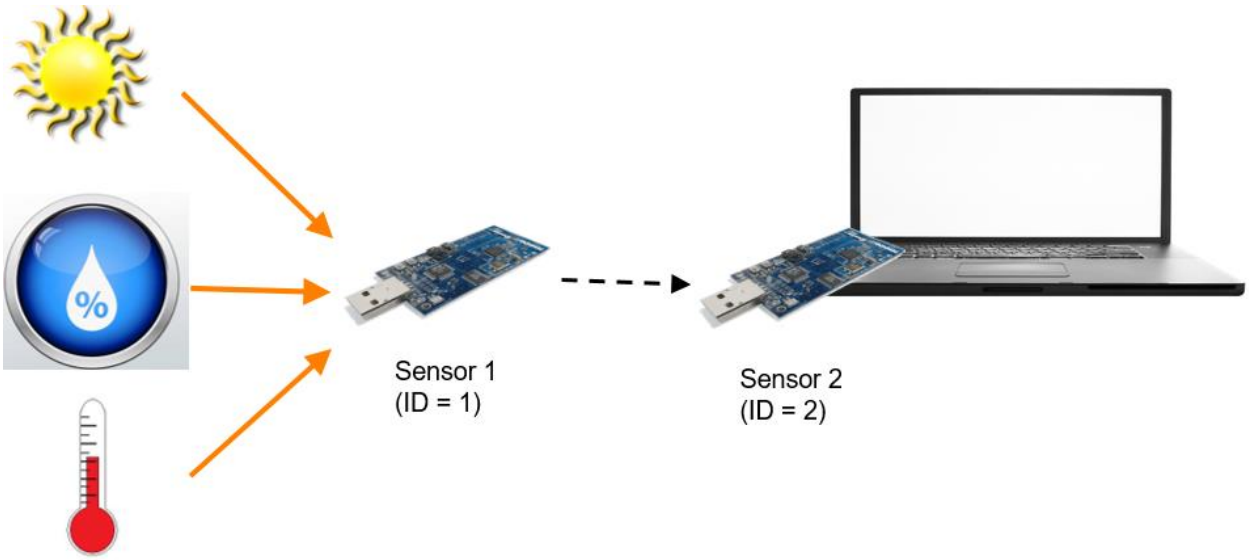
Programming Assignment (426/580I Fall 2020)



In every second, Sensor 1 (Network ID = 1) measures the temperature, transmits a packet which carries the temperature reading to Sensor 2 (Network ID = 2), and toggles the onboard led0 after finish the transmission.

In every two seconds, Sensor 1 measures the ambient light intensity, transmits a packet which carries the light reading to Sensor 2 and toggles the onboard led1 after finish the transmission.

In every four seconds, Sensor 1 measures the humidity, transmits a packet which carries the humidity reading to Sensor 2, and toggles the onboard led2 after finish the transmission.

Sensor 2 toggles the led0 when receiving a temperature reading and forwards the data to the computer.

Sensor 2 toggles the led1 when receiving a light reading and forwards the data to the computer.

Sensor 2 toggles the led2 when receiving a humidity reading and forwards the data to the computer.

Display the readings in the Cooja simulator.

Additional Requirements:

1. Please define a single type of packets and use it to carry all kinds of data.
2. Please use one implementation for both Sensor 1 and Sensor 2.
3. Please provide comments for each function block and a readme on how to compile and run your code in the Cooja simulator.

Submission

Create a tar or zip archive and submit it in myCourses before the submission deadline. The submission link will disappear automatically after the deadline. Late submissions will not be accepted under any circumstances. Plan to turn in your assignment early. You can also email your code to buiotfall2020@gmail.com as backup. After the submission deadline, you are required to schedule a Zoom meeting with TA to explain your code and answer his/her questions before the demo deadline.

Please include the below academic honesty statement in your readme file:

"I have done this assignment completely on my own. I have not copied it, nor have I given my solution to anyone else. I understand that if I am involved in plagiarism or cheating I will have to sign an official form that I have cheated and that this form will be stored in my official university record. I also understand that I will receive a grade of **0** for the involved assignment for my first offense and that I will receive a grade of **"F" for the course** for any additional offense."

Grading Guidelines (30 points)

- Program does not have your academic honesty statement: -30 points
- Program is not implemented in NesC under TinyOS: -30 points
- Program cannot compile: -30 points
- Program cannot run properly: -25 points at least
- Program can run properly
    - Each logic error (e.g., using a wrong network ID, not toggling a LED correctly, not display a reading properly): -5 points
    - Fail to meet each requirement: -5 points
- Demo
    - Fail to demo before the demo deadline: -30 points
    - Fail to explain the code: -25 points at least
    - Fail to answer questions: -5 points at least
- Others
    - Bad programming style (e.g., no indentation, using variable a, b, c): -5 points
    - Insufficient comments: -5 points
    - Do not have readme: -5 points

Submission Deadline: 11:00am 10/9/2020 Eastern time
Demo Deadline: 10/22/2020