VR-lab Rules

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These rules concern the use and maintenance of the VR-lab and equipment located inside.

1 Rooms

- 1504 Computer Room. The access is strictly limited to authorized personnel.
- 1505 VR-lab

2 Equipment

The equipment that is located in the lab is expensive and very fragile. E.g. the CrystalEyes glasses for stereoscopic vision costs approximately 7000 kr each. Be careful when you use the equipment!

The equipment in the lab consist of

- **Matrix** An Onyx2 with eight processors (250 MHz MIPS R10000) and three InfiniteReality pipes. It needs lots of cool air and electricity and its fans generate lots of noise. It is therefore located in the computer room next-door. It powers the

- **Vortex** A 67-inch back projected, tiltable screen with tracking (InterSense) and stereoscopic vision (CrystalEyes). The Projector is a Cathode Ray Tube (CRT) projector from Barco.

- **Adam & Eva** ReachIn Displays with Phantom haptic devices from SensAble. Stereoscopic vision (CrystalEyes) is also used. The displays and haptic devices are driven by PCs with NT.

- **X CrystalEyes glasses** To be used together with Adam, Eva, or Vortex.

- **Head tracker, wand and stylus pen** from InterSense. To be used together with Vortex.

3 Rules

If these rules are not obeyed, the access to VR-lab will be limited.
3.1 General Rules

Rule 1 Keep the lab clean. Coke cans and coffee are allowed in the lab as long as it is kept at a safe distance from the equipment. Please, eat your dinner outside VR-lab. Remove the trash when you leave.

Rule 2 Be careful with the equipment. The equipment is fragile and very expensive.

Rule 3 If you happen to break anything or if you discover that anything is broken, please let us know as soon as possible. The sooner we know, the sooner we can repair and/or replace the broken pieces.

Rule 4 If the equipment does not work as expected, please, contact the personnel. The sooner we know, the sooner can we fix any problems.

Rule 5 Make sure the doors are closed and locked when you leave. The risk of theft is low since the equipment does not interface to ordinary PCs. However, there is always a risk of vandalism and careless use by unauthorized people.

Rule 6 If you loose your personal keycard, let us know immediately.

Rule 7 Friends and relatives are welcome to visit the lab in company with authorized people. Keep in mind, though, that they have not read these rules and do not know how to use and handle the equipment. Be extra careful when bringing children into the lab, they can be very fast!

3.2 Vortex Screen

Rule 8 Avoid touching the screen of the Vortex. The screen is made of a material which offer high brightness and color uniformity over the whole surface and from any angle. Fingerprints on the surface will reduce the image quality.

3.3 Barco Projector

The Barco projector referred to is the projector located inside Vortex. You can control its state by aiming the remote control towards the screen and press the buttons. The projector is started by pressing standby.

Rule 9 Turn off (press standby) when you leave the lab in the evening. The lifetime of the CRTs is very limited. The projector should be switched off when not used for longer periods.

Rule 10 If you for some reason leave the lab for a shorter period (less than four hours) press the pause button on the remote control. When you return, press the button pause once more to restore the display. This reduce the number of warm-up cycles the projector has to do and will lengthen its lifetime.

Rule 11 Please, leave the remote control where we can find it.
3.4 InterSense Tracking

The InterSense central unit is located to the left on Vortex. It is connected via a serial line to Matrix. There is never any need to press any buttons on the box. It is instead controlled by sending commands to it from the connected computer.

Rule 12 Unwind the cables to the tracking sensors carefully before and after each use. A weak spot is where the cable enters the sensor.

Rule 13 Do not drop the tracking sensors onto hard surfaces. There are sensitive electronic gyros inside the tracking sensors (headtracker and stylus pen).

Rule 14 Do not disconnect the tracker sensors from the central unit. It is not possible to reestablish the connection without power cycling the InterSense central unit.

3.5 CrystalEyes Glasses

The CrystalEyes glasses are required when using stereoscopic vision. They are synchronized with the frame rate of the display by an infra-red LED.

Rule 15 Put the CrystalEyes glasses in the padded box when you are not using them. The LCD surface is easily scratched.

Rule 16 Fold the CrystalEyes when not used. Otherwise, the batteries located inside the glasses will not last for very long.

3.6 Phantom Haptic Device

The Phantom is the haptic device that is located underneath the semi-transparent mirror on the ReachIn display. It contains three very accurate servos which can generate strong forces and high velocities as a feedback to the user.

Rule 17 The Phantom device has a limited range. When you reach the limit of its range, both in position and rotation, stop apply any force. The material that sets the limit of the working range of the device is weak. Much weaker than the servo’s feedback forces.

Rule 18 The Phantom device does not handle infinite forces. When it shuts off due to too high force, just wait. It will restore itself. You don’t have to try its limits repeatedly, do you?