

How to use 3D Virtual Lab

This application requires a pair of virtual reality glasses, a DIY 1 DOF haptic device (available at https://remotelab.fe.up.pt/1Dof_haptic/index.html) and a joystick turned on and connected to your computer.

After downloading the application from the website, the virtual reality glasses allow the user to be immersed in a lab with four different mechanical experiments: an ideal lever system, a double-acting pneumatic cylinder, a spring constant and a pulleys systems. The user can turn around 180° to view and to interact with the new environment.

The different experiments can be explored with the help of a joystick and a 1 DOF haptic device.

The joystick must be used to get close to the set-up of each one of the experiments allowing forward and backward movement.

When the user is moving toward any of the experiments he/her will cross a blue mark on the floor and a question appears according to the experiment. The answer must be guessed and later confirmed by actuating the experiment.

When the user grasps his/her answer to the proposed question, he/her can proceed the movement to be closer to the set-up of any particular experiment. The haptic device is automatically activated and allows feeling the force involved when interacting with the experiment.