controllab

TRAINING SIMULATORS



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TRAINING SIMULATORS

We make training simulators to help customers to train operators in the high-tech systems and marine & offshore markets.

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BENEFITS

- On training simulators you can test operations that are too expensive or too dangerous to do on a real machine.
- Every condition and scenario can be trained instantly. Therefore you will learn much faster and much deeper.
- No real machine is needed for the training, saving costs on downtime and trainers on location.



SOFTWARE

Controllab is the owner and developer of the modeling and simulation software 20-sim. We use this software to create digital twins: simulators that mimic a real machine very accurately. Using CAD import and predefined libraries we can create these twins very efficiently.



ACCURATE PHYSICS

All of our simulation blocks run in real-time and have been verified with measurements on real machines. This makes our digital twins ideal for the use in training simulators. Our twins are so realistic that they can be used to train operators to improve performance and prevent damage.



3D ANIMATION

20-sim can coupled to Unity, a gaming platform that can be used to create realistic 3D animations. We also use Unity to create human machine interfaces with buttons, displays and graphs and joystick inputs.



COST-EFFECTIVE

With our technology we can develop training simulators very efficiently and make them cost-effective for one-offs and small series. If you restrict the size of the displays, or use locally available monitors, we can pack them in flight cases for portable use.



WHY CONTROLLAB





SIMULATOR SETUP



PC/Laptop: core simulator software PLC (optional): control software Operator Panel: joysticks and buttons HMI: touch screens with interface to the control software Displays: Monitors, displays or VR headsets (3D world) Trainer Interface (optional): tablet with trainer menu Sound: 3D spatial sound

PC

A PC or laptop contains the simulator. All software is provided and licensed by Controllab. A PLC with the control software can be connected to the PC. This allows you to run the original control system of the machine. If a PLC is not available, we can reproduce the control software and run it from the PC.



DISPLAYS

A wide variety of displays can be connected. TV monitors and VR headsets are used to display the 3D simulated world. Touch screens are used for human machine interfaces and tablets for the trainer menu.



MENU

The trainer interface allows a trainer to monitor the progress of the operator and actively steer the training through a menu. A training can also be run without a trainer. The operator then chooses a session from the operator menu and plays it until all tasks are handled successfully.



SCENARIOS

The basic scenario teaches the operator the standard operation of the machine. Variations on this scenario will change the environmental conditions and introduce emergencies. When the operator masters all of this, the focus will change to getting the optimal performance out of the machine.







Assessment

What should be trained. Setup, planning & costs



Standard operation

Implement the first scenario, learn and adapt



Other Scenarios

Add all other scenarios





PASSENGER CRANE

The Eagle Access is a crane that transports passenger to a from ships. The training simulator is uses the original control PLC. The simulator uses three displays for the view from the ships bridge and one display showing the four camera views from the crane.



STEEL CRANE

For TATA steel many steel crane operators need to be trained annually. They chose to use the simulator without a trainer. The operator is guided trough the scenarios using an operator menu. The simulator uses the original crane operator chair with joysticks and buttons.



CUTTER SUCTION DREDGER

The training simulator developed for Dutch Dredging Simulators is portable using two flight cases. One flight case contains a PC, connection interfaces and plugs. The other flight case contains three displays and joystick for the handling of the dredge. The simulator is used to learn the basic operations and optimize yield.



KNUCKLE BOOM CRANE

The knuckle boom training simulator shows a cost effective setup for the use in offices. It consists of large screens on a curved frame. The simulator can be assembled and disassembled in one hour and can be used in trade fairs







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START THE VOYAGE