**LehighHacks 2016**

**Smart Environments**

***Part 1***

Using the scenario data, building floor plan, building zone names, and building occupancy sensor locations provided, students are tasked with creating a smart device user interface that achieves the following (students are permitted to develop using the Android or iOS platform):

1. Real time display of occupancy by zone over time – graphical display method of choice
2. % of total space occupied over time – graphical display method of choice
3. Enable the user to adjust the timeout of occupancy sensors (timeout is defined as the amount of unoccupied time that must elapse before the occupancy sensor goes “unoccupied” and the lights turn off)
4. Real time view of how changes in number 3 affect numbers 1 and 2 – extra points will be given to user interfaces that also display delta as compared to the initial scenario provided (graphical display method of choice)

***Part 2***

Once Part 1 is completed and demonstrated, students can move on to Part 2.

1. Enable the user to define maximum and minimum light levels in each zone (light level is defined on a scale of 0 to 100%) - method by which user accomplishes this is up to the developer
2. Create a mathematical algorithm that calculates the amount of energy used with the user modified settings (Parts 1.3 and 2.1) - extra points will be given to user interfaces that also display delta as compared to the initial scenario provided (graphical display method of choice)

***Part 3***

Once Part 2 is completed and demonstrated, students can move on to Part 3.

1. Given a completely new set of data, demonstrate that your user interface can perform just as well as it did with the previous set of data.