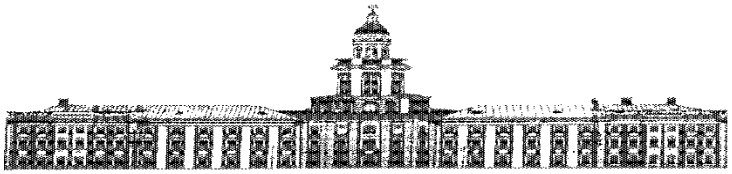

St. Petersburg Institute for Informatics and Automation
of the Russian Academy of Sciences

An audiovisual system of monitoring of participants in the smart meeting room

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SPIIRAS

Presentation outline

- Our project at the FRUCT program
- Analyses of recording systems and smart rooms
- Development of the smart room
- Audiovisual system of monitoring of participants in the smart meeting room
- Conclusions

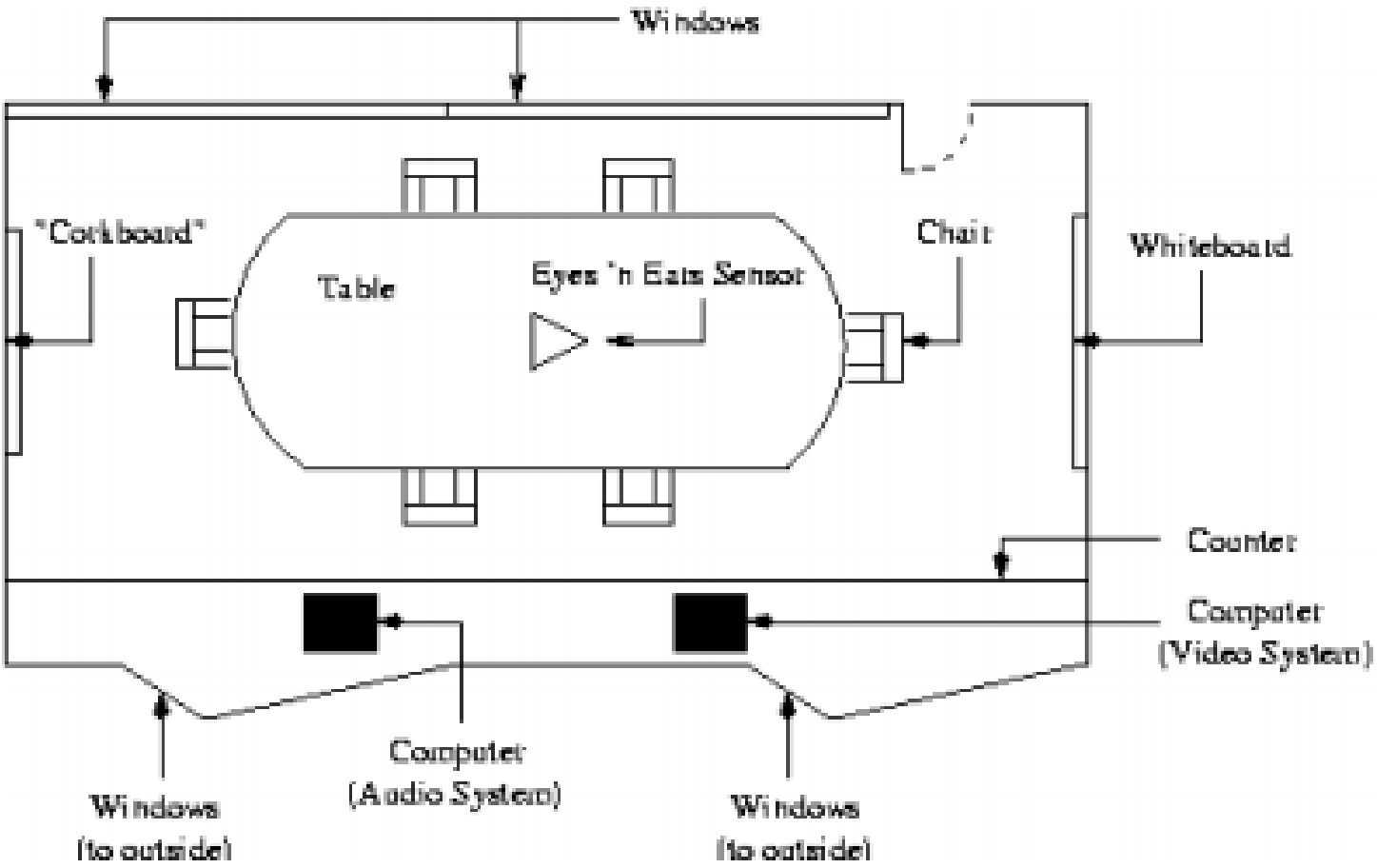
Audio-visual Support of Remote Mobile Participant at E-meeting

- Web-based collaboration using the wireless devices that have multimedia playback capabilities is a viable alternative to traditional face-to-face meetings.
- E-meetings are popular in businesses because of their cost savings.
- To provide quick and effective engagement to the meeting activity, the remote user should be able to perceive whole events in the meeting room and have the same possibilities like participants inside.
- Timing and Deliverables
  - June 2010 – survey of modern systems of E-meeting support.
  - October 2010 – web-platform for audio-visual stream processing.
  - April 2011 – paper for the 9th FRUCT workshop.
  - June 2011 – prototype of audio-visual support system for mobile E-meeting participant.

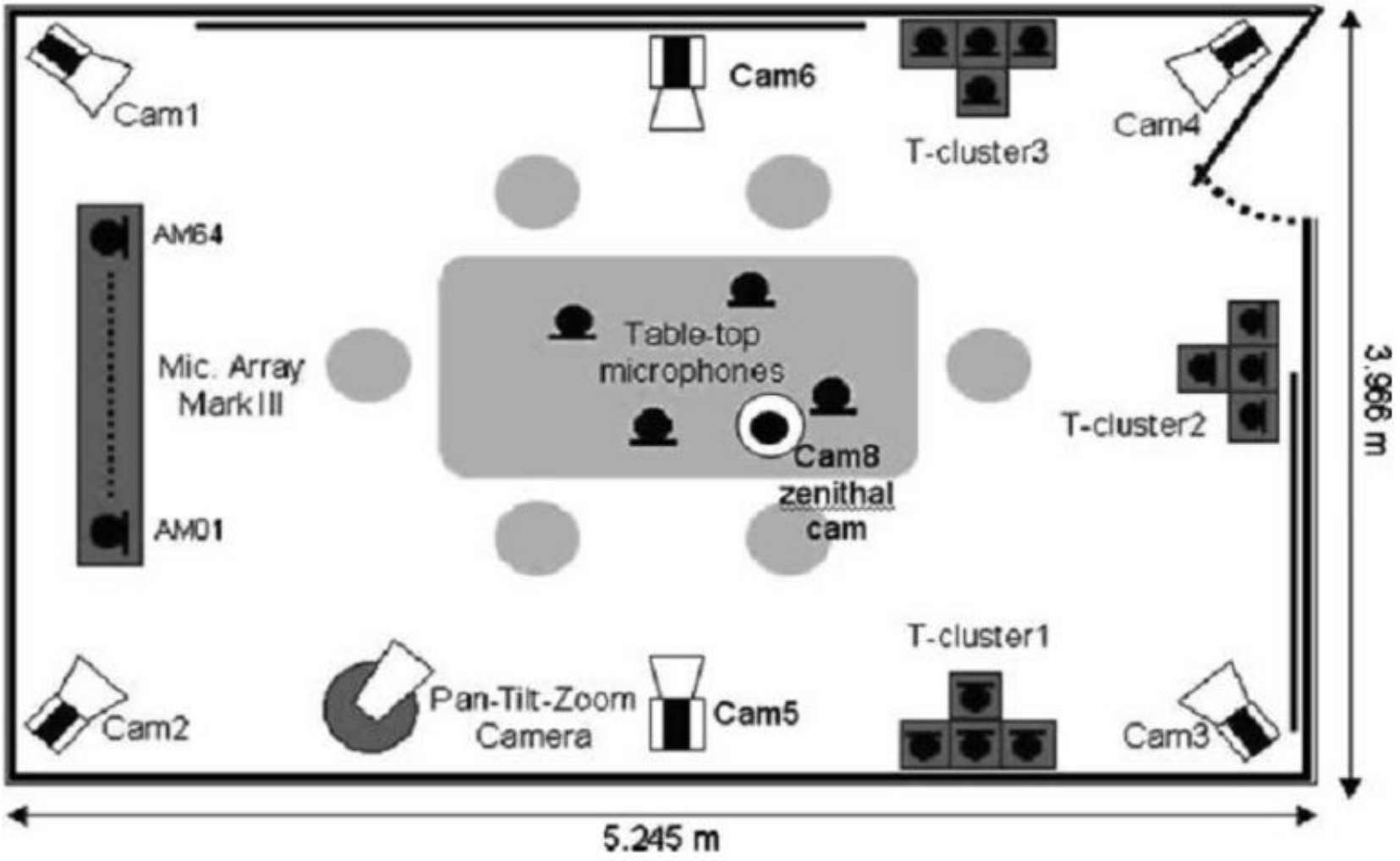
Classification of video recording systems

- Surveillance
  - One camera and microphone record the whole auditory
- Lecture recording
  - Presentation and lector speech are combined in the video
- Meeting recoding
  - Several cameras and microphone array are used to capture remarks of meeting participants sitting at the one table
- Documentary recording
  - Particular scenes are recoded and processed off-line to create the film

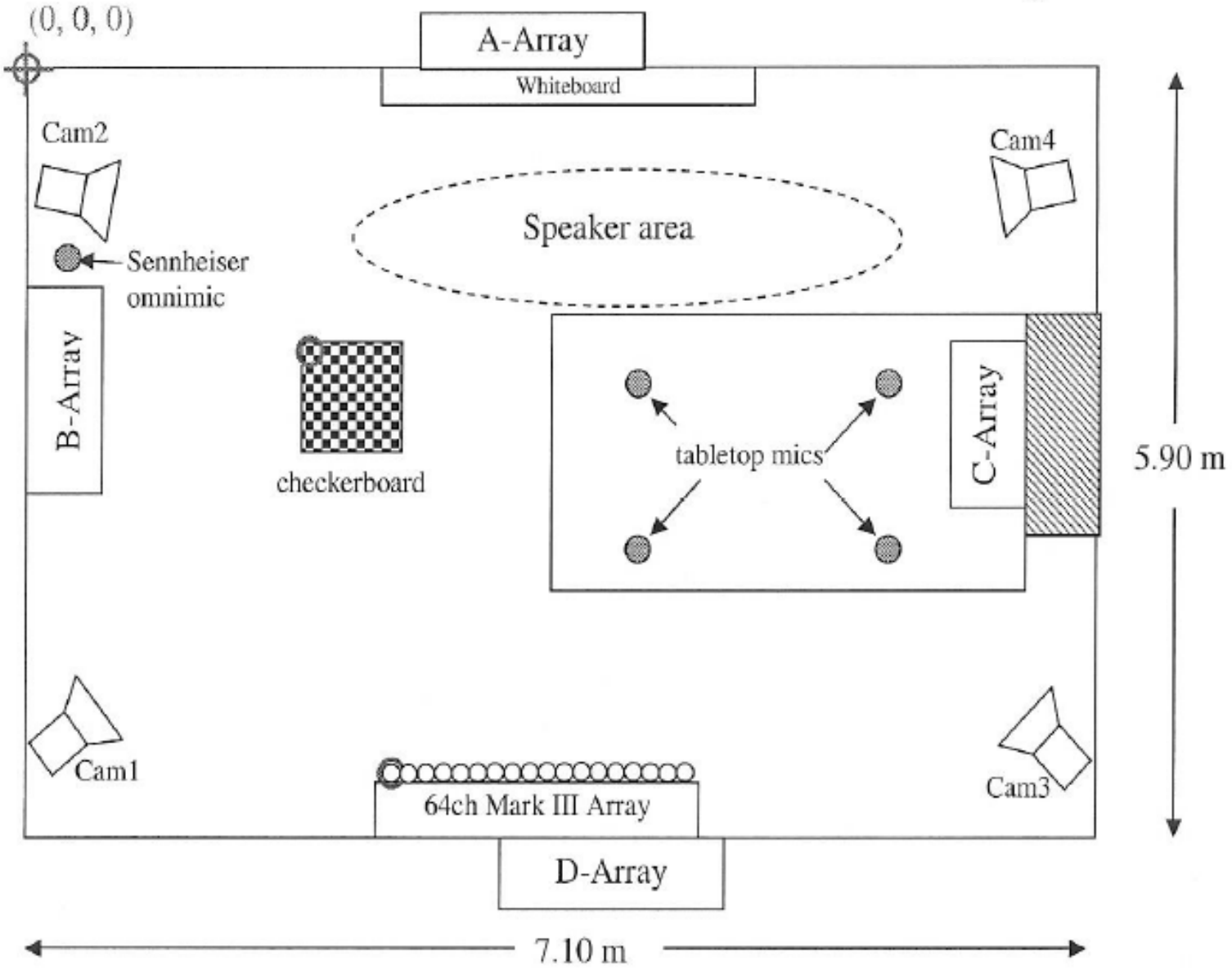
Smart room in the York University



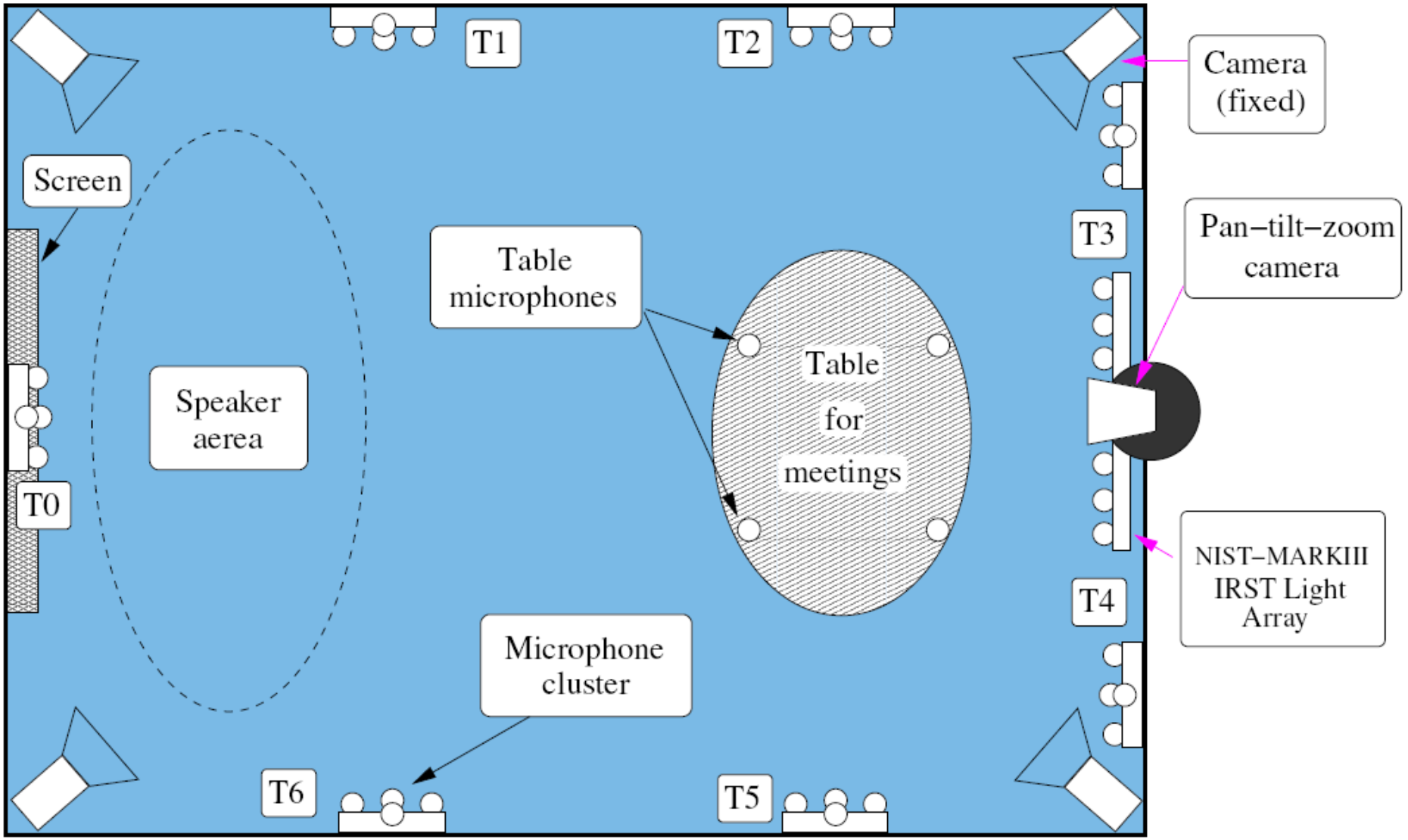
Smart room in the Technical University of Catalonia



CHIL room available at Karlsruhe University laboratories

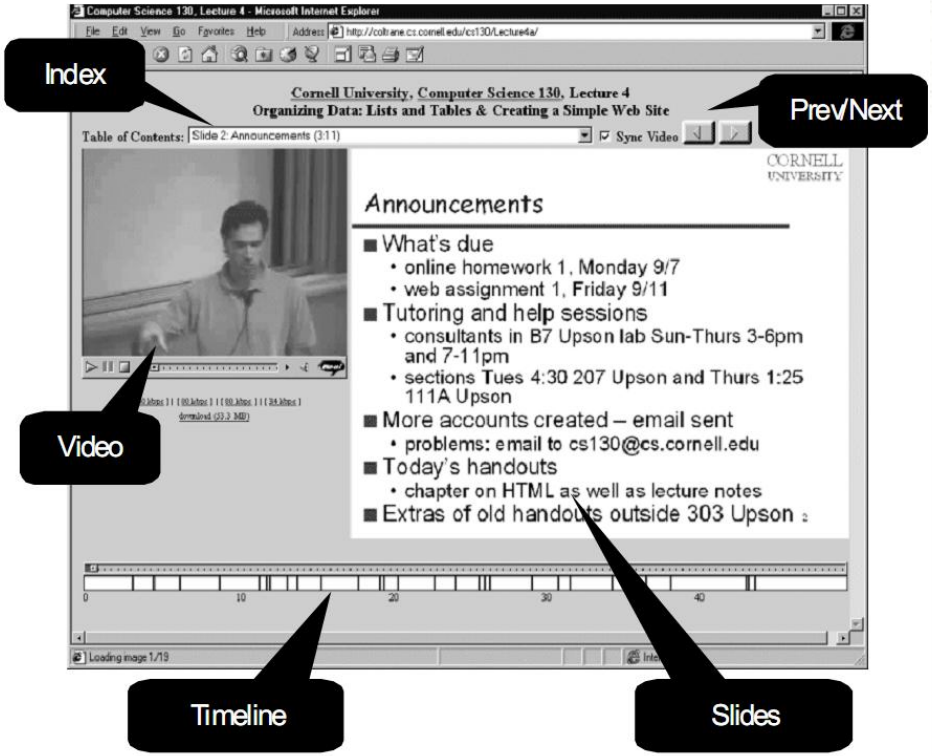


CHIL room available at ITC-irst laboratories

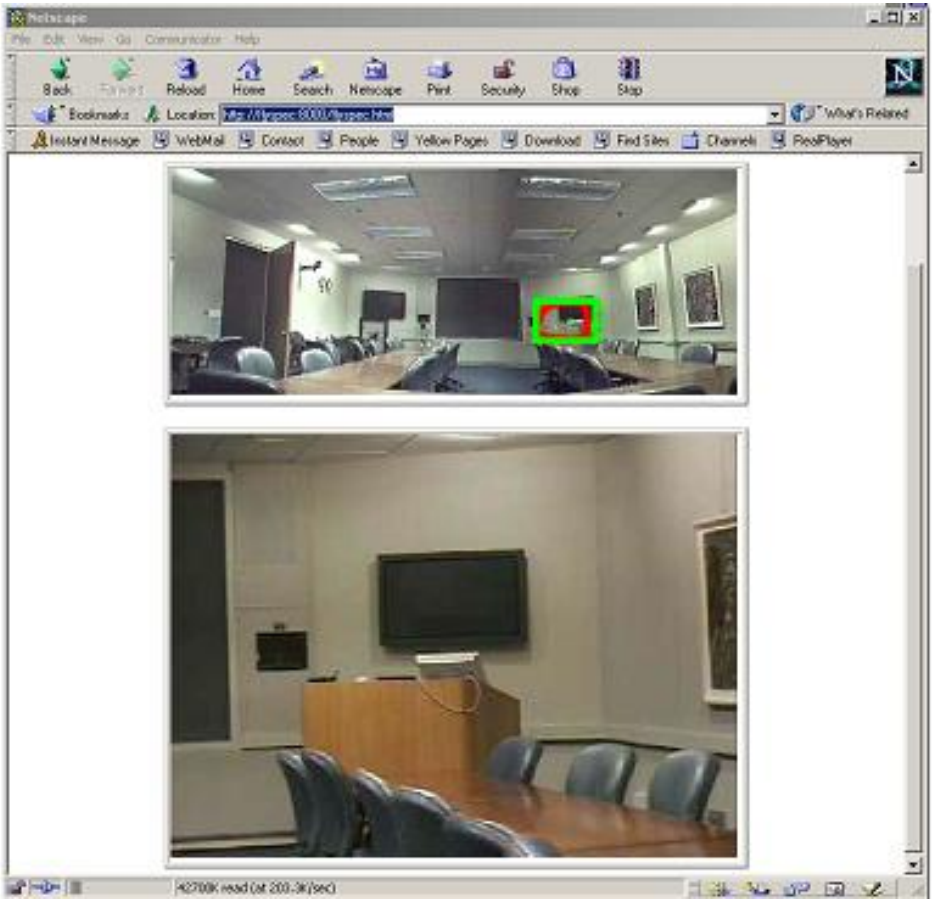


Examples of web-based E-meeting systems

Cornell University



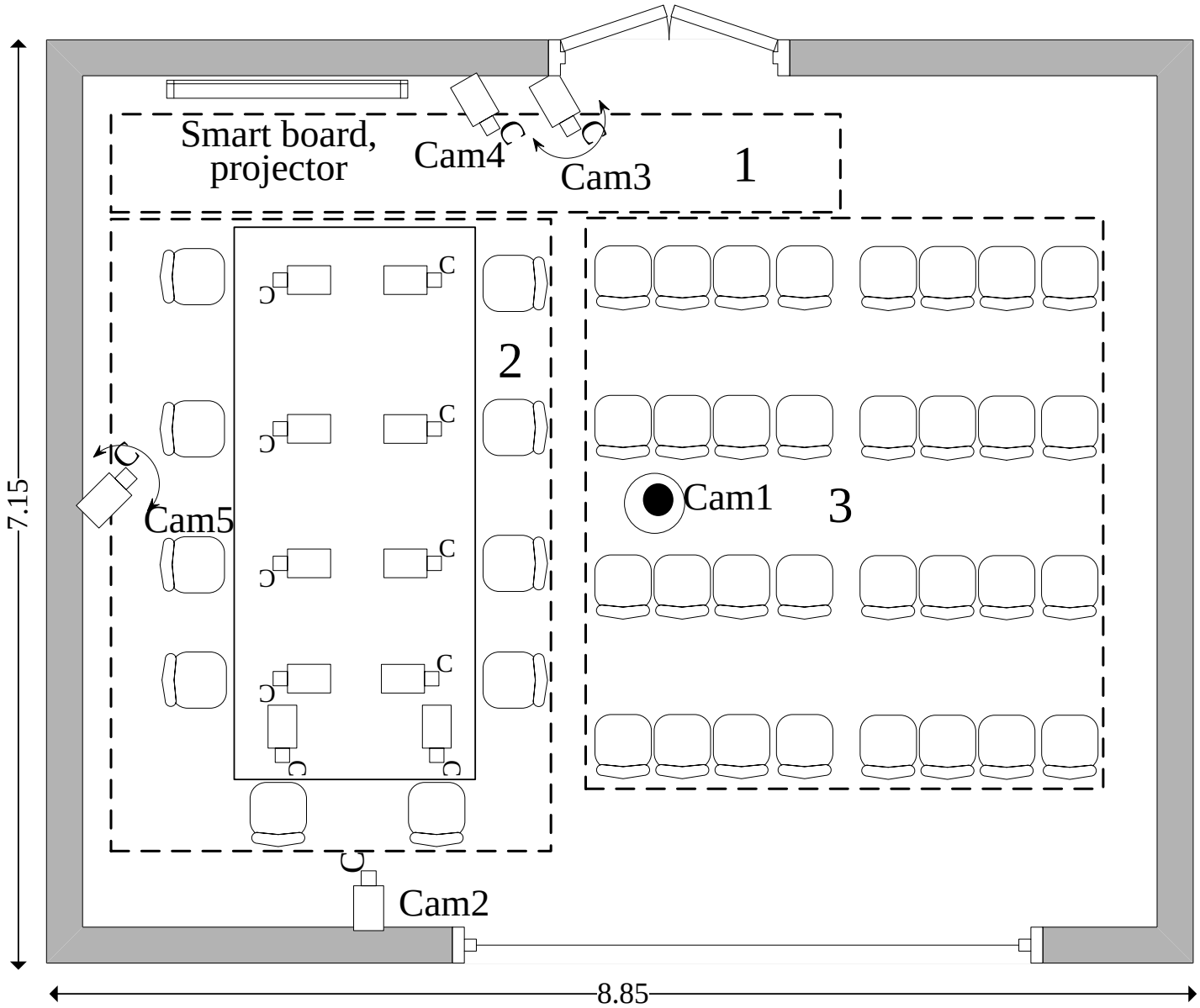
FLYSPEC system



Development of the smart room

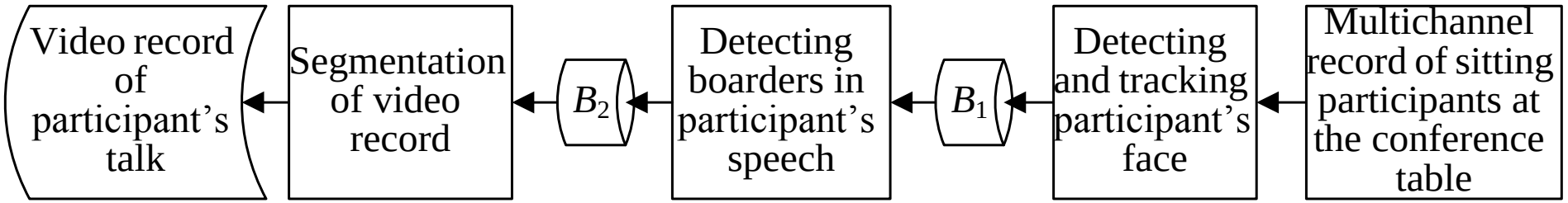
- While designing the smart meeting room, ergonomic aspects of use of multimedia equipment have been taken into account, as well as location of audio and video sensors has been chosen that enables to capture many participants at once.
- Also we have to take into account: number of cameras, their locations, resolution, viewing angles, coverage zone, number of objects that require simultaneous monitoring, degree of detailing of analyzed objects, the level of illumination.
- The developed smart room is intended for supporting events, such as lectures, meetings and teleconferences.

Layout of devices and defined zones in the smart room

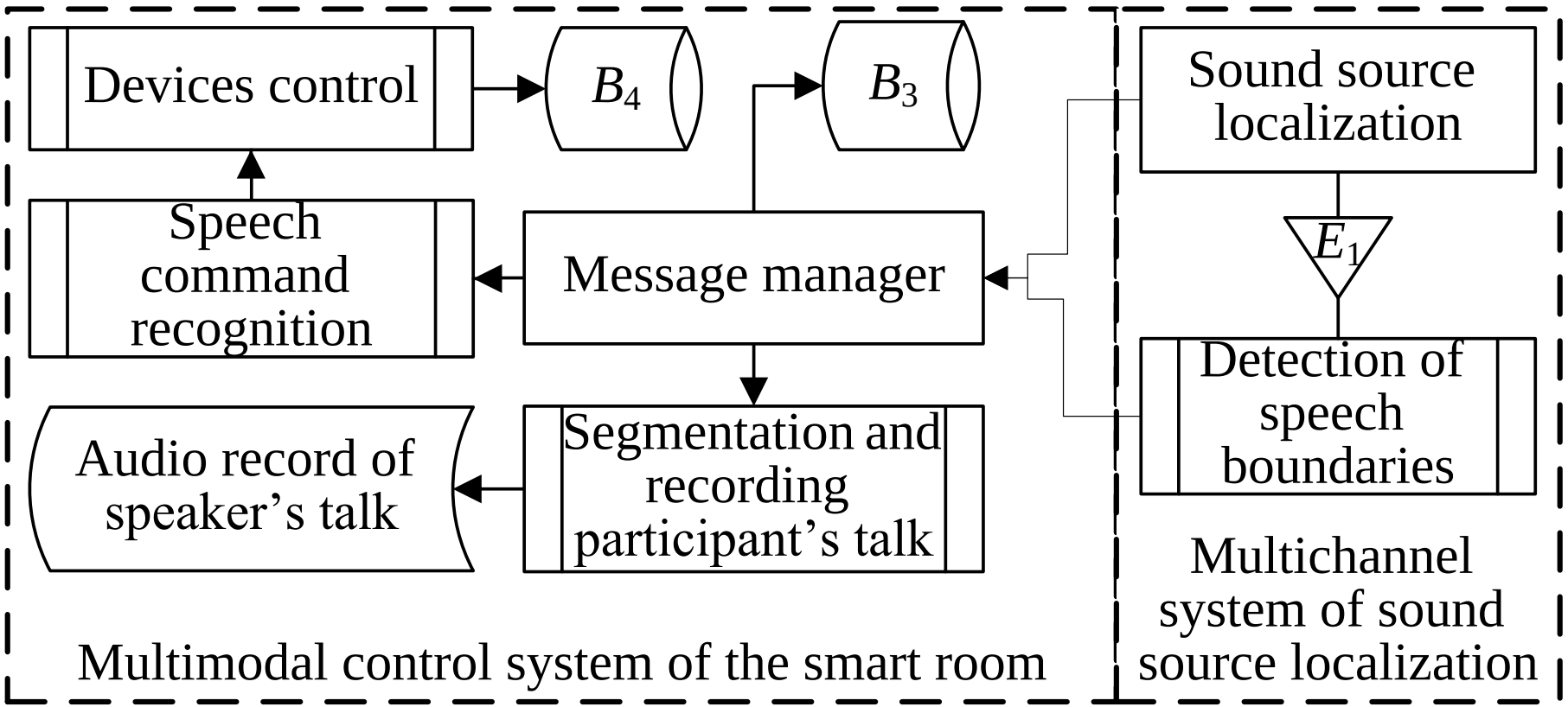


List of systems and scheme of the MSPWCP work

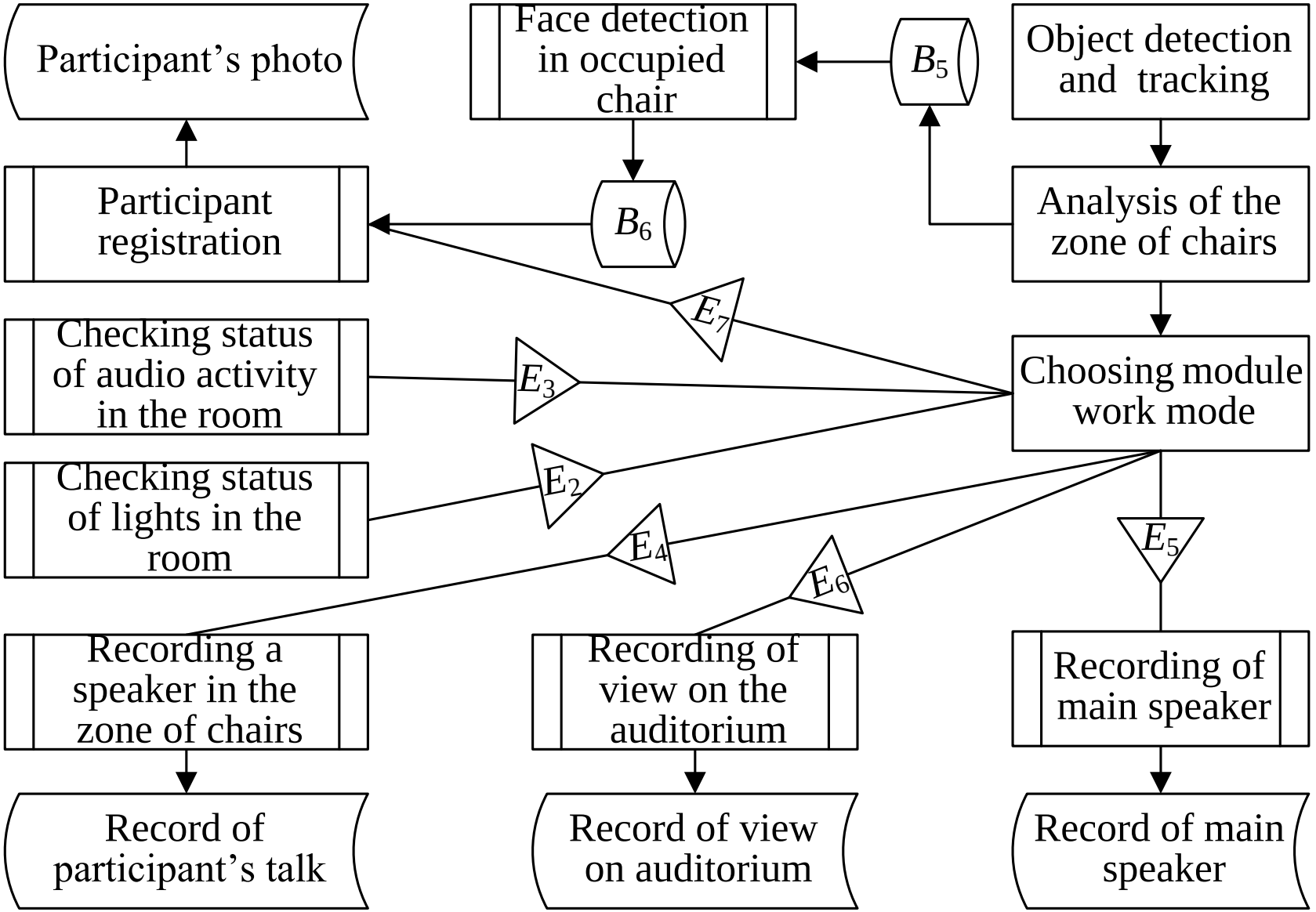
- The developed system of audiovisual monitoring of events consists of the four modules:
  - (1) a multimodal control system of the smart room (MCSSR);
  - (2) a multichannel system of personal web-cameras processing (MSPWCP);
  - (3) a multichannel system of sound source localization (MSSSL);
  - (4) a multifunction system for video monitoring (MSVM).



Scheme of joint work of the MSSSL and MCSSR



Scheme of the MSVM work



Conclusion

- Proactive service for the smart meeting room are developed:
  - Active controlling PTZ camera to point on active speakers;
  - Automatic archiving of meeting data, including photos of participants' faces, video records of speakers, presentation slides and whiteboard sketches based on online context analysis;
  - Selection and web-transmission of the most actual multimedia content during the meeting in the smart room.

Thank you!

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