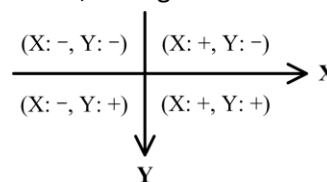


Introduction to Game Programming and Robotics

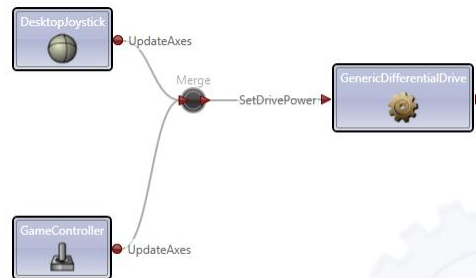
Unit # 4

Data Connection Logic

- Moving Forward: When the controller is moved up, $X = 0$ and $Y < 0$ and the left and right wheel power value is $-Y/1000.0$.
- Moving Backward: When the controller is moved down, $X = 0$ and $Y > 0$ and the left and right wheel power value is $-Y/1000.0$.
- Anti-Clockwise Turn: When the controller is moved to the left, $X < 0$ and $Y = 0$; the left wheel power is $X/1000.0$ and right wheel power is $-X/1000.0$. The left wheel rotates in reverse; the right wheel rotates forward.
- Clockwise Turn: When the controller is moved to the right, $X > 0$ and $Y = 0$; the left wheel power is $X/1000.0$ and right wheel power is $-X/1000.0$. The left wheel rotates forward; the right wheel rotates in reverse.



Simulated Robot Program 2



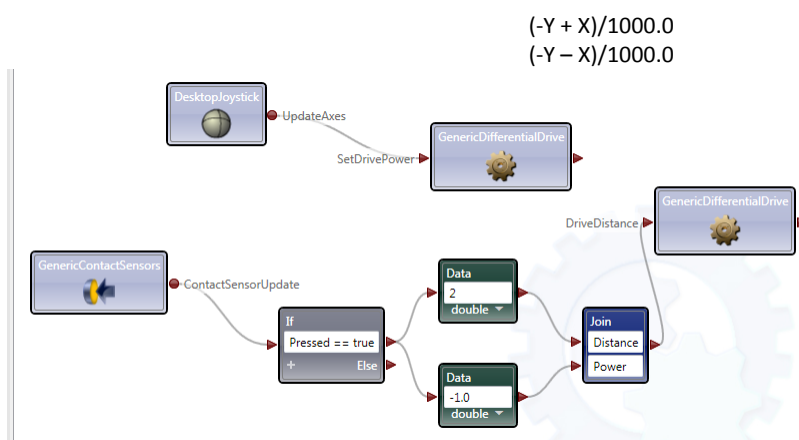
Desktop Joystick Service

- The **Desktop Joystick** service displays a window that exposes the basic capabilities of a joystick which can be driven with a mouse or keyboard.
- As with most activities, it has an input connection *pin* (or *port*) on the left, an output connection pin on the right and a notification pin also on the right.
- We send *requests* to the service via the input pin. These are also called *actions* or *operations*. The *result* or *response* is sent on the output pin.
- Notifications can be sent at any time by a service - we do not have to send a request. These are important for a service like the **Desktop Joystick** because it sends messages constantly when you are moving the joystick. Your VPL program can process these messages and use them to control a robot.

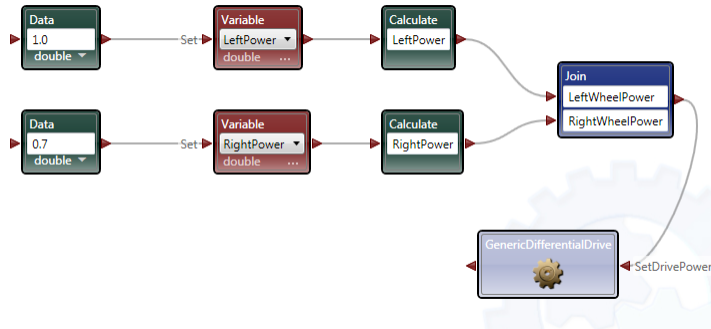
Publish Subscribe Model

- Robotics Developer Studio supports a *Publish-Subscribe model*.
- A service, or in this case your diagram, can *subscribe* to the *notifications* that another service publishes.
- In this example, when the position of the joystick changes the **Desktop Joystick** service will issue a notification.
- The diagram can receive that notification by connecting to the notification pin on the **Desktop Joystick** service.

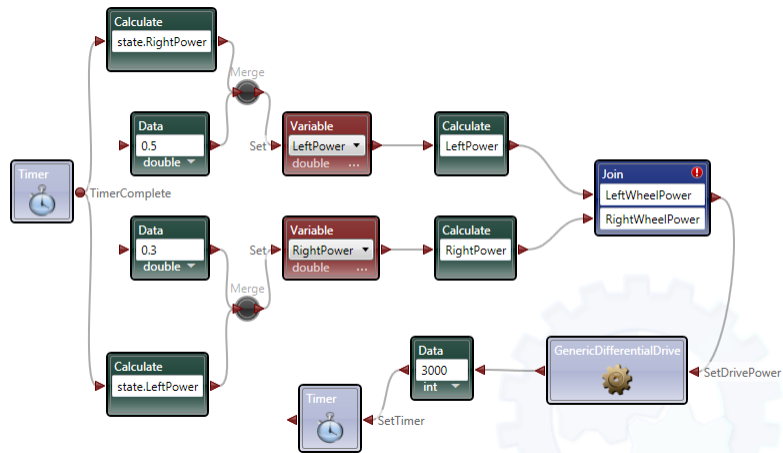
Simulated Robot Program 3



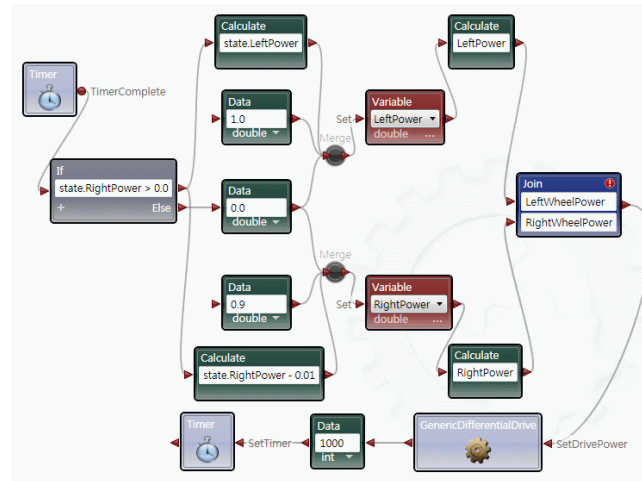
Simulated Robot Program 4 (Circle)



Simulated Robot 5 (8-Shaped)



Simulated Robot Program 6 (Spiral)



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Fall 2013

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Exercises

- Stopping a Robot
- Square Shape
- Triangle Shape
- Oval Shape
- Star Shape

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