

## RDE and RDT

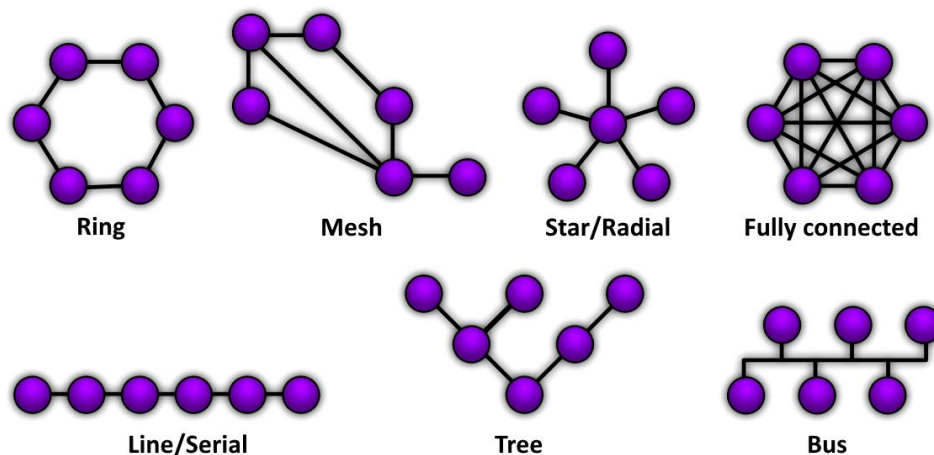
This first exercise is meant to start using RDT environment and learn something about graph theory and HMI drawing. In order to try your HMI project, you will need a Robox HMI device; if you don't have any, you can use RTM on your pc.

For this project you don't need to use a Robox controller connected to HMI, anyway it is good if you do the connection, just to avoid boring alarms due to missing communication and to boost RTM boot speed (no wait for connection timeout).

### 1. Robox Display Tool (RDT)

Open RDT and make a project with 6 pages (slides), that can easily be identified with numbers from 1 to 6; every slide can have a big number as wallpaper. Page 1 will be the default page shown at system boot, and from there you should be able to go to the other pages, by pressing some buttons. Every button must execute a GOTO\_PAGE predefined command of RDT. Now, let's consider how to move among all the slides.

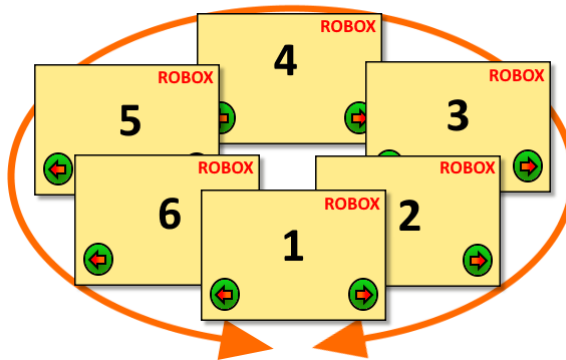
An HMI project is like a graph, where every page is a point of the graph and every change button is an arc connecting two different points. As you should know, there are many graph topologies, according to graph theory, as shown in **picture 1**, below.



**Picture 1** – scheme of different graph structures (networks)

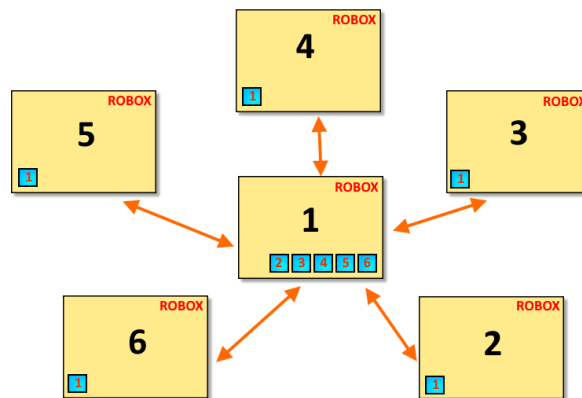
In this exercise you should make your buttons in order to switch among your slides in 3 different ways, according to a user choice:

- **Ring:** each page must be able to go to the next and previous, as shown in **picture 2**.



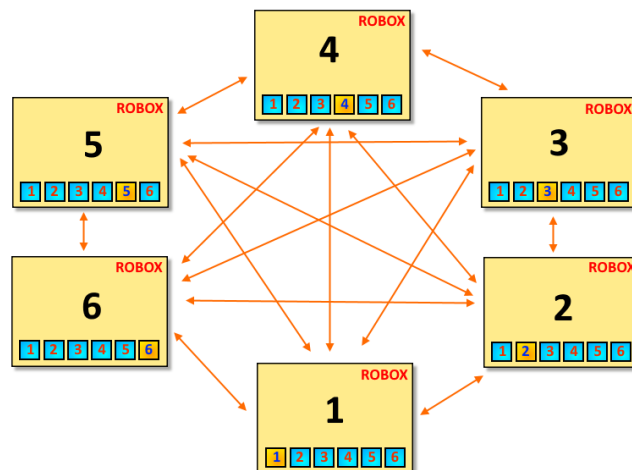
**Picture 2** – ring structure of pages network.

- **Radial:** from page 1 it is possible to reach all the other slides, but from them it is only possible to go back to slide 1. This topology is shown in **picture 3**.



**Picture 3** – radial structure of pages network.

- **Fully connected:** from every slide it must be possible to go to all the other ones, as shown in **picture 4**. You can use a row of buttons or a menu'.



**Picture 4** – fully connected structure of pages network.

When a specified method is chosen, all related buttons are enabled and shown, while the others must become invisible and unusable.

The way to change among the different methods is up to you: you can use a menu', an event, a variable or some other buttons; just make it clear to the user, with some text.

## 2. Debug

Compile and load your RDT project on your HMI. Reboot your controller (if any) and connect it to your HMI. If you don't have an HMI device, you can use RTM directly on your PC. Try to use your HMI to move among the various slides and to change the connection style.