

Assignment#1-2: Robot API (Application Programming Interface)

Due: 10/06/2015

Goal: After this assignment, you will have a basic understanding and skills to be able to design and provide a good API of your class/library/program for others to make applications using your API.

Content Detail:

1. BLE: Once connected to a device with $RSSI > \text{minRSSI}$, register(remember) the device. Detect disconnection, then scan, discover, and connect to either the registered device regardless of RSSI or a new device with $RSSI > \text{minRSSI}$ (then, register the new device).
 - a. This will ensure that your program can reconnect to your hamster from far away if you have connected them previously. Note that remembering device needs to work only when your program is running.
2. Create RobotAPI class(module) in a separate file. Notice that you have to import this class(module) from your main file.
3. Design interface for Hamster Sensors packets in RobotAPI.
 - a. Accessor methods: start with "get_"
 - b. Consistent parameters
 - c. All variables should be private
4. Design interface for Hamster Effector packets in RobotAPI.
 - a. Mutator methods: start with "set_"
 - b. Consistent parameters
 - c. All variables should be private
5. Implement interfaces from #3 and #4 in RobotAPI.
 - a. private variables and methods: start with "_", one underscore
 - b. parameter validity checking (e.g. value range)
 - c. handle negative values
6. Read Sensors packets and output the packet values in human friendly format using RobotAPI.
7. Construct Effectors packets in human friendly format using RobotAPI and write to Hamster.
 - Note: Reading Sensors packets (in #5) and writing Effectors packets (in #6) should be done internally using notification.

Hints:

Refer to Assignment#1-1

Reference:

Refer to Assignment#1-1

Hamster Manual

http://web.stanford.edu/class/cs123/materials/Hamster_Manual.pdf

Style Guide for Python Code: Naming Conventions by www.python.org

<https://www.python.org/dev/peps/pep-0008/#naming-conventions>