VPL Tutorial and Homework 1 Introduction

September 10, 2008
Overview

• Basic VPL explanation
  – Activities and Services
  – Making programs
  – Running on the robot

• Homework 1 (due Sept. 17)
  – Getting started
Open VPL
This diagram is empty. Add activities or services by dragging them from the toolbar. Connect blocks by dragging from the right border (source) to the left border (destination).
Activities
Data and Variables

- Constants
- Formulas
- Assigns values to Variables to be used elsewhere
Connecting them...
Services
Services
Drag Services to the Workspace
Ports

Input Port
- Incoming information is assigned to the variable “value” for each service

Result/Response Port
- Another service can receive the result of some input if it connects here (like “return” in a function)

Notification Port
- Another service can receive updated information about the state of this joystick as it changes if it connects here
GenericDifferentialDrive controls two motors at once
Connect Joystick to the GenericDifferentialDrive

Notification port of the joystick because the value can continue changing and updating
What are we going to use to update the motors?
What formula should we use?
Write in your own formula

![Data Connections dialog box with formulas and targets](image)
Let’s configure it to run on a robot...
Set the Properties of the GDD

Test in simulation...

Test on the robot...
Run it...
Connect to the Robot

Serial Port is usually 4, BUT CHECK!!!
Change the polling interval to something > 0
You did all of this and it's not working…

• Common Problems
  – Bluetooth is not connected to a COM port
    • Near the clock on the Windows toolbar, click the bluetooth icon and run through the menus
  – Check the bluetooth COM/Serial port number is correctly on your web interface
  – Click Connect?
  – Robot on?
Homework 1

• Understanding how your robot’s turning radius varies
  – Testing, Graphs

• Write a variable-degree, variable-speed turn control program based on your results
Courseware Lab 2

C:\Microsoft Robotics Studio (1.5)\samples\courseware\introductory
Open the readme.htm and click on the MsrsCourseware.chm for instructions
Getting Started

Input expects two values:
TurnRight: bool to turn right or left
TurningRadius: double for radius

Use a Join Activity to connect the two values

Connect the Result of TRWP to GDD SetDrivePower
Wrap Up

• Find a partner to work with
• Start Early!
• COMMENT YOUR CODE!!!
• Save your files to AFS not locally
  – Turn in directory
    /afs/andrew.cmu.edu/course/15/491/students/{yourandrewid}/dropbox/lab01/
• Email us if you have questions
  – Stephanie: srosenth@cs.cmu.edu
  – Richard: rtc1@andrew.cmu.edu
• Office Hours as needed