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Polygraf Online

video-conferencing system for accessible remote and hybrid teaching

Christoph Damm, Michal Klíma, Svatoslav Ondra

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History of the System (1)

- previous name: CoUnSiL 1.0
- developed in 2016, presented at ICCHP 2016
- a Java application, based on UltraGrid and CoUniverse technologies → CoUnSiL

History of the System (2)

- **pros:**
  - high quality of video and audio – high resolution and framerate
  - low latency
  - perfect conditions for remote sign language interpreting
- **cons:**
  - extremely complicated setup
  - excessive requirements for network bandwidth and configuration
  - low stability and reliability

Complete rebuild started

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State of the Art (1)

- all mainstream systems passed an extensive development during pandemic years, including their accessibility
  - accessibility of user interface
  - features allowing accessible communication
- however, they still lacking:
  - when conditions of a remote/hybrid teaching are too complex
  - adequate conditions of sign language interpreting and STTR

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State of the Art (2)

Examples what is missing:

- video
  - sharing more than one screen/document by a participant
  - transmitting more than one video by a participant
- speech-to-text reporting (captioning)
  - some systems do not support input from a human transcriber
  - some systems can display STTR as subtitles only
- user interface
  - arranging windows on the user's desktop is limited

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Features (1)

- to consider the shortcomings of mainstream systems
- to keep all pros of the CoUnSiL 1.0
- an easy setup
- no special requirements for network

Features (2)

Video

- higher framerate for SL interpreter’s video
- one participant can share up to three videos
- more than one participant can share screens at the same time

Features (3)

Speech-to-text Reporting (Captioning)

- input comes from Polygraf Writer app (i.e. made by human transcriber)
- user interface allows to display STTR in a window → multiple lines
- more than one transcript at the same time (e.g. more languages)

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Features (4)

User interface

- easy-to-start web application
- user may arrange all the windows within a videoconference (with saving the layout)
- speaking/signing participant’s window enlarges automatically
- each window may be popped out to a separate browser window

Features (5)

Others

- users’ roles: teacher, student, SL interpreter, guest, tech.
- chat (among everybody and individually)
- raising hands

Technology used

- server OS: Linux Ubuntu, Docker
- Node JS – express and .ejs
- OpenVidu platform
  - Kurento media server
  - Redis server
  - Coturn server

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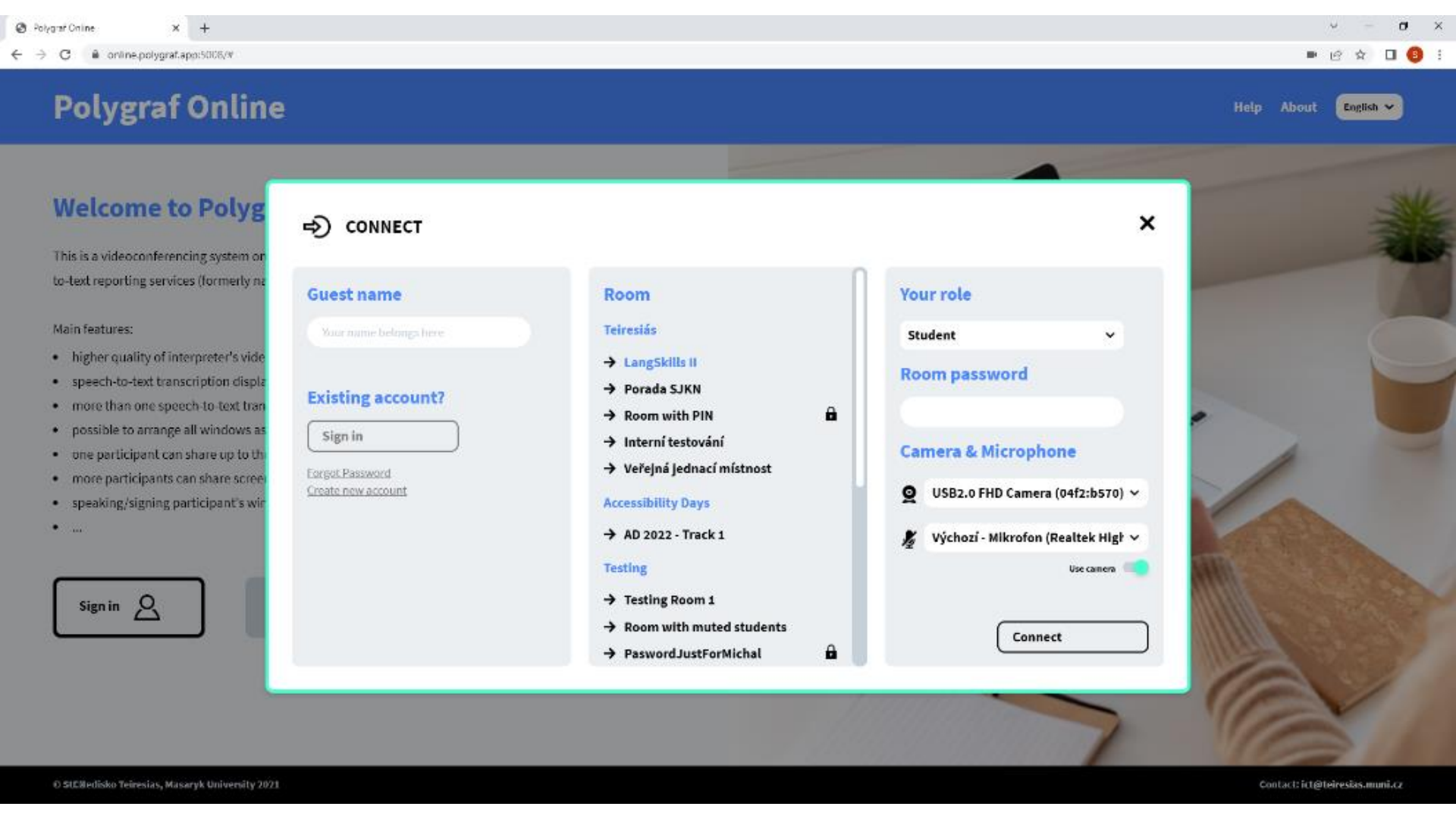
Polygraf Online
Help
About
English
Welcome to Polyg
This is a videoconferencing system or
to-text reporting services (formerly na
Main features:
higher quality of interpreter's vide
speech-to-text transcription displa
more than one speech-to-text tran
possible to arrange all windows as
one participant can share up to th
more participants can share scree
speaking/signing participant's win
...
Sign in
CONNECT
Guest name
Your name belongs here
Existing account?
Sign in
Forgot Password
Create new account
Room
Teiresiás
LangSkills II
Porada SJKN
Room with PIN
Interní testování
Veřejná jednací místnost
Accessibility Days
AD 2022 - Track 1
Testing
Testing Room 1
Room with muted students
PaswordJustForMichal
Your role
Student
Room password
Camera & Microphone
USB2.0 FHD Camera (04f2:b570)
Výchozí - Mikrofon (Realtek High
Use camera
Connect
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Contact: ict@teiresias.muni.cz

Main ideas

Target group:
- deaf and hard of hearing students
- planning to study abroad (e.g. Erasmus+)

Aim:
- an accessible language course
- to improve students' English
- to simulate the experience of studying at a foreign university

everything. And we can provide good service for everyone.
- They can usually choose.
There is really an induction. (??)
- I think I can provide the information (??)
- It depends a lot on the I would say the quality. If our class is... Well-equiped room, good acoustics condition, they dont need to use any equipment. But this is a big room, acoustic is difficult.
- In difficult situations, they are isolated to individual solutions. And there are more technical solutions for that. We usually say that there are other tools that are typically used on individual basis.
For a lot of people, when they meet together, that is reasonable.
- There is induction room. At least in some rooms. But not all of them.
- Yes, that would be the solution. There is no induction room outside in the castle..

Filter messages

Chat to: All

Type your text here

Future Outlook

- to improve management of system users and rooms
- to upgrade the Polygraf mobile apps
  - to provide the service on mobile devices and remotely (mainly remote provision of speech-to-text reporting service)

Thank you for your attention

online.polygraf.app

Christoph Damm
damm@teiresias.muni.cz

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