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1. Introduction

The Spark 5 research platform is a highly evolved platform for Researchers, educators and students working in the areas of Embedded systems, Robotics, Real Time Operating Systems (RTOS) and Sensor networks. With its support for wide array of sensors and highly configurable layered architecture, The Spark 5 provides an affordable alternative for end users. Support for Microsoft Robotics Development Studio provides a unified programming interface. Use of Visual Programming Language (VPL) makes it very easy for beginners to write complex programs on Spark 5 platform.

2. Getting started

In order to start using Microsoft Robotics Development Studio (MRDS) with Spark 5 platform you will need,

- The Robotics Developer studio 2008 R2, which can be downloaded from <http://www.microsoft.com/robotics/>
- Installer for Nex Robotics Spark 5 platform for MRDS from <http://www.nex-robotics.com/MRDS/NexFireBird5MRDS.exe>
- Firmware for using Spark 5 platform with MRDS (<http://www.nex-robotics.com/mrds/Spark5MRDS.hex>)

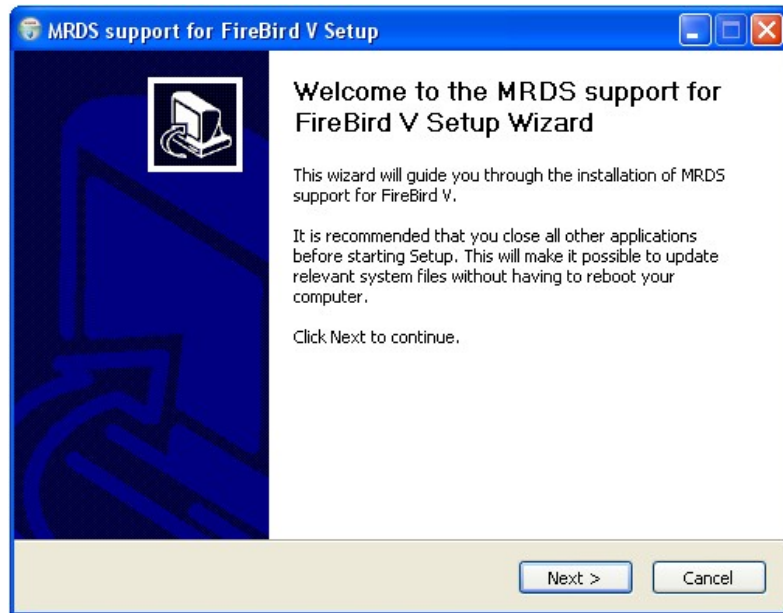
Note: The current installation is tested with Microsoft Robotics Developer Studio 2008 R2.

2.1 Installing MRDS

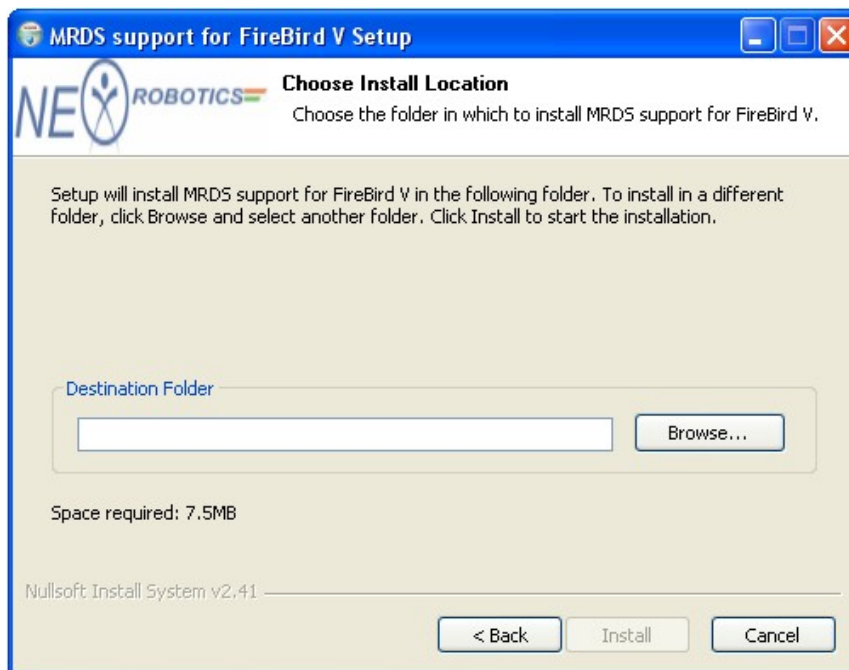
Instructions for downloading and installing MRDS can be found on official MRDS homepage.

2.2 Installing Spark 5 support for MRDS

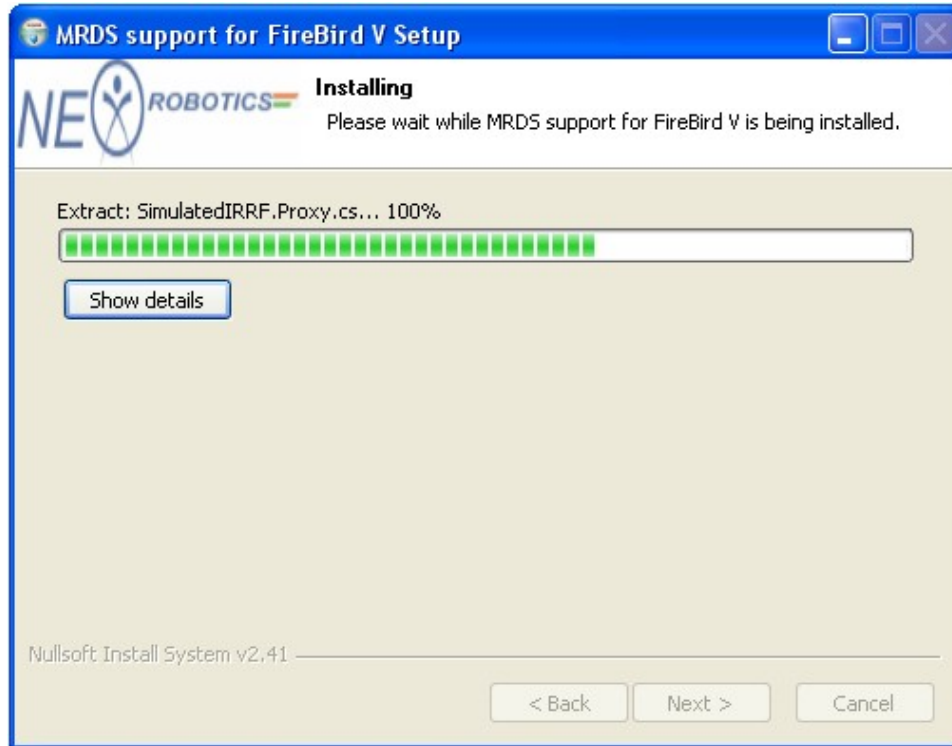
- Download the installer from <http://www.nex-robotics.com/mrds/NexFireBird5MRDS.exe>
- Run the Installer. It will show a welcome screen as follows,



- Click Next



- Choose the directory where Microsoft Robotics Development Studio is installed. Ex. If MRDS is installed in "C:\Documents and Settings\Administrator\Microsoft Robotics Dev Studio 2008 R2 Express", then choose this directory for installation by browsing to this location.



- This will start installing the files required for Spark 5 platform in MRDS.



- Click Finish to complete the installation.

Navigate to the installation directory by going to Start->Programs->Nex Robotics->FireBird5. The relevant files are located in {MRDSInstallationfolder}\samples\Platforms\NexRobotics\FireBird5.

2.3 Loading firmware on Spark 5

Download the binary from <http://www.nex-robotics.com/mrds/Spark5MRDS.hex>. For loading the hex file on the robot, refer to the chapter 4 of the Fire Bird V robot's hardware manual.

3. Using Visual Programming language

Services written for Spark 5 platform are visible in visual Programming Language (VPL) after you install the Nex Robotics software package in your MRDS directory. You will also find the examples for using the Spark 5 services in VPL in the \samples\Platforms\NexRobotics\FireBird5\VPLTutorials.

Let's take an example of white line follower tutorial to understand how to run these examples.

1. Open the WhitelineFollower.mvpl in VPL.
2. Select the "FireBird5Comm" block and in properties window, under configuration, select "Set Initial Configuration".
3. This will open a "settings" pane. Write the COM port number in the "CommunicationPort" setting. The number must be of the COM port used for communicating with Spark 5. For example, if you are using COM port 7, then write "7" in "CommunicationPort" setting.
4. Save the project and run the VPL example by pressing "F5" or by choosing "Run->Start".

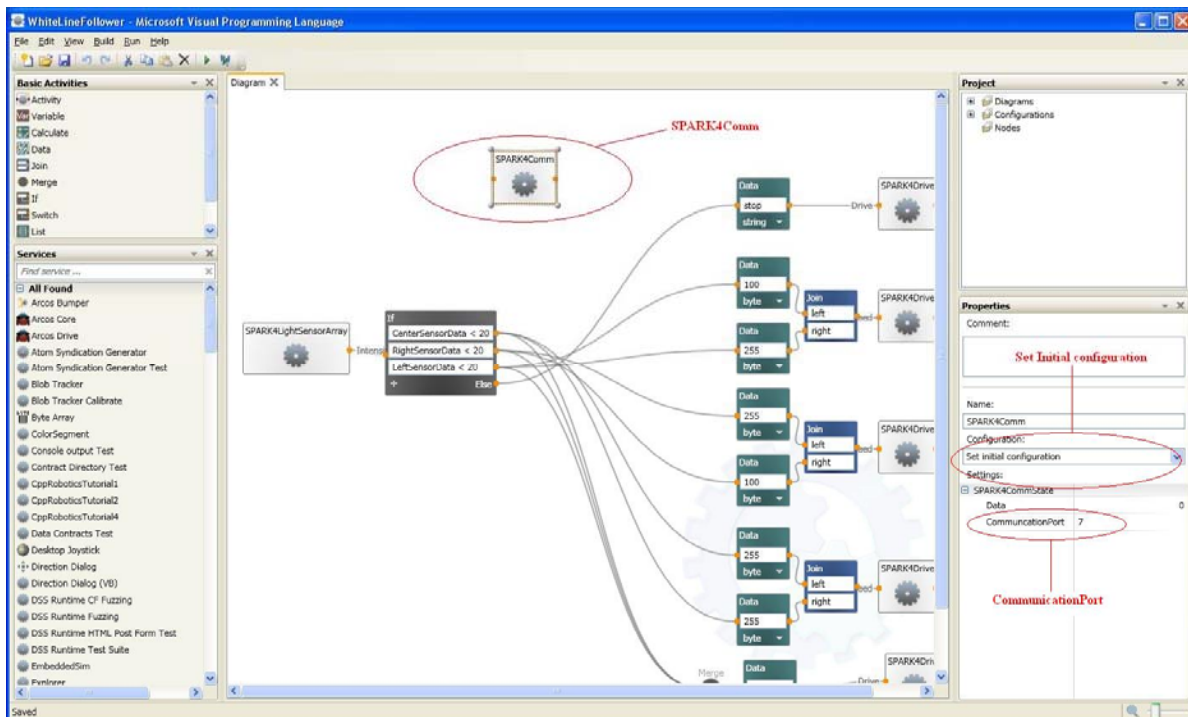


Figure 1: VPL tutorial for white line follower for Spark 5 platform

4. Online Help

Visit Nex Robotics forum for more queries, discussions and updates. (<http://www.nex-robotics.com/forum.html>)