood pressure at any given time, etc.
2. Show some kind of communication between people in different roles. For example, health officials (employees of a health organization at the state level) might want to warn the Mayor’s office in case a health crisis in the community. The local EPA office might want to warn the community (targeting those of high risk) that the pollution level is at abnormal levels and for those with breathing problems are asked to stay home.
3. Any additional ideas you might see creative or innovative such as analytics of any cause-effect relationships between and health and quality of air in the house and the city.

**The deliverables,**

1. The complete application
2. Object model for the smart city application
3. Presentation
   1. The problem statement
   2. Approach
   3. Implemented Features
   4. Architecture (roles and responsibilities)
   5. Object model of the smart city application
   6. Screen shots of the 5 most important screens in your application