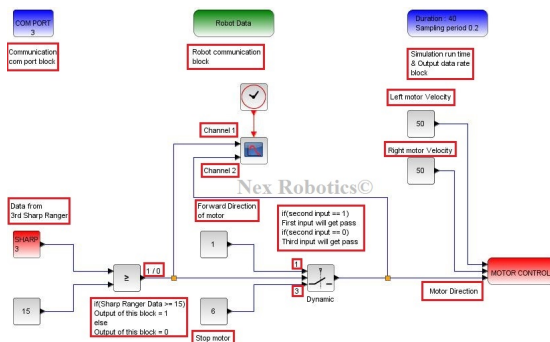


Introduction :

Scilab is a programming language associated with a rich collection of numerical algorithms covering many aspects of scientific computing problems. One important Scilab tool is Xcos. This tool is dedicated to the modeling and simulation of hybrid dynamic systems including both continuous and discrete models. Xcos includes a graphical editor which allows to easily represent models as block diagrams by connecting the blocks to each other. Each block represents a predefined basic function or a user defined one.

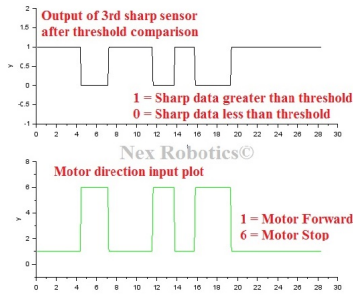
One of the most interesting features of Scilab is that we can create and use external blocks. This article will help user to understand integration of Fire Bird robot with Scilab. FireBird blockset contains different simulation blocks which are used for developing models and simulation applications on Fire Bird robot via serial communication protocol. We have developed few application examples based on modeling and simulation in scilab using FireBird blockset and we have tested those examples on Fire Bird V Robot.

Modeling and simulation example for Object Detection Application :

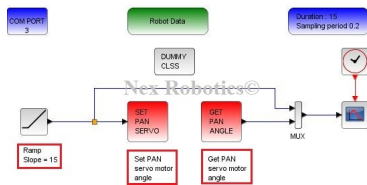


According to above application, If output data from 3rd IR Sharp ranger of Fire Bird V robot goes above threshold value i.e 15, then Fire Bird V robot will move into forward direction where as if Sharp ranger's data becomes equal threshold or goes below threshold value then robot will halt its motion.

Graph plot for Object Detection Application :

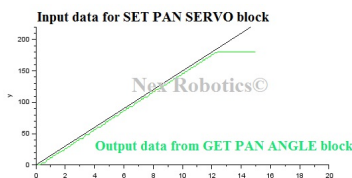


Modeling and simulation example for PAN Servo Motor :



According to above example, Input data to PAN SERVO block is provided by RAMP block. During simulation, RAMP block will gradually increase it's data from zero value and with respect to the RAMP block's data, PAN servo motor of Fire Bird V will also start rotating gradually from 0 degree angle to 180 degree angle.

Graph plot for PAN Servo Motor example :



User can also refer other examples based on FireBird blockset located inside examples folder of toolbox.

Note : To work with Fire Bird V Robot using Scilab/Xcos, user must load 'FBVRobot_scilab_firmware.hex' file into Fire Bird V Robot.

Download:

[Download User manual for FireBird Blockset for Scilab Xcos](#)

[Download FBVRobot scilab firmware.hex file for Fire Bird V Robot generated for Scilab applications](#)