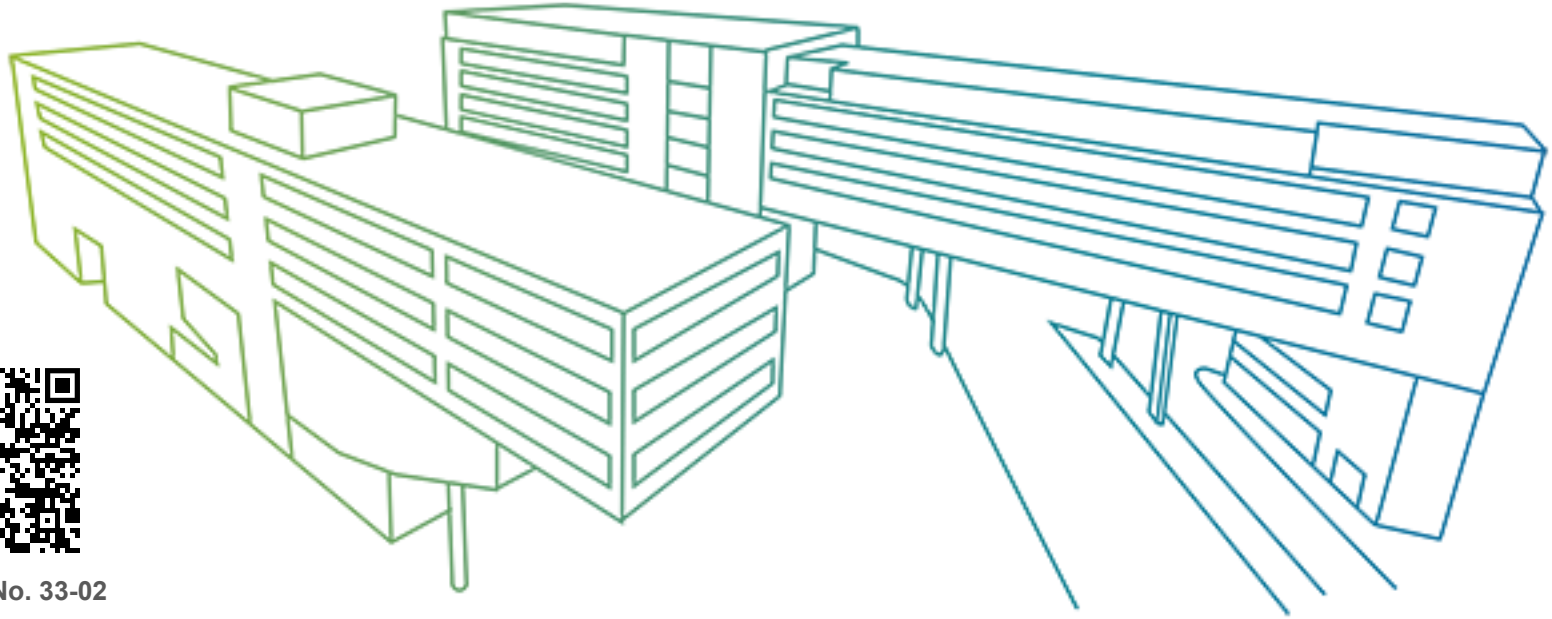


Project No. 33-02

Inclusion International

FH University of Applied Sciences TECHNIKUM WIEN

Course ASSIST HEIDI - Designing and Implementing Assistive Tools for People with Disabilities.

Project Inclusion International

Funded by City of Vienna Economic Affairs, Labour and Statistics

ASSIST HEIDI – Designing and Implementing Assistive Tools for People with Disabilities

Sarah Langer

Alija Sabic

Martin Deinhofer

Natascha Toman

Erich Schmid

Susanne Buchner-Sabathy

Oliver Klein

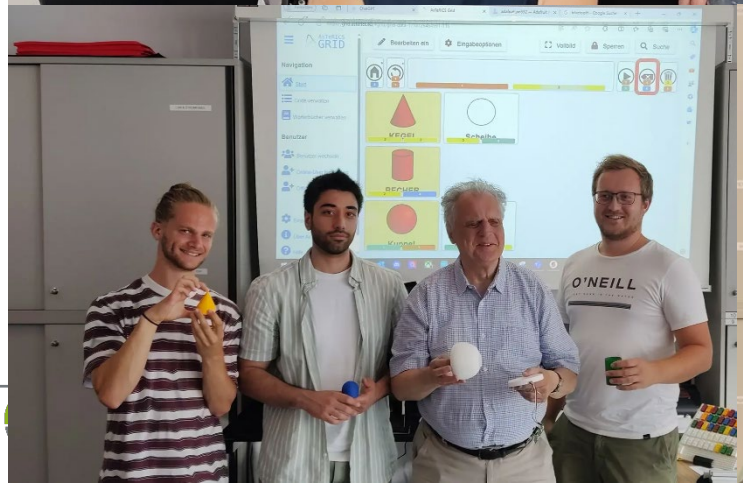
Co-Designing for the Good in Mixed International Teams

https://www.technikum-wien.at/en/course-assist-heidi/

About the Course

- A hands-on, **interdisciplinary, elective** course at UAS Technikum Wien, Austria
  (6 ECTS, English)
- Combines **internationalization, engineering** and **inclusive design**
- **Co-Designing** in a **project-based course** with **mixed teams of**
  - **international students** (ERASMUS+)
  - **UASTW students**
  - **People with Disabilities**
- Disabilities, Assistive Tools, Rapid Prototyping, Computer Vision, ML, Arduino

International Student Teams



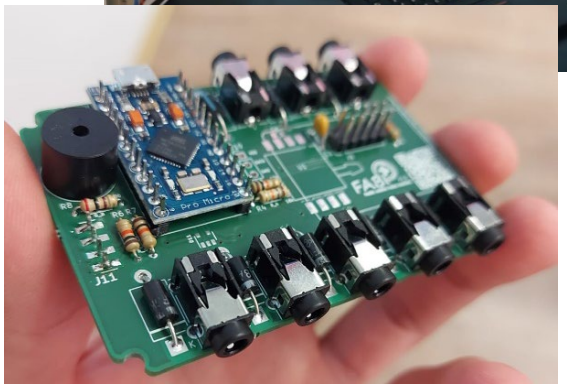
Tackling Real-World Challenges Through Learning

- Many **assistive tools fail** due to **lack of user involvement** or interdisciplinary design
- The course addresses:
  - **Limited internationalization** opportunities for **part-time students** for **compulsary internationalization module** in Bachelor programs at UASTW
  - **Underrepresentation of people with disabilities** in the **design process**

Enable students to **empathize, design, and create inclusive tech** solutions with real-world impact

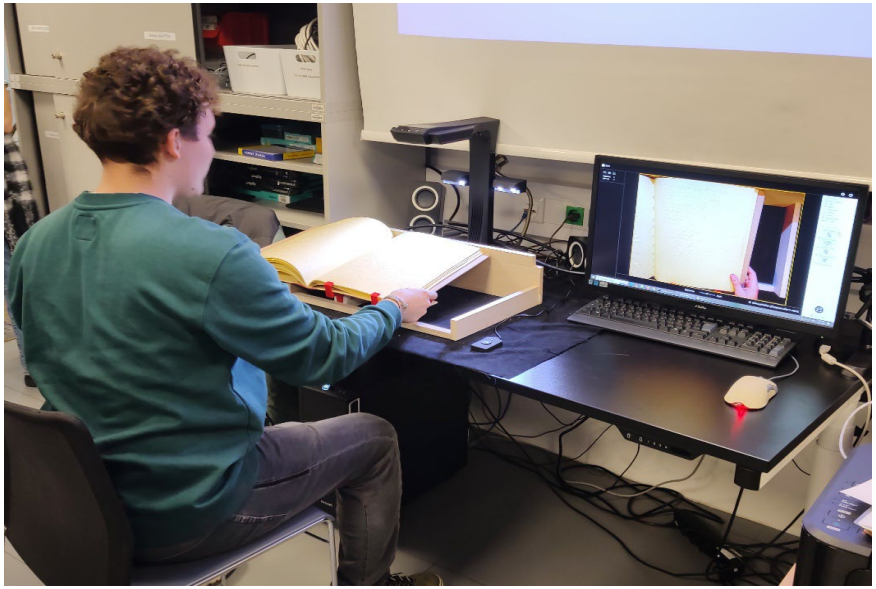
From 3D Printing to AI – A Tech Playground for Inclusion

- Lab-based work in the **Smart Living Lab**, equipped with:
  - 3D printers, soldering stations, microcontrollers
  - Smart Home and Assistive Tech infrastructure
- Software & tools:
  - GitHub, Discord, Moodle, AI-Service APIs , Text-To-Speech systems (TTS)



ASSIST HEIDI – Example Projects

Optical Braille Recognition:
Digitize old braille books



Wheely joystick mouse

NFC-tagged objects for physical interactions

Speech-Jokey: Text-to-Speech w. prosody parametrization for eye-tracking users

🐌: "<prosody rate="slow">
🚶: "<prosody rate="medium">
🏃: "<prosody rate="fast">

What Worked & What We Improved

- **High motivation** due to meaningful work with real users
- **Initial open-topic format** caused delays
  → now more structured topics
- **Partial online supervision** hindered team dynamics
  → shifted to in-person
- Need for:
  - **Balanced complexity** in tasks
  - Inclusive timing and tech support for all student types

Scalable, Adaptable & Globally Relevant

- **Adaptable** for other Higher Educational Institutions
- Required minimal setup: access to PwD or stakeholder organizations, international students and prototyping tools
- Could be adapted for:
  - **Virtual mobility** & **co-teaching across institutions**
  - Pre-defined projects if co-design isn't feasible
- Long-term sustainability through digital skills, inclusivity, and civic engagement

Links

[Webpage Course ASSIST HEIDI]

Inclusion International

Project No. 33-02

Funded by

City of Vienna

Economic Affairs, Labour and Statistics

[Project Inclusion International]