Homework Assignment 0:
Setting up Sparki and RobotLib

Overview

This document will help you get started with the Sparki robot and Python library we will be using for this course.

I have developed custom firmware for the Sparki robot which listens and responds to commands and sends regular status updates over Bluetooth. I have also developed a Python library which communicates with the Sparki firmware.

In this zero-point assignment, you will install the firmware on Sparki, setup your Python environment, and test some "Hello World" scripts.

Assignment components

1. Download Sparkiduino

You must use Sparkiduino to install the firmware; you can't use the regular Arduino app. Download Sparkiduino from here:

http://arcbotics.com/lessons/sparki/

2. Configure and connect to the Bluetooth module

Open BluetoothConig.ino (make sure it opens in Sparkiduino, not Arduino).

Connect Sparki with a USB cable, and make sure that Boards > Arcbotics Sparki is selected under Tools the menu. Also select the correct port under Tools > Port. Then upload the firmware with Sketch > Upload or by pushing the arrow button.

Now open the Serial Monitor (magnifying glass icon) in SparkiDuino. You can talk to the Bluetooth module using AT commands. Use "AT+BAUD8" to set the baud rate to 115200. Use "AT+NAME<name goes here>" to set a custom name – replace <name goes here> with your custom name.

(Note that once you change the baud rate and reboot Sparki, you will need to change the baud rate in the Sparkiduino script accordingly in order to connect correctly. Serial1 is the Bluetooth connection.)

3. Upload the Sparki firmware

Open SparkiFirmware.ino (make sure it opens in Sparkiduino, not Arduino).
Upload it using Sparkiduino.

4. Set up a Python environment

You can use your system Python environment but then you have to install
packages as root. I recommend setting up an Anaconda environment (you can
still use pip with Anaconda).

https://www.anaconda.com/download/

You will need the pyserial package:

```
pip install pyserial
```

5. Connect to the Bluetooth module

With Sparki turned on, connect to the Bluetooth module from your laptop (the
procedure is different depending on your operating system).

Now run the test scripts to check the connection. You need to know the path or
port for the Bluetooth module. On OS X/Linux, this will be something like
/dev/tty.Sparki-DevB.

```
python test_motors.py --port <port>

python test_status.py --port <port>
```