ECEC 490: ASSIGNMENT 1

1. (20 points) Getting started with the Arduino

- **Hardware: Arduino**
- Download the Arduino IDE and write a sketch to create two patterns of on-board LED blinks for the Arduino
    - You should design the patterns
- Write a sketch to establish bidirectional communication with the Arduino board via the serial port
    - Using this sketch the user should be able to select the pattern of LED blinks on the Arduino by entering a command in the serial monitor of the Arduino IDE
    - This process should be as user friendly as possible

2. (20 points) Getting started with Near Field Communication

- **Hardware: Arduino + NFC**
- Write an Arduino Sketch that alternates between the two LED blink patterns every time the NFC tag is read
    - This will require you to program the NFC tag with appropriate information
    - Implement error checking in case the NFC tag is not programmed or read correctly

3. (20 points) Getting started with the XBee

- **Hardware: Arduino + XBee**
- Use X-CTU to configure the source and destination addresses and power-level of your XBee nodes
- Set the baud rate of the serial communication between the Arduino XBee to be equal to 115200 bauds
- Write a sketch to implement wireless bidirectional communication among the XBee nodes
    - Using this sketch the user should be able to select the pattern of LED blinks on the Arduino by entering a command in the serial monitor of the Arduino IDE

4. (20 points) Design and implement an application that integrates the Arduino, NFC, and XBee

- Ensure that the application involves user input and provides appropriate user prompting including error messages
- You are free to use any technology to implement the user interfacing

5. (20 points) Provide a succinct 1-page summary of your final demonstration for the class. Specifically answer the following questions:

- *Why this demo?*
- *What is this demo?*
- *How will you implement this demo?*

Assignment 1 Specification Sheet

Specification

- Ensure proper functionality and readability of your code

Grading

- Each question has been assigned a specific number of points
- The grading scheme is binary in that you will receive full points if your demo is successful
- We will collect your code for record purposes however your grade will be purely based on your demonstration

How to submit this assignment?

- Zip the files project and the pdf file (Question 5) in a folder
- Name it using the following convention: **Name_Biweekly1**
- Upload your assignment to BbLearn by **Tuesday, July 14, 2014, 06:00:00 p.m.**