The AsTeRICS Academy

Prosperity4All

Martin Deinhofer, Chris Veigl
Vienna’s first University of Applied Sciences and Austria’s biggest University of Applied Sciences for technical studies

Founded in 1994

Austria’s first University of Applied Sciences implementing the Bachelor/Master system

Currently 12 Bachelor and 17 Master Programs

About 4,300 graduates and 3,000 students

Approximately 500 full- and part-time staff
Assistive Technologies (AT) Ambient Assisted Living (AAL)

- New focus in the Department of Embedded Systems
- New study program in fall 2015 “Smart Homes and Assistive Technology”
- 7 Research projects in the topic
  - AsTeRICS
  - Founded Professorship Ambient Assistive Technologies (AAT)
  - modulAAR
  - Prosperity4All
  - ULEA
  - VitAL – assistiVe domoTics for Autonomous Living
  - AsteRICS Academy
Objectives 2013-2016:
Development and implementation of educational strategies for cross-cultural education in Assistive Technologies (AT)

- International Networking and Workshops
- Organisation of a summer school for Assistive Technology in Vienna
- Development of Assistive Tools

http://www.asterics-academy.net

Funded by City of Vienna (MA23 Project 14-02)
The AsTeRICS Project

FP-7 funded EU-STREP-Project 2010-2013

AsTeRICS Project was implemented 2010-2013 by 9 European partner organisations and was partially funded by European Commission under the 7th framework programme
AsTeRICS: graphical design of AT-solutions

AsTeRICS Configuration Suite

- Assistive solutions can be created via graphical connection of different plugins using the ACS editor
- The created model is fully functional and can be deployed (and easily adapted) at the user’s site

- Cut / Copy / Paste / Group
- Integrated Help System
- GUI designer for user interface creation
- JAVA framework for runtime environment
- Windows and Linux (partly) supported
AsTeRICS plugin overview

AsTeRICS offers currently about 160 different plugins for input, processing and output. This makes it a versatile construction set for rapid prototyping of AT solutions:

- Webcam-based facetracking
- Bioelectric interfaces: OpenEEG, OpenVibe
- Support for Microsoft’s Kinect 3D-camera
- Capturing / remapping keyboard and mouse input
- Keystroke creation and mouse emulation
- Arduino support for input / output
- Environmental control system support
- Accessible gaming interfaces
AsTeRICS for Environmental Control

- Abotic Door Opener Integration
- KNX / FS20 standards
- Connected via the GPIO module
- HiFi / Stereo / DVD / TV via Infrared
- Pneumatic Gripper actuator for mouth sticks

- complete input flexibility via desired sensors and on-screen-keyboard grids / scanning
AsTeRICS for Phone Control

• Windows Mobile and Android Smart Phone support
• Make / Accept Calls, Send / Receive SMS
• GSM USB Modem Integration
• Usage of Smart Phone as Sensor (e.g. Accelerometer) or configurable Touch Pad (multitouch / gestures)
• On-Screen-Keyboard with scanning for Android
Control of a toy helicopter by a tetraplegic user

- Infrared control command generation by IR-module
- Integration of the wheelchair’s bluetooth joystick (via mouse capture plugin)
- EMG or Sip/Puff sensor for controlling up / down
- 4 degrees of freedom
Video: AsTeRICS-based accessible toys
Prosperity4All

- Create a **Global Public Inclusive Infrastructure (GPII)**
- People with disabilities
  - Find AT-products that match a user’s needs
  - Use the GPII to enable devices to automatically adapt to users’ needs (e.g. screen magnification)
- AT companies
  - Create, test and sell AT solutions
    - Easier
    - Faster
    - Cheaper
Unfortunately, we don’t all have...
Prosperity4All – Developer Space

- Make it easier to create accessible products and services
- Repository of Building Blocks:
  - Libraries
  - Frameworks
  - Tutorials
  - Assistance on Demand (AoD) infrastructure
    (e.g. On-Demand Sign-language translation)
- Contains selected building blocks of AsTeRICS
  - Face tracking
  - Smart Home integration
  - ...