

## **Using the IntelliBrain-Bot with Microsoft Robotics Studio**

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### **Overview**

The IntelliBrain-Bot integration with Robotics Studio consists of a program, written in Java™, which executes on the robot, and services written in C#, which execute on the host PC in the Robotics Studio environment. These two pieces communicate over a serial connection, which may be over Bluetooth or a serial cable.

### **Bluetooth Support**

You will most likely want to use a Bluetooth serial connection to your robot for un-tethered operation, but you can use a serial cable if you'd prefer. RidgeSoft has test using adapters from AirCable (see <http://www.aircable.net/cr-usb-serial-male.html>). The IntelliBrain-Bot provides +5V power to pin 9 of the DB9 connector which will power the AirCable's RS232 adapter.

### **IntelliBrain-Bot Program**

The IntelliBrain-Bot program, IBBHostInterface, is a Java program that allows the IntelliBrain-Bot to send telemetry data and be controlled via a serial connection. This program is a general remote control program, which is not specific to Robotics Studio. It can be used to remotely control the IntelliBrain-Bot from any system communicating via a serial connection.

Further documentation on the program is contained in the source files.

### **Robotics Studio Services**

The Robotics Studio portion of the integration currently consists of a service to interface with the IntelliBrain-Bot and an IntelliBrain-Bot drive service. These services provide enough functionality to remotely control the IntelliBrain-Bot via the "Simple Dashboard" included with Robotics Studio. Both services are written in C#.

### **Using the Examples**

The following steps provide a summary of the steps you will need to complete to use the examples.

1. If you plan to use Bluetooth, purchase adapters from AirCable, install them and pair them.
2. Download and install Robotics Studio from Microsoft's web site.
3. Download and install Visual C# Express Edition and the .NET 2.0 SDK from Microsoft's web site.
4. Download the two portions of the example programs from [www.ridgesoft.com](http://www.ridgesoft.com).

5. Extract the IntelliBrain-Bot example to a convenient folder.
6. Use RoboJDE to build and download the program into flash memory on the robot.
7. Extract the Robotics Studio portion of the examples into the “samples\Platforms” folder where you installed Robotics Studio.
8. Using notepad, open the various project files and edit the paths to match the paths for you installation.
9. Using Windows Explorer, browse to samples\Platforms\RidgeSoft\IntelliBrainBot and open IntelliBrainBot.csproj by double clicking.
10. Once it opens in Visual C#, right click on the Solution in the Solution Explorer, then select Add->Existing Project.
11. Browse to and select samples\Platforms\RidgeSoft\IntelliBrainBotServices\IntelliBrainBotServices.csproj.
12. In the Solution Explorer, right click on IntelliBrainBotService and select “Set as Startup Project”.
13. Edit the IntelliBrainBot.cs file to change the “COM7” to the value of the COM port you will be using on your computer.
14. Power the robot on and press the start button.
15. Click the green arrow on the toolbar in Visual C# to build and run the services.
16. Wait until the Simple Dashboard window appears.
17. In the Simple Dashboard window, enter “localhost” in the Machine field and “50001” in the Port field, then click Connect.
18. Double click on the drive service in the list on the lower right.
19. Click the Drive button.
20. Use the mouse to drag the crosshairs on the ball graphic, imagining it is a joystick.
21. The robot will move based on the position of the joystick.