

Introduction to Game Programming and Robotics

Unit # 3

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Fall 2009

1

Creating Custom Activities

- An activity may have more than one action associated with it. Each action has its own set of inputs and outputs.
- Implement an activity that performs addition, subtraction, min-max comparison, etc.
- Each function/action of an activity such as addition, multiplication, etc. are created using Edit → Actions and Notifications option.
- For each action, specify the inputs and output.

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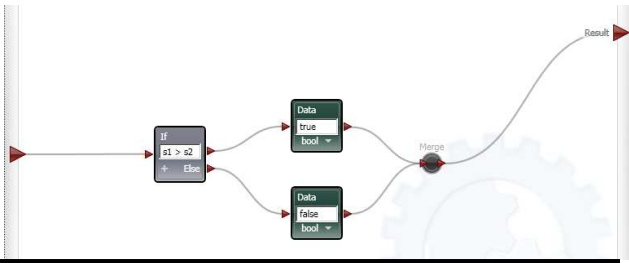
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2

Creating Custom Activities (Cont'd)

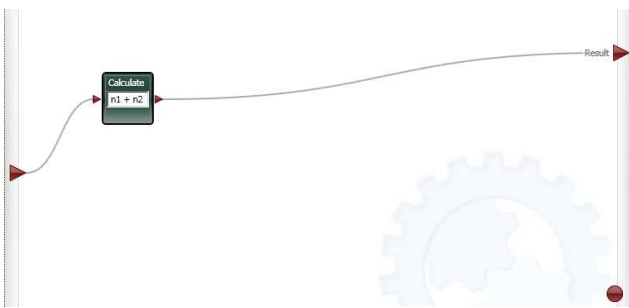
- **min-max comparison**

- Input: s1, s2
- Output: max



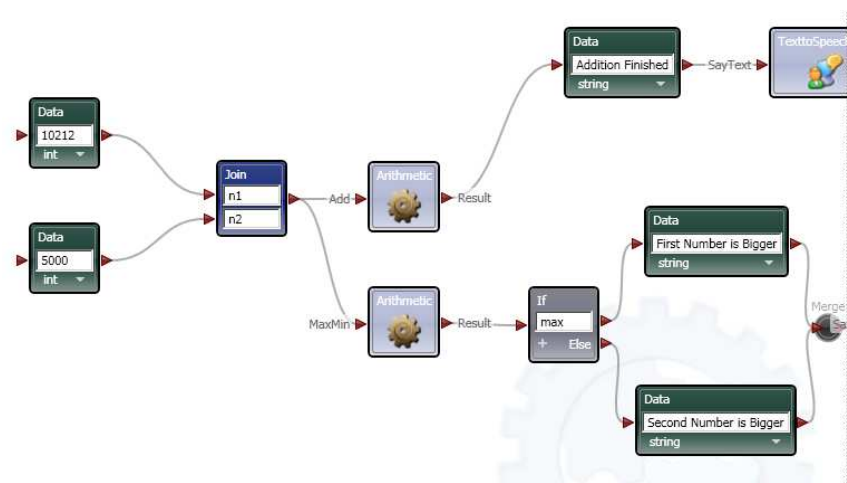
- **addition**

- Input: n1, n2
- Output: sum



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The Complete Diagram



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4

VPL Programs Compilation as Services

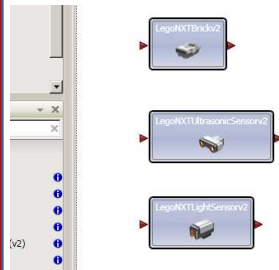
- We can optionally compile our VPL project.
- The code generation feature allows our VPL diagrams to be converted into C# code that will compile to an assembly containing one or more DSS services.
- This allows the ease of development to be combined with the power and speed of execution of C#.
- To compile a VPL program, go to Build → Compile as Service (**this feature is not available in the Express edition**).

Presentation Topics and 1st Competition

- Pick a presentation topic from the following available options (**September 10, 2009**)
 - Sumo Wrestler
 - SimplySim
 - RobuDog Simulator
 - Consious-robots (for Competition)
 - RobRealm (LegoNXT Ball Picker)
 - RoboCup Soccer
- Using the available Lego Services and samples available online, develop an interesting application of your choice. (**September 17, 2009**)

Lego Sensor Readings

- Battery
- Touch Sensor
- Ultrasonic Sensor
- Light Sensor



NXT Brick

Description: Status of an NXT Brick.

Configuration

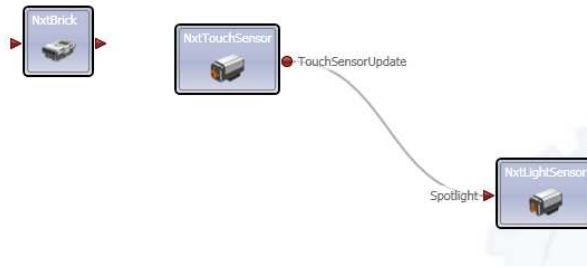
Connected:	true
Brick Name:	NXT
Firmware:	Firmware: 1.26 Protocol: 1.124
Serial Port:	41
Baud Rate:	115200
Connection Type:	Bluetooth

Devices

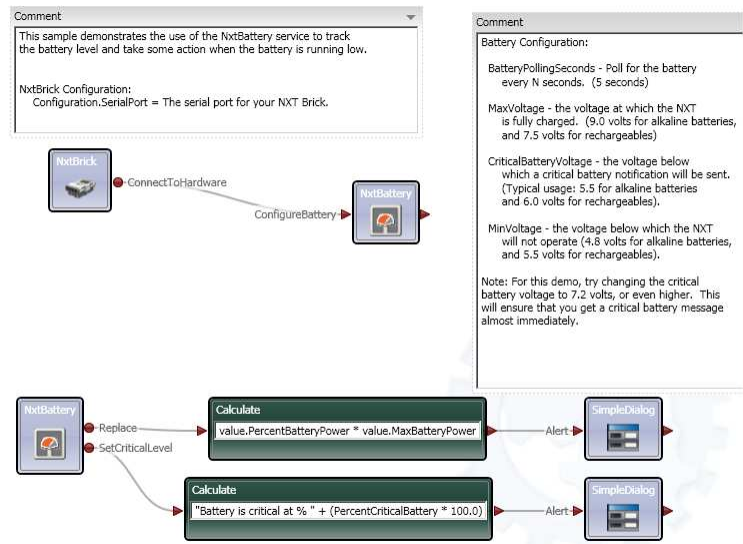
Port	Type	Model	Service
MotorB	Actuator	NxtMotorPair	lego.nxt.drive
MotorC	Actuator	NxtMotorPair	lego.nxt.drive
Sensor1	AnalogSensor	TouchSensor	lego.nxt.touchsensor
Sensor3	AnalogSensor	LightSensor	lego.nxt.lightsensor
Sensor4	DigitalSensor	UltrasonicSensor	lego.nxt.ultrasonicsensor

Turn on the Flashlight (VPL Sample Program)

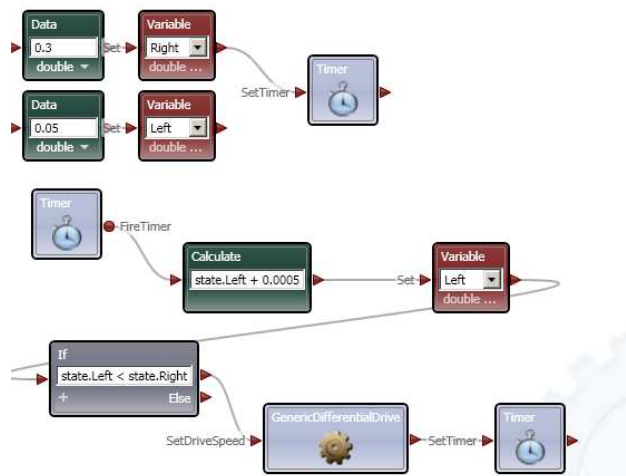
Comment
Turn on the Flashlight
This simple program demonstrates using the Touch Sensor to turn the Light Sensor on and off. Please refer to the corresponding Tutorial in the help file located in your MSRS installation directory at: ...\\Documentation\\MsrslLegoMindstormsNxt.chm
NxtBrick Configuration:
Configuration.SerialPort = The serial port for your NXT Brick.



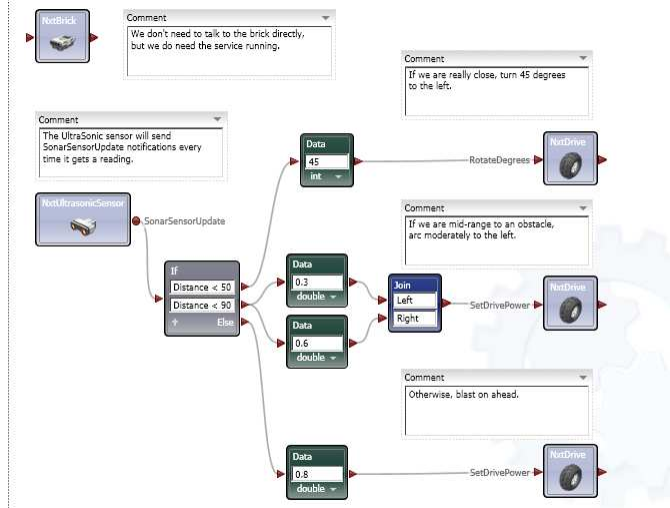
Accessing Lego Batteries



Drive in Spiral (Chapter 11 – MRDS Book)



Lego Explorer (Sample VPL Program)



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Fall 2009

11