This tutorial should give you a basic understanding of how the fischertechnik components in Microsoft Robotics Studio can be used.

However this is not a general Introduction to the Visual Programming Language (VPL) and Robotics Studio. For such information and more tutorials please visit the links you'll find on the fischertechnik page.

Contents

1 Before you start…

Up till now we generally do not recommend the use of the “FT Generic Contact Sensors”, “FT Generic Encoder” and “FT Generic Motor” components in Robotics Studio if there is another possible way. They work but unfortunately not always as intended. Instead try to find a solution with the fischertechnik interface component or the standard components like “Generic Motor” using a manifest as described in chapter 3.

The Robo I/O via USB is supported, the RF Data Link is not yet supported.

Finally: Don’t be irritated if icons or captions look a little different. This is usually not a malfunction.

2 “Hello Fish”

Let’s start with a simple programme. You need the fischertechnik interface and a contact sensor. Start Robotics Studio VPL. Drag the fischertechnik interface block from the services toolbox on the left to the diagram area in the middle.

Then take the simple dialog block from the same toolbox and place it right of the fischertechnik block.

Now to connect both blocks drag a line from the Notification output pin (with the round connection pin) to the SimpleDialog.

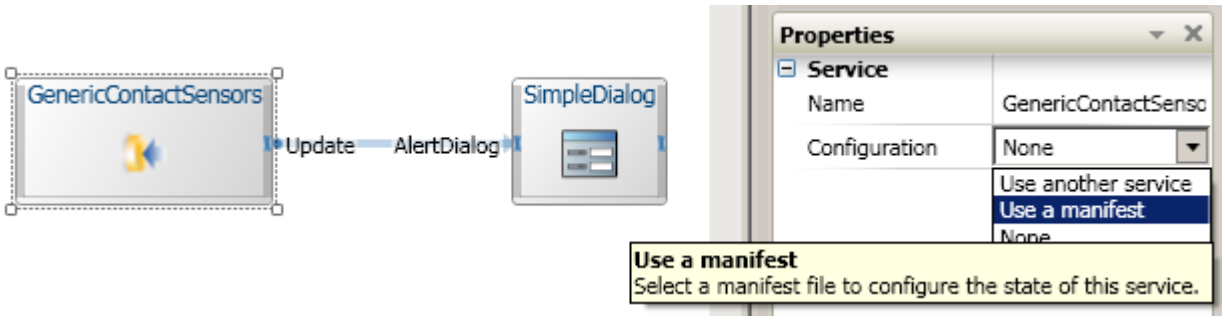
In the Dialog that should now be opening select “From: ChangeState” and “To: Alert Dialog” and press ok.

Finally right-click on the blue connection line and open “Data Connections”. Check “Edit values directly”, type the following and press ok.

Now you’re ready to test your programme. Just press the green “Start” button in the upper toolbar or press “F5”.

You will recognize, that there will always be opening four alert-windows when you press a Contact Sensor. This is, because the contact sensors change the state at every press AND releasing. Further it also seems, that such an event is always sent twice.

Note: A similar solution is described in MS Robotics Studio Tutorial 1. However, in our tests it did not work with the “FT Generic Contact Sensors”. So just use the normal “GenericContactSensor” as described in the Tutorial and select "Use a manifest” in the sensor properties.



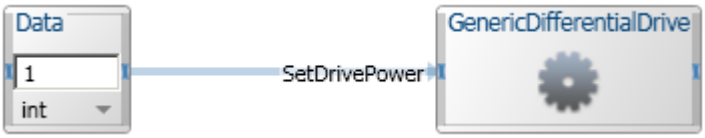
Import 

even if you're not using the Bionic Walker. Selecting the "RoboMobile" manifest will also work but not on every Hardware Port.

Also remember to set the Data Connections as described above.

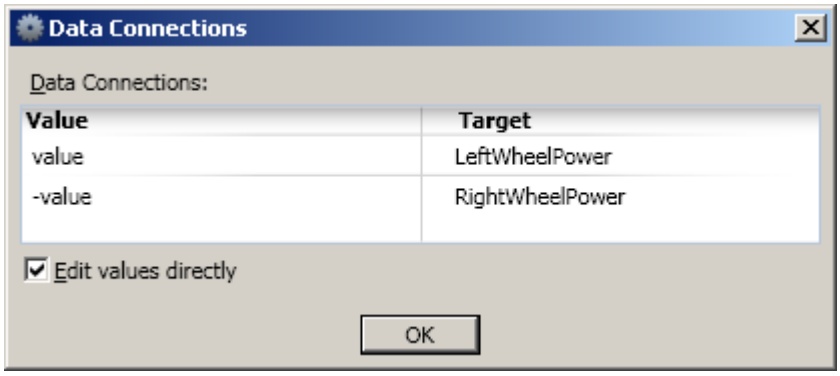
3 Controlling a motor

Using a motor is quite simple. For this programme you need two motors at ports M1 and M2. Draw it as shown here.



For the GenericDifferentialDrive select 

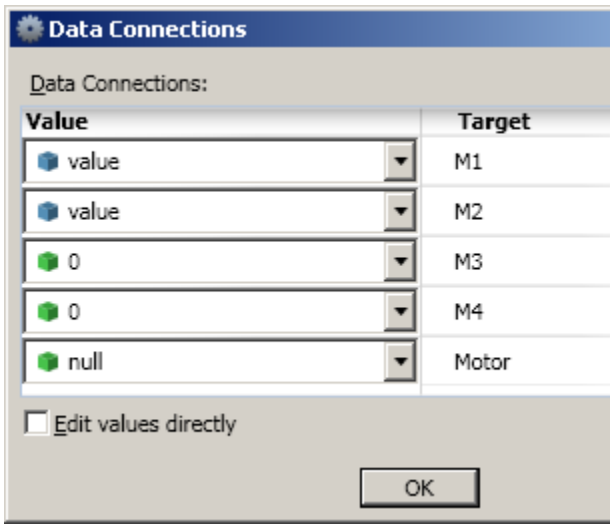
and set the Data Connections.



Your programme is ready for testing. For a better control of the motors try the following solution.

3.1 Controlling a motor using the interface component

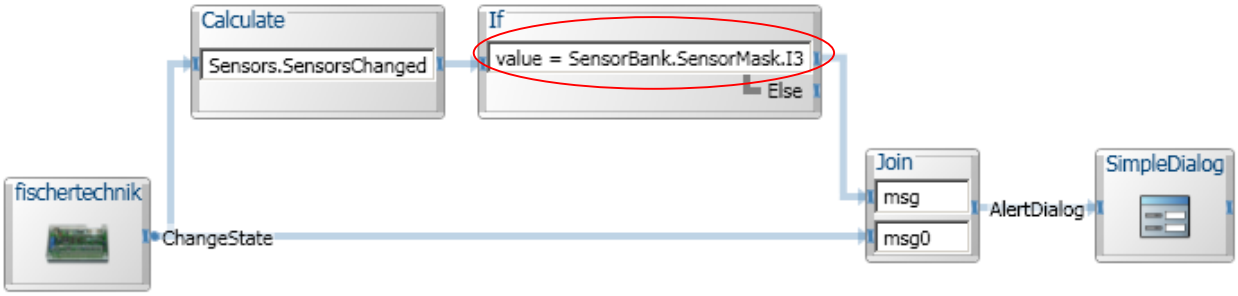
Even easier! Just drag and drop a data block and an interface block and connect them.



4 “If” and “switch” with Sensor values

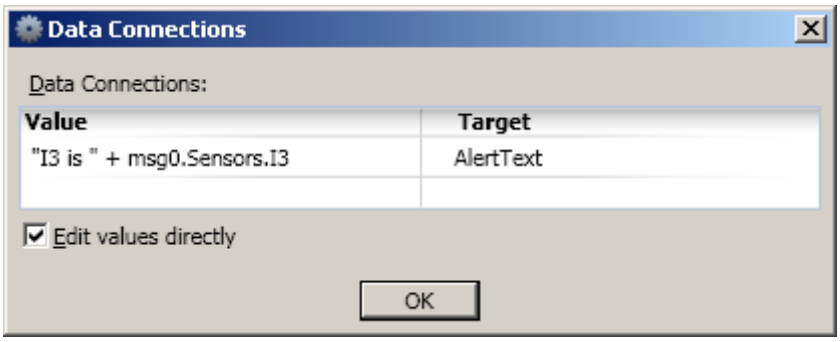
Something that might also be useful: If you try to make decisions based on sensor names you’ll find that you can’t use strings like “I3” for a correct statement. Instead you can use the “Sensorbank.SensorMask” as shown.

Note: The calculate block is not always necessary but sometimes helps to visualize things better.



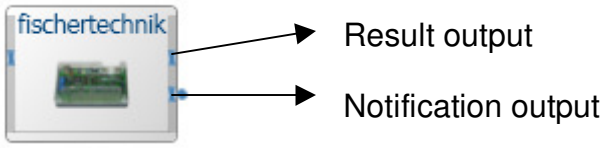
This setup only alerts, when button “I3” is pressed and informs if the button is still pressed (true or false).

The Data Connections to the AlertDialog:

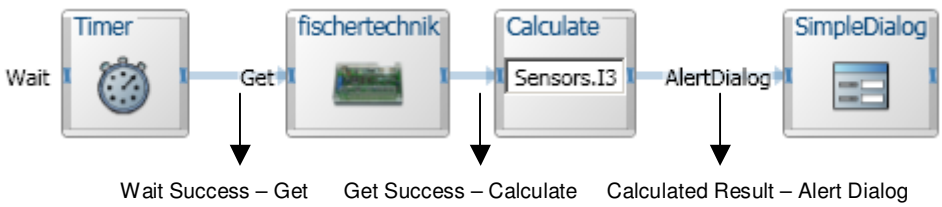


5 Using the Result output of the interface

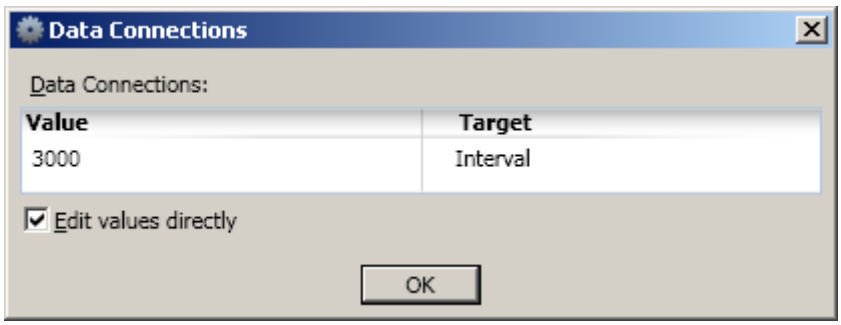
Using the notifications output like shown before may sometimes be useful but often you don't want every event to cause an action.



If you want to know the state of a contact sensor only at a single point of the programme for example you can get it directly using the "get" input of the interface. (By the way: At least until version 1.0.313.2 don't try using the SetupAnalog input of the interface block without having saved your work…)



Timer settings:



This programme waits three seconds until it checks the value of the sensor.

6 Finished…

With the examples shown here you should now be able to understand the programmes available for download.

For questions and more information on fischertechnik visit **www.fischertechnik.de.**