controllab | products

Training Simulators

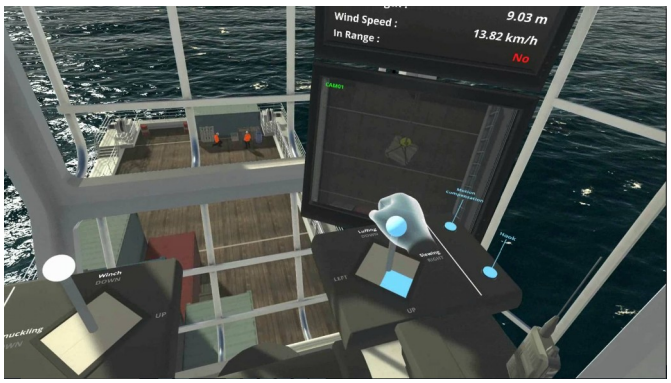
photo: courtesy of BLUF

Training Simulators

Training simulators are excellent for training operators to work with equipment in hazardous environments where the safety of people is at stake. With the advance of 3D imaging technologies and VR, the costs of the simulators are decreasing rapidly. They become a viable option in an increasing number of industries. Controllab provides training simulators for a number of industries.

Digital Twin

All of our training simulators are based on a 3D representation of the real machine, on one or multiple displays or with a VR headset. An operator chair and the human machine interface (HMI) can be added to allow the operator to work just as he would do on the real machine.



To enhance the sense of reality, Controllab uses several technologies:

- Physics: We use physics based simulation models of the real machine and its environment.
- Control System: We use the control system and the HMI of the real system and couple this with a simulated machine.
- Unity 3D: Our 3D technology is based on the Unity gaming engine, allowing high resolution, real-time display of 3D graphics.

Scenarios

In our simulators, many scenarios can be trained:

- Scenarios: Learning to operate the machine.
- Environmental conditions: Operating at day or night, with normal weather or abnormal conditions.
- Error conditions: Learning to detect and handle errors.
- Failures and emergencies: Training abnormal situations.

SMST

SMST provides a range of Telescopic Access Bridges (TAB) that can transfer personnel safely to an offshore structure or the quay side. For the TAB, Controllab has developed a training simulator.
The TAB can be operated by vessel's crew, doesn't need large generators and is inexpensive to operate. Due to these key assets, SMST access system is widely used by multiple offshore operators.

The simulator allows trainees to steer the access bridge exactly as is done on the vessel, with a portable control unit with radio communication. A separate monitor allows the teacher to choose training scenarios, change environmental conditions and introduce failures.

TATA Steel UK

How do you train 30 crane operators without reducing steel production? Tata Steel UK was confronted with this task in 2020 when replacing the heavy duty overhead traveling cranes at the steel plant in Port Talbot. The solution: training with VR.

According to Thomas Badger, electrical engineer at Tata Steel: "Since this is a very aggressive and potentially dangerous environment full of hazards. We found that training on the real crane would have a lot of risk itself. Furthermore, we need to take a crane out of operation and that drastically decrease the amount of steel we can make. If we could train in an environment away from the operation and any hazards, doing the exact same job, we could take a lot of risk away for the production, our crane operators and plant personal as well."

Controllab, together with the company BLUF, developed a training simulator, that allowed Tata Steel to train all operators before the new crane came into operation. The training simulator is equipped with multiple screens to show a realistic image of the crane cabin. The trainee can also choose to wear a VR headset to see the same image with real depth.

While a crane operator is operating the crane in Virtual Reality, the instructor uses a dashboard on his computer to apply, manage, and analyses training scenarios. He can follow the operators progress through different cameras and gain insights about their actions.

Controllab

Controllab has successfully developed training simulators for access bridges, cranes and other expensive machinery. Please contact us if you are considering the use of training simulators for the training of operators.

Contact Us

Controllab Products B.V.
Hengelosestraat 500
7521 AN Enschede

controllab.nl
info@controllab.nl
085 773 18 72