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SYNCROBOTS: EXPERIMENTS WITH TELEPRESENCE AND TELEOPERATED MOBILE ROBOTS IN A SYNCHROTRON RADIATION FACILITY

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Experiments with tele-presence robots

- Telepresence robots are mobile robot platforms capable of providing two way audio and video communication
- In these years we have tested these platforms in a variety of scenarios
- Based on our experience, we present a set of guidelines for using and integrating telepresence robots in the daily life of a research infrastructure



The tele-presence robots

- Adept Mobilerobots Patrolbot
- Double Robotics Double
- Mantarobots Teleme
- Xaxxon Oculus

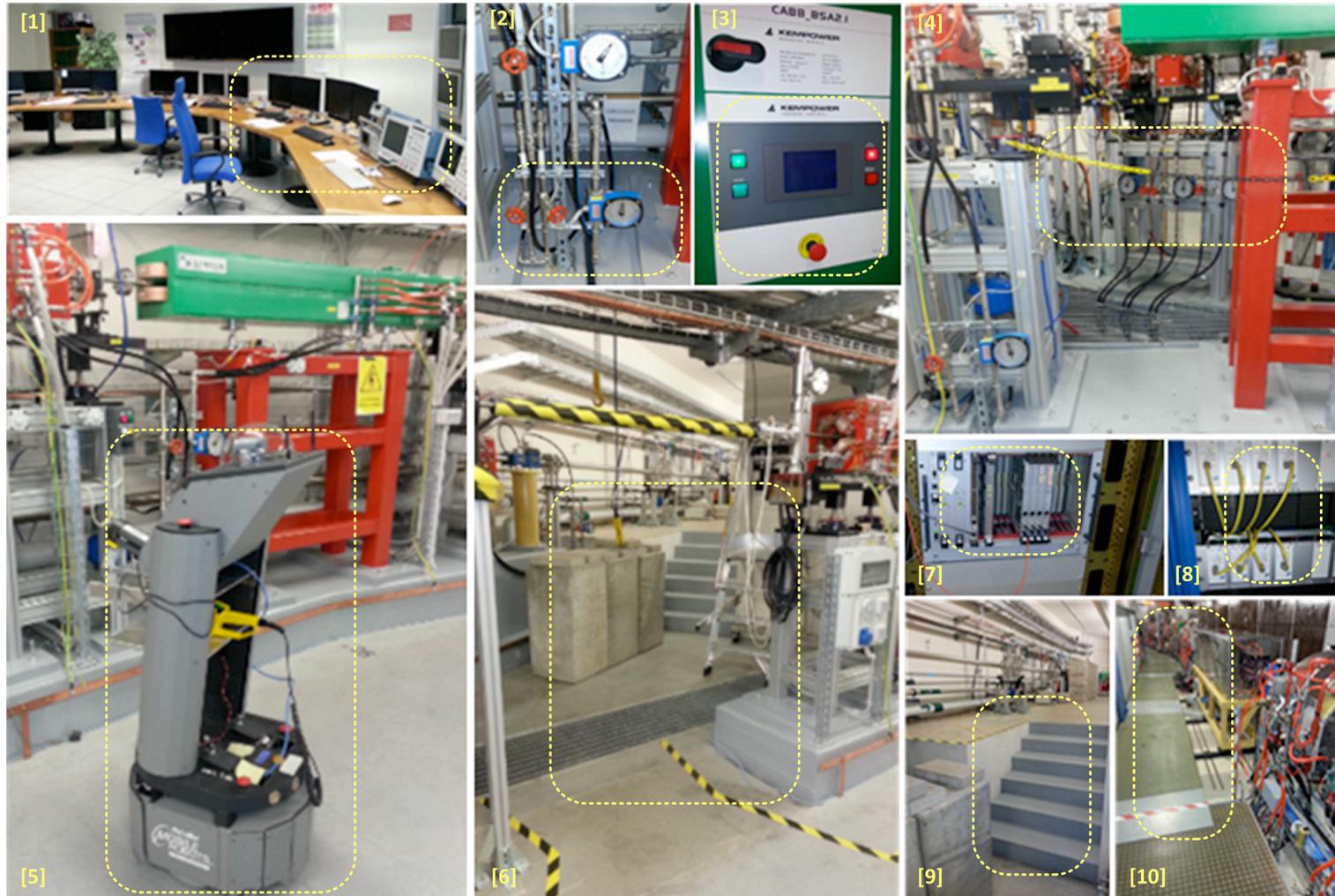




The scenarios

- Synchrobot: support to Elettra operators (ptz cam, termo cam, ion-rad sensor)
- SitVIP: telepresence for Very Important People (meetings, administrative councils, ...)
- Remote surveillance: especially in dangerous areas
- Remote experts at the beamlines: beamline scientists, users team leaders, ...

The synchrobot scenario





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Remote experts scenario





Design guidelines

- Video and Audio: high quality videoconference
- Simple and intuitive user interface (UI)
- Carefully selected sensor feedback in the UI
- Incorporate map in UI to facilitate user orientation
- At least robot height controllable (head pitch&roll)
- At least 2 cameras (1 ptz)
- Autonomous navigation at least autonomous obstacle avoidance is mandatory
- Legal requirements: see who is driving (audible announcements, ...)



The future?

- To overcome the limitations of the mobilerobot discussed in Synchrobot scenario, we submitted a project proposal to the EC FP7-ICT-2013-10 call.
- The SYNDROID should be able to reset an instrument by pressing a button, to adjust a hydraulic circuit through a standard water valve, to substitute an electronic card or a particular board of a power supply.
- It was not funded but we will try again ... if you want to join the idea ...



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Thanks!

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