Kuka XML Interface Startup

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Directions for running the Kuka XML and ROS interface to the KR-5sixx in Henriks lab.

1 Hardware Configuration

The control computer and robot controller should be connected to the router via an Ethernet cable. Use the port closest to the power button on the robot control box. The IP address of the control computer should be set to **192.168.1.42** (should be handled by DHCP reservation on router).

2 Software Configuration

2.1 Control Computer Side Running ROS

- On the control computer, you must have a copy of the XML file stored locally.
- ROS will be started here first. The ROS node acts as the server. Use the following launch file:

```
~/jake/rcs/krc_interface krc_robot_only.launch
```

2.2 Robot Side Running kuka_demo.src

- You must first make sure that you are the administrator. To do this:
  - Set the selector switch to the bottom left T.
  - Go to the configure menu, and under user group you need to be administrator.
  - If not, select bottom buttons and set. The password is **kuka**
- Make sure that the socket is turned on
  - Go to monitor, I/O, Digital output
  - Want 1 to be red or on for output.
  - To change, you must hold the deadman and press the value button.

- Run correct file
  - Select the kuka source file from the R1 directory
  - The blue button moves between screens and the yellow button selects
  - Put mode selector to top left (spiral with no dot)
  - Press motor enable (the button with a circle with a 1 in it)
  - Clear out all errors
  - Hold deadman and press green circle with a + in it
  - Press run multiple times to get to RSI loop

2.3 Moving the Arm

- The topics that are interesting are joint_space, cart_space_smooth, and cart_space_direct. The smooth gives a cubic spline interpolation between points and is probably better to use.
- The units are degrees and millimeters. The velocity is millimeters per second.
- To move robot, use

```
rostopic pub -1 /kuka_cart_diff_smooth geometry_msgs/Twist "[0,0,0][0,0,0]"
```

- This represents a move of [x,y,z] [yaw,pitch,roll]