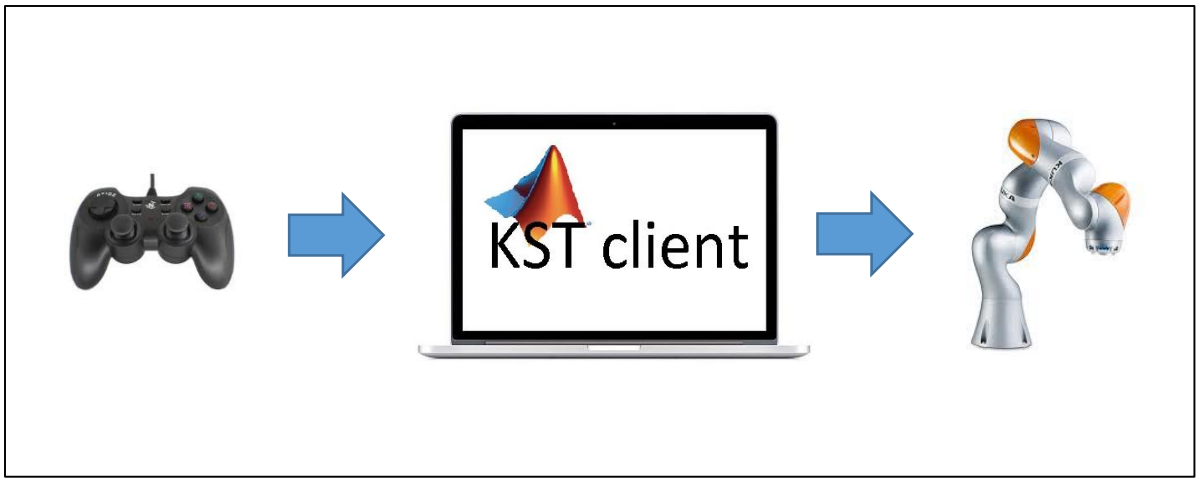
KST for integrating external hardware to the KUKA iiwa manipulators

Using the KST toolbox it is easy to integrate external hardware to interface with the KUKA iiwa manipulator.

The example (KST_gampade_jointsPosControl.m) is a demonstrator on the ease of use of the KST toolbox to interface the KUKA manipulator with external hardware.

In this example, the KST toolbox is used to interface the KUKA iiwa robot with a gamepad connected to the computer, so that the user can use the gamepad to control the robot, in this example the robot is controlled in joints space. The gamepad analog inputs are used for effectuating the joints position control in realtime.



Hardware required:

1- KUKA iiwa 7 R 800 robot.
2- External computer.
3- USB gamepad with analog inputs.

Note: The Nplay GX 102 gamepad controller was used for this demo, but any USB gamepad with analog control shall do the work.

Software required:

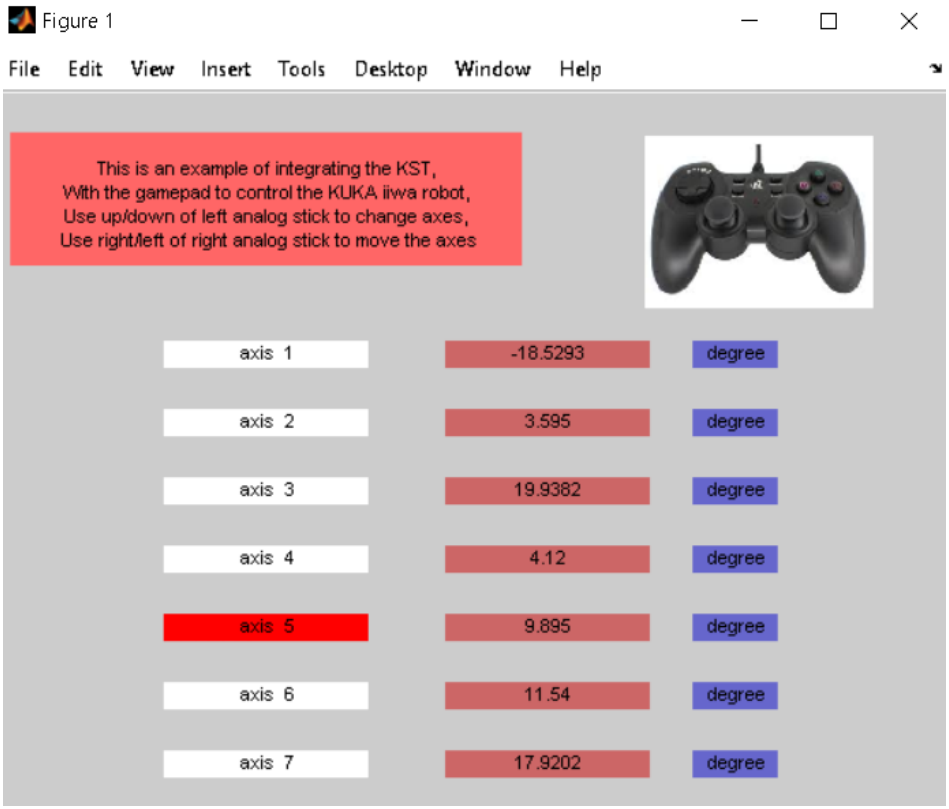
1- Matlab, installed on your computer.
2- KST Matlab client the Kuka sunrise toolbox for Matlab, in the working directory of Matlab.
3- KST server project, synchronized to the robots controller.
4- The example (KST_gampade_jointsPosControl.m) in the folder

Testing:

1- Run the server on your KUKA controller.
2- Run the m file (KST_gampade_jointsPosControl.m).
3- Use the analog inputs of your joystick to control the robot in joint space.
4- Press C to turn off the program.

Program interface:

The program has the following interface:



- The up/down direction of the left analog input of the gamepad (left joystick) is used to change the controlled axes, the selected axes is marked in red.
- The right/left direction of the right analog input of the gamepad (right joystick) is used to control the motion of the selected axes.

Conclusion:

Using the KST it is an easy process to interface external hardware with the KUKA manipulator.