GPS Client

2.12/2.120 Intro to Robotics - Fall 2015

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In the **212VisionNetwork** folder there are 3 folders: **MATLABClient**, **PythonClient**, and **Server**, containing example network clients for MATLAB and Python as well as a test server that only runs on Python.

testClient.m / testClient.py:

These are the example client programs, which you can pick apart and place into your own main code. I've tried to optimize and comment them the best I could and they are completely identical implementations in MATLAB and Python, respectively. For the MATLAB client version, the function file **getVals.m** must be in the same folder as your main code.

To test, first run **testServer.py**, which is an offline dummy server for testing (doesn't matter if your client is MATLAB or Python). Then run whichever client you are using. If the tests are running properly by default, your vector: **(x1, x2, phi, timestamp)** should be **(1, 1.5, 1.54, timeSinceServerStart)**. MATLAB may make these all funky numbers, but by typing in **format bank** in the MATLAB command line it should show only 2 decimal places. (Change back to default by typing **format short** or **format long**)

Also note that your program may request the latest vector whenever it wants and our server can provide it at up to 60Hz. The timestamp for each vector update allows you to reliably get the robot's velocity, regardless of the time between your update requests. Each vector read operation over the network might take up to 0.25 seconds (4 Hz).

You must change the IP address (comment/uncomment a line) when changing between doing testing between two computers over a network and doing loopback testing on your own computer:

To run the server and client both on your computer: set **serverIP** to **'localhost'**

To run the client while talking to the 2.12 Server: set **serverIP** to **'192.168.1.212'**

testServer.py:

In order to test your system, you'll need to run **testServer.py** first. It will currently run for 100 seconds, but you can make it run longer by changing the **for** loop range values. I've only had time to implement the server test in Python, but this doesn't affect how your code is written, only how you will test on your own computer. If you are using Python already, just run **testServer.py**. If you are using MATLAB and don't know how to run **testServer.py**, read the section below.

To run the server and client both on your computer: set **serverIP** to **'localhost'**

To run the server on one computer with some static LAN IP '192.168.XXX.YYY' and the client on another computer: set **serverIP** to **'192.168.XXX.YYY'**

The 2.12 Servers each have the same static LAN IP address: '192.168.1.212'

Note: to cleanly end the Server program on any OS, either let it end on its own, or use the command **CTRL+C** (COMMAND+C on MacOSX). Otherwise you will have to close and restart the command line session/IDLE.

To get Python 2.7 and run the Server (for MATLAB users):

Download and install Python 2.7 from the following website: https://www.python.org/downloads/release/python-278/. You can then open IDLE (the default program to run and edit Python code) and run **testServer.py** which is in the **212VisionNetwork/Server** folder.