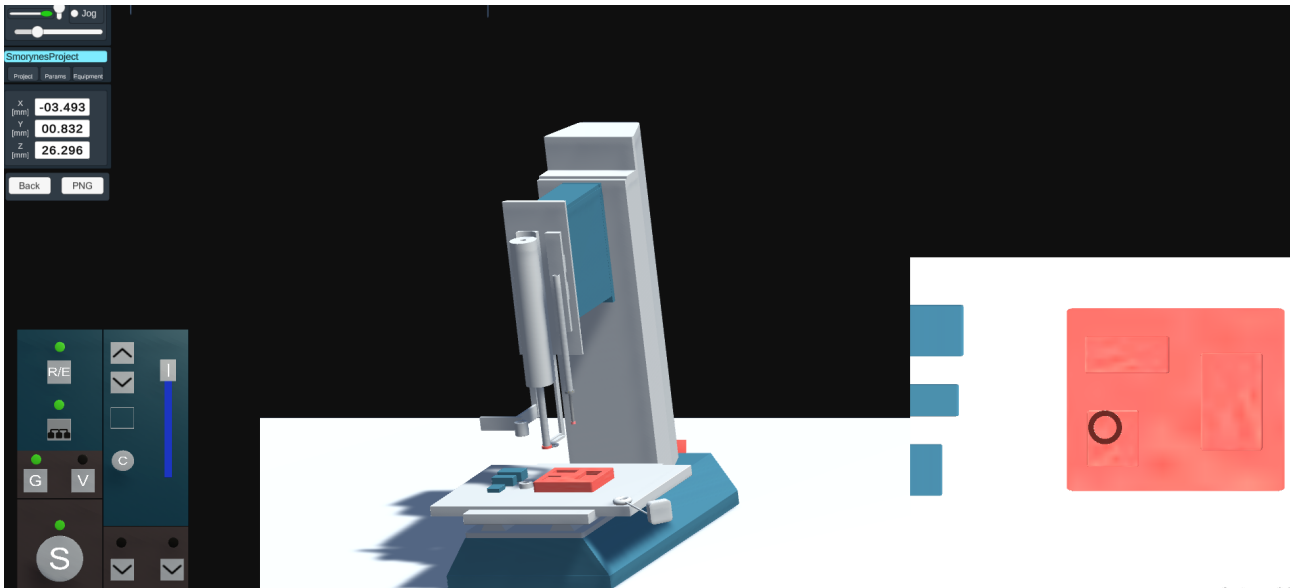


Pick and precise place of small pieces

Everything presented here can be done in Smorynes, IvyGroup content is just a faster way to prepare the scene.

Figure 1 shows the Bonder 008 virtual machine.

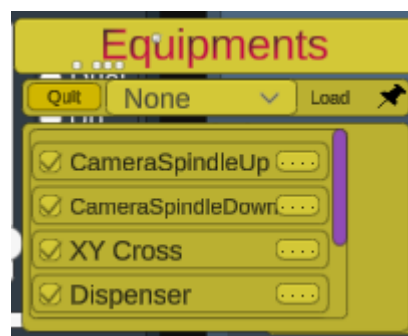


The model is based on a Proxxon milling machine. The favorable price of the milling machine allows the eventual realization of a physical machine for experiments and teaching.

The simplest configuration of the XYZP axes / P spindle rotation / assumes all axes are manual.

Equipments

GripXY	table control XY
Point	1x item 1x substrate
Grid	3x items 3x substrates
Parts	3x small parts 1x substrate with prepared mounting holes



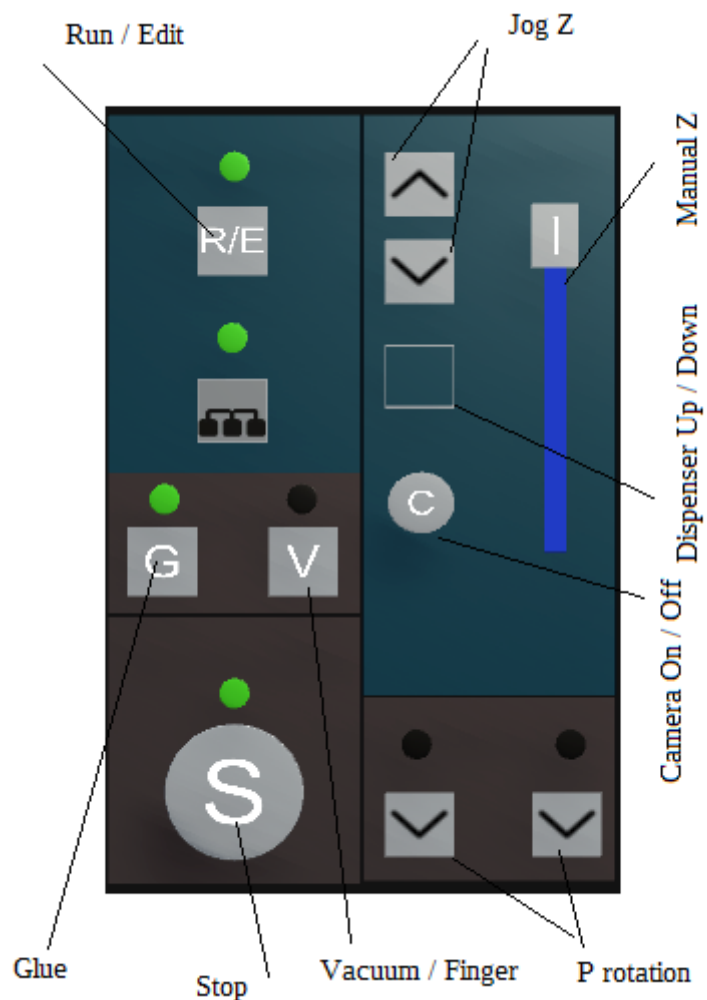
SpindleF spindle for gripping, finger configuration
 SpindleZ gripping spindle, vacuum configuration

Measurement.

The manual machine can be mounted with a measuring system. If combined with an acoustic signalling system, it can instruct the operator when working. For a more realistic simulation, the measurement can be switched off

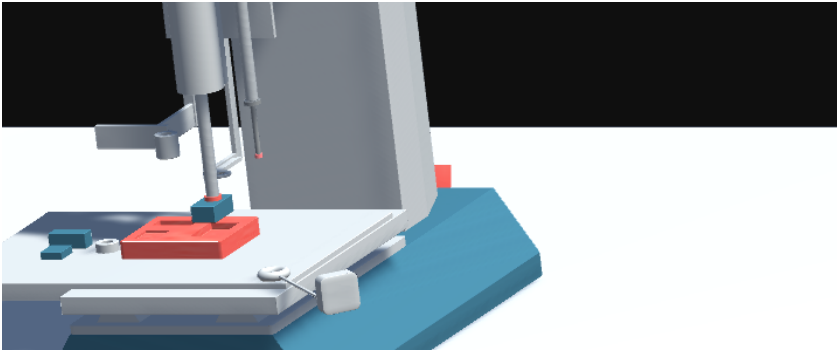
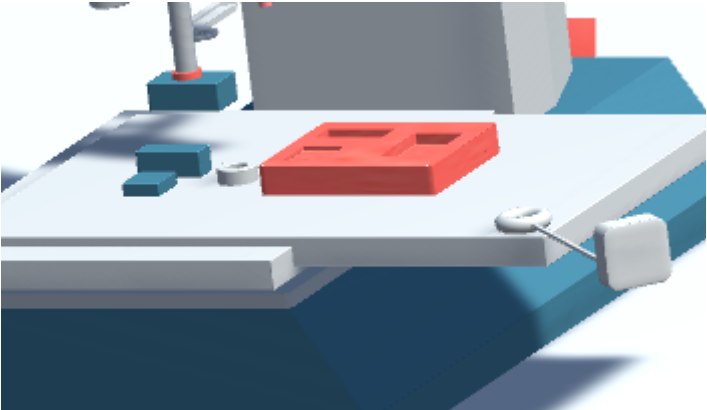
Panel

The control panel of the manual machine consists of several buttons and signal LEDs.



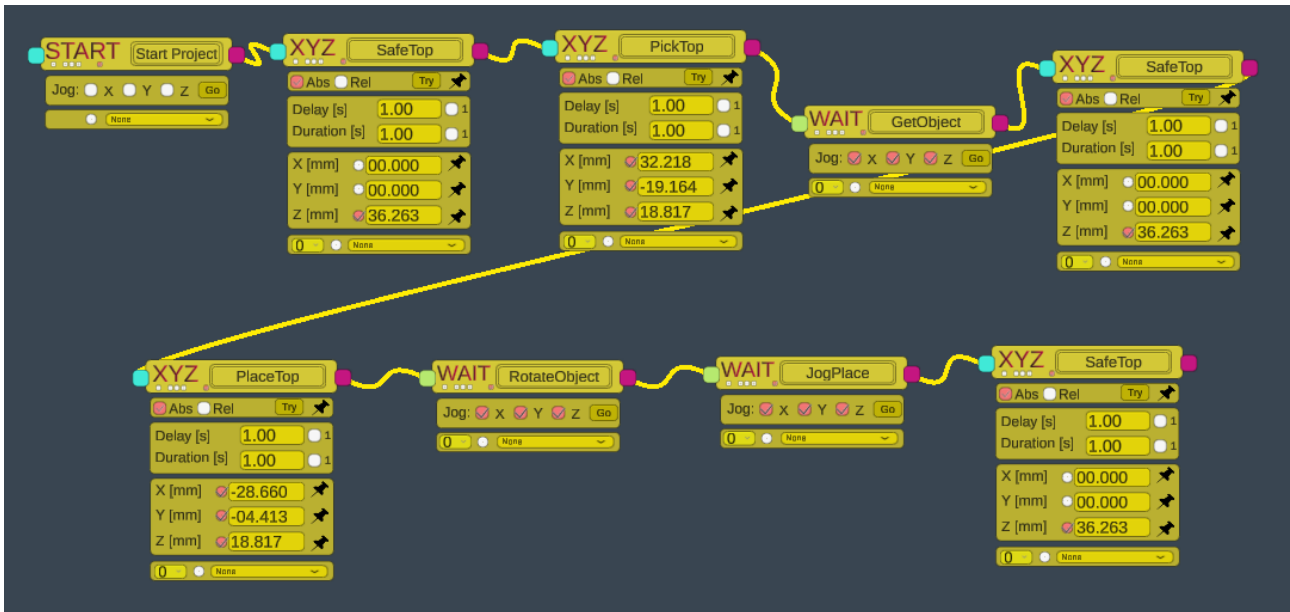
In order for the user to simulate the machine, the Jog mode must be switched on. It starts automatically, therefore the editor does not contain any program.

Significant snapshots of the picking and placement process



Semiautomatic operation

The configuration with controlled axes is programmed by writing to the Block and Frame editor. Same as for Smorynes internal models. An example of a pick and place block for semiautomatic operation is shown here. Designed for a controlled XYZ axes and a manually controlled P axis.



What is it good for?

Without the possibility of modification to a specific other machine just to explain the principles.

So ...

The documentation described how to modify the kinematics of the internal models on the liquid handler 'Otto'. But this modification does not use rigid body of models / only positioning sequences are simulated /. The transformation of the Bonder008 model to another machine is somewhat more complex and will be described in the following text.