



eGlasses

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Presentation plan

- Project title, project start date
- Scientific background and objectives of the project
- Presentation of the consortium: introduction of each partner
- Presentation of the workplan
- Initial activities
- Elements on project management: Kick-off meeting

The project title:

***eGlasses - The interactive eyeglasses for mobile,
perceptual computing***

Time period:

01.01.2014, 36 months

The eGlasses project is focused on:

1. the development of an open platform in the form of modular, multisensory electronic glasses, and
2. the integration and designing of new intelligent interaction methods using the eGlasses platform.

The main scientific and technological objectives are to design and evaluate the following:

- eye-tracking hardware and algorithms for a user, who is mobile in a noisy real world environment,
- algorithms for perceptual media and for super perceptual computing,
- methods for locating objects and guiding vision towards the identified objects,
- methods of interactions with users and objects (menu of activities for the identified person or object),
- a haptic interface in a form of a peripheral proximity radar,
- methods for the recognition of the user's own gestures and recognition of gestures of the observed person,
- methods for context-aware behavioural studies,
- methods for reference applications.

The verification of the new intelligent user interface will be performed using three usage scenarios:

- as a tool for a Health professional - screening/evaluation tool (heart rate from the face skin, remote measurements of face skin temperature, dynamics of face muscles – e.g. stroke, etc.); especially for nurses, members of emergency teams, etc.;
- as an assistant tool for disabled users (proximity radar, haptic interface to protect the head, colour recognition and identification for colour-blinded, etc.)
- as a tool for behavioural analysis (analysis of a person's activity in reference to their environment, e.g. eye-tracking vs. observations, response to the perceptual events, etc.). - methods for reference applications.

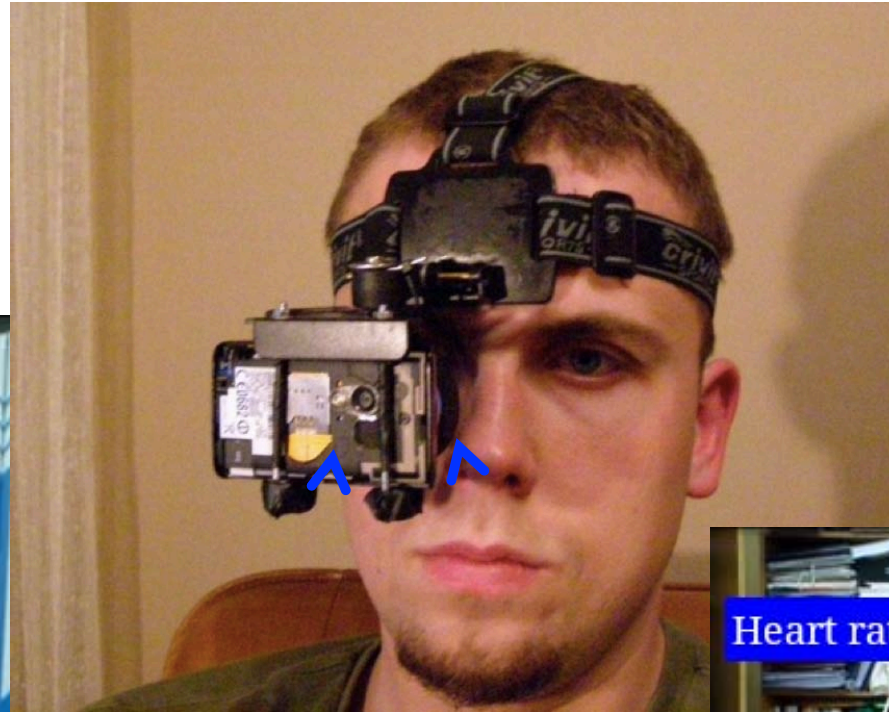
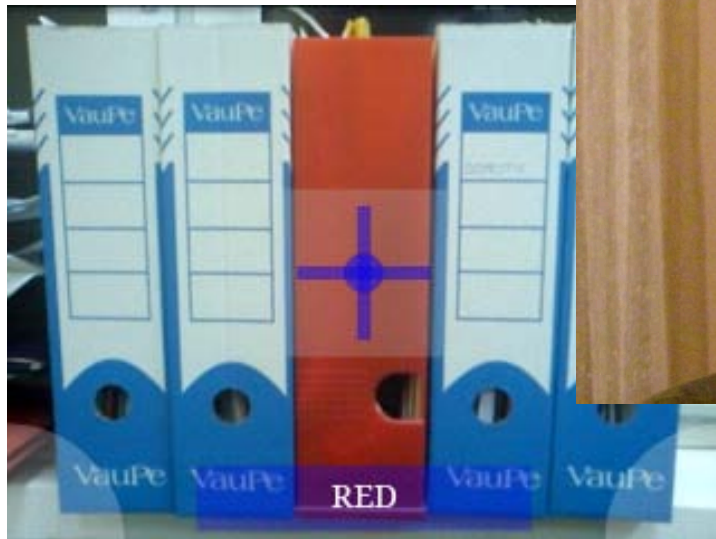
Illustrations of the idea



The eGlasses consortium receives the funding support of NCBiR, FWF, SNSF, ANR, and FNR in the framework of the ERA-NET CHIST-ERA II.

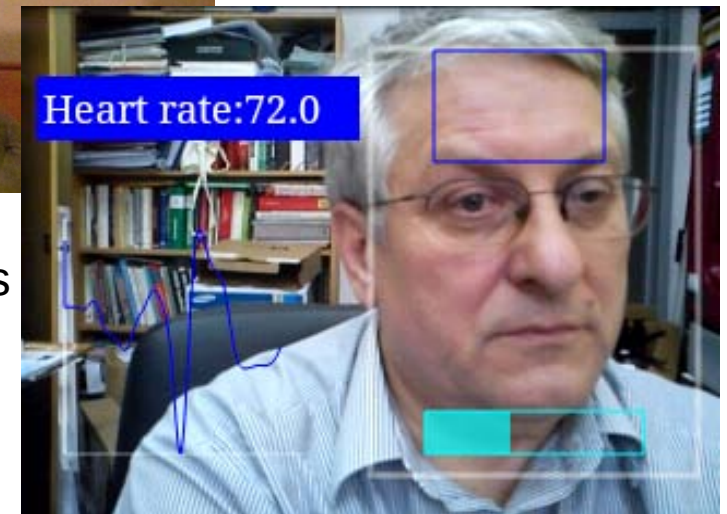
Previous work and initial proof of the concept

OUR first e-Glasses

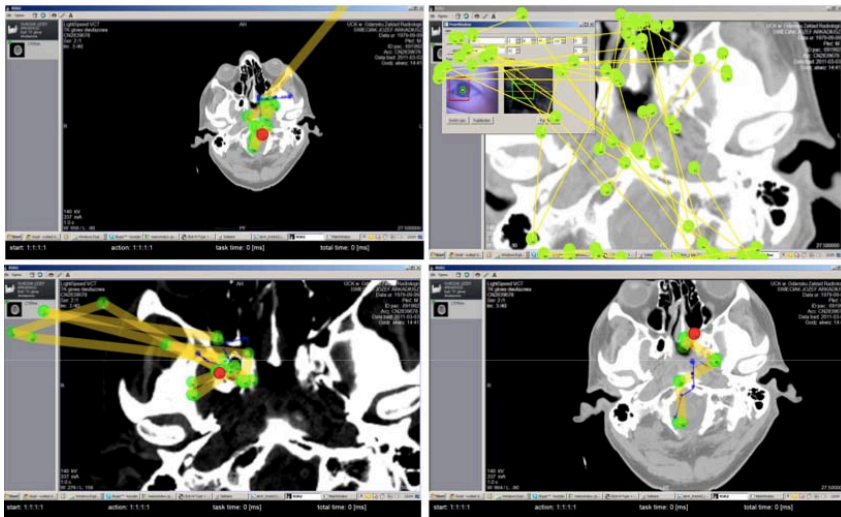


Early, small
smartphone

Big lenses

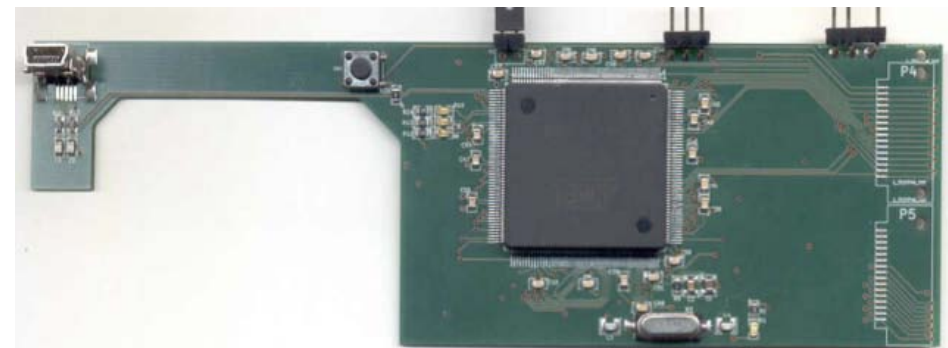
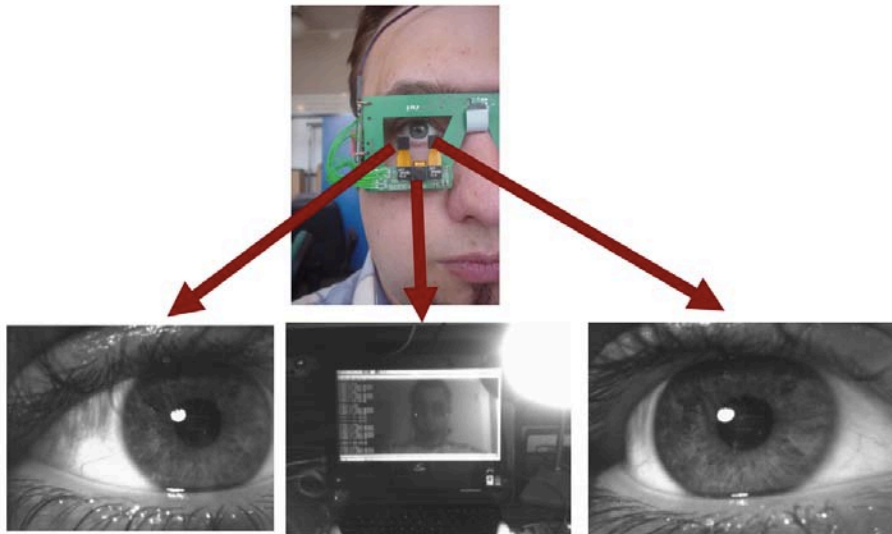
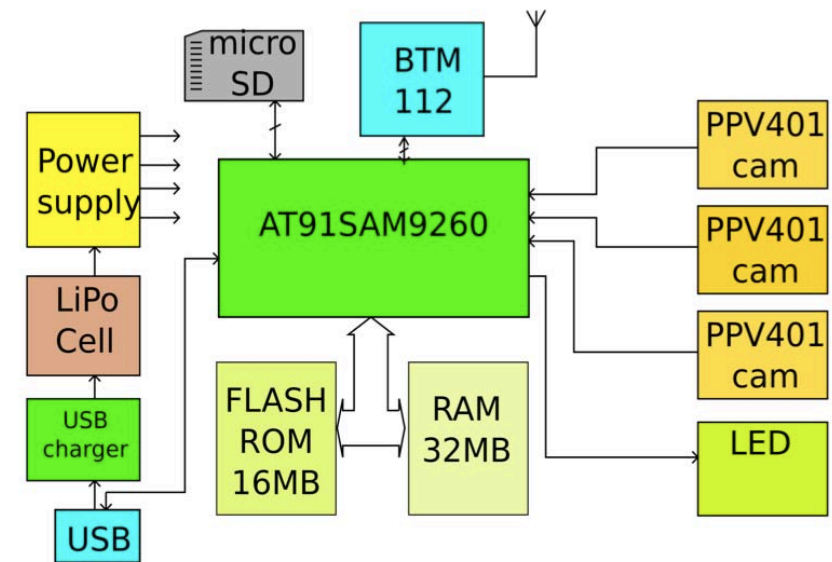
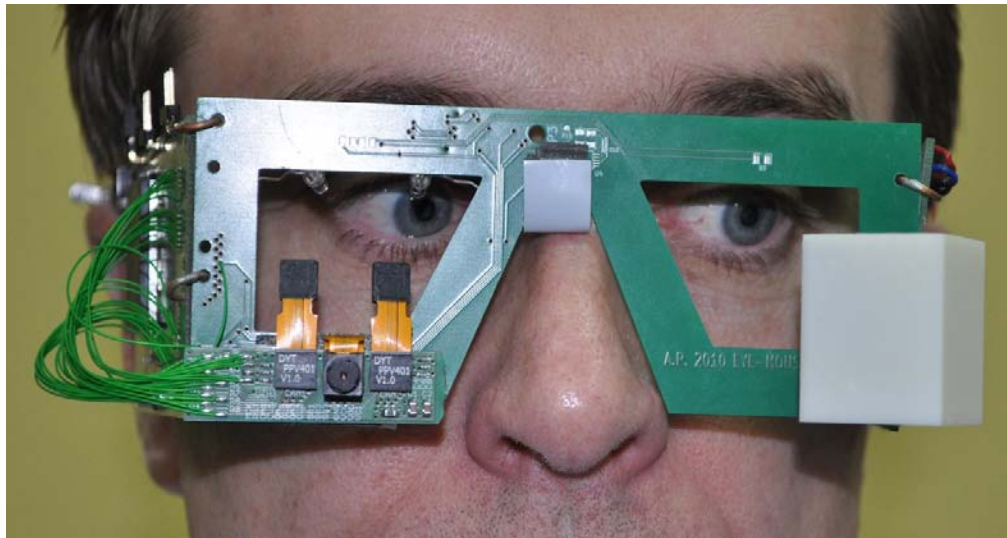


Previous work and initial proof of the concept (eye tracker 2007-2014)



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Previous work and initial proof of the concept (2009-2010)



Using our background and future ideas related to eyewear we will focus on the development of modular, multisensory and open platform that can be used to investigate new methods of human-system interactions.

Our project is divided into 8 workpackages:

The list of work packages is given below:

WP1 – *Project management*

WP2 – *Requirement analysis and the design of the eGlasses platform*

WP3 – *Development of the eGLASSES core platform*

WP4 – *Development of input/output extensions for the eGLASSES: an eye gaze-tracking module, a micro display and a proximity radar*

WP5 – *Development, implementation and evaluation of algorithms for recognition of the user's own gestures and recognition of gestures of the observed person*

WP6 – *Development, implementation and evaluation of reference applications – the healthcare professional assistant*

WP7 – *Development, implementation and evaluation of reference applications – the assistant tool for the disabled and the tool for context-aware behavioural studies*

WP8 – *Dissemination and Exploitation*

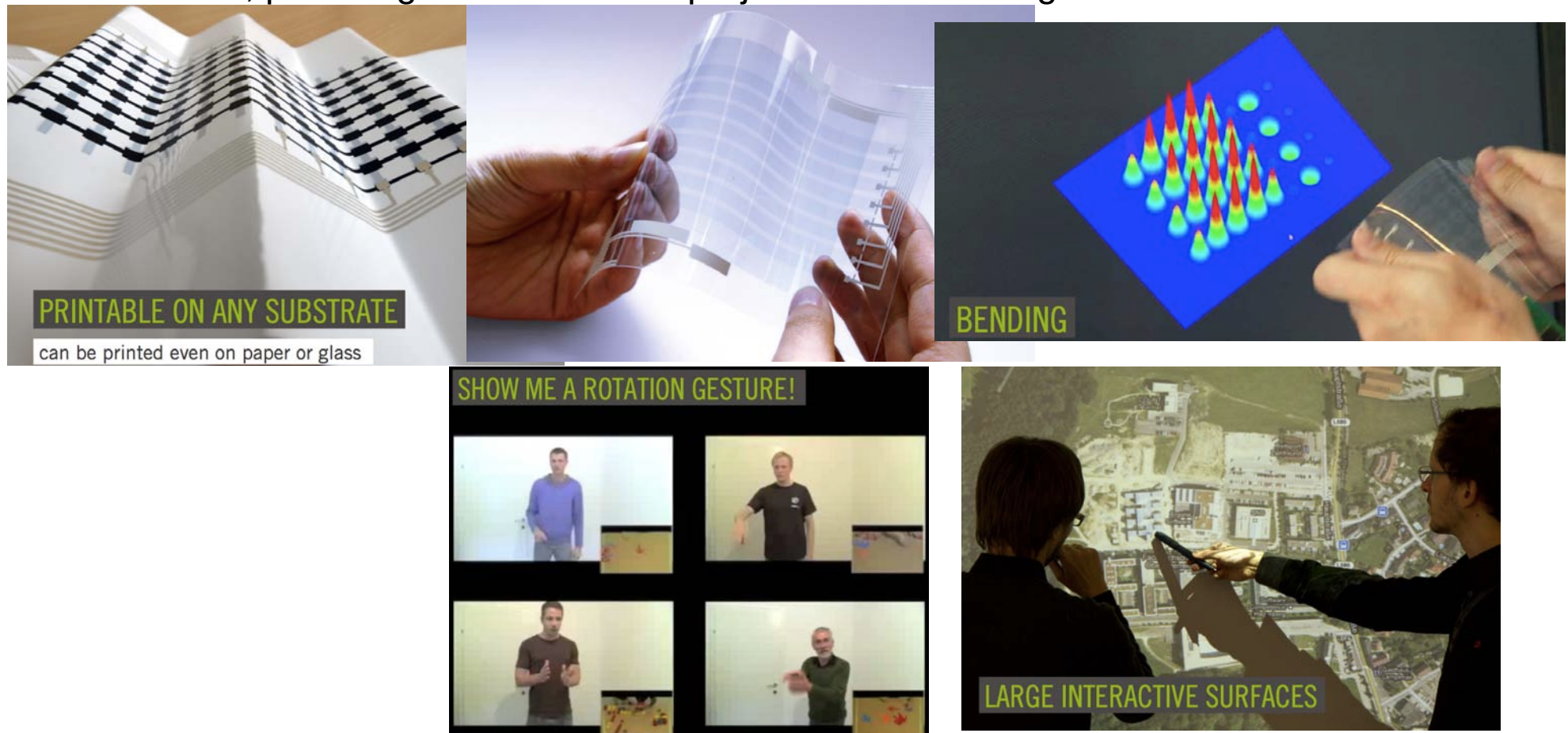
						Year 1												Year 2												Year 3												
Id		Tasks		Start	End	PM	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
WP1	Project management			M1	M36	16.83																																				
T1.1	Project Coordination and Management			M1	M36																																					
T1.2	Quality Assurance			M1	M36																																					
T1.3	Project Communication			M1	M36																																					
WP2	Requirement analysis and the design of the eGLASSES platform			M1	M4	9																																				
T2.1	Investigation and analysis of overall requirements			M1	M2																																					
T2.2	The eGLASSES hardware requirement specification			M2	M4																																					
T2.3	Specification of evaluation criteria			M2	M4																																					
WP3	Development of the eGLASSES core platform			M3	M24	34.5																																				
T3.1	The design and implementation of a MCU-based board			M3	M16																																					
T3.2	The design and implementation of the extensions board			M4	M16																																					
T3.3	The design and implementation of the front panel with embedded sensors and extensions			M4	M16																																					
T3.4	The software API for the core platform			M7	M17																																					
T3.5	Simulator Platform Development			M3	M12																																					
T3.6	The evaluation of the core platform			M9	M24																																					
Development of input/output extensions for the eGLASSES: an eye gaze-tracking module, a micro display and a proximity radar				M4	M28	33																																				
T4.1	Development of hardware standard extensions and interfaces			M4	M18																																					
T4.2	Development and implementation of algorithms for the extensions			M5	M20																																					
Development and implementation of algorithms for data integration and reasoning				M5	M20																																					
T4.4	Evaluation of the software/hardware extensions			M10	M28																																					
Development, implementation and evaluation of algorithms for recognition of the user's own gestures and recognition of gestures of the observed person				M2	M30	47																																				
T5.1	Understanding gestures			M2	M6																																					
T5.2	Specification of a mid-air gesture library			M6	M12																																					
T5.3	Implementation of gesture-based interaction techniques & feedback language			M12	M20																																					
T5.4	Evaluation of the mid-air gesture library			M18	M30																																					
Development, implementation and evaluation of reference applications – the healthcare professional assistant				M3	M34	39																																				
T6.1	Requirements capture			M3	M6																																					
T6.2	Development and implementation of algorithms for the identification of a patient			M6	M12																																					
T6.3	Development and implementation of algorithms for estimation of physiological parameters from video sequences			M6	M18																																					
T6.4	Development and implementation of algorithms for integrated data measurements, analysis and visualization			M10	M24																																					
T6.5	Evaluation and user tests of the new interaction techniques			M22	M34																																					
Development, implementation and evaluation of reference applications – the assistant tool for the disabled and the tool for context-aware behavioral studies				M4	M34	43.67																																				
T7.1	Requirements capture			M4	M7																																					
T7.2	Development and implementation of algorithms for the automatic recognition of devices and interaction with them			M6	M12																																					
T7.3	Development and implementation of algorithms for the identification of colours			M6	M9																																					
T7.4	Development and implementation of algorithms for context-aware behavioural studies			M6	M20																																					
T7.5	Development and implementation of algorithms for locating objects and guiding vision towards the identified objects			M8	M14																																					
T7.6	Evaluation and user tests of the new interaction techniques			M16	M34																																					
WP8	Dissemination and Exploitation			M1	M36	15																																				
T8.1	Plan for the Use and Dissemination of Results			M1	M4																																					
T8.2	Monitoring of the results and protection of project results			M2	M36																																					
T8.3	Dissemination of project results			M2	M36																																					

Consortium

1 <i>Coordinator</i>	PL	Gdansk University of Technology, Faculty of Electronics Telecommunications and Informatics, Department of Biomedical Engineering (GUT/DBME)
2	AT	University of Applied Sciences Upper Austria / Media Interaction Lab (MIL)
3	CH	Hochschule Luzern / iHomeLab
4	FR	University of Lorraine / Laboratory of Conception, Optimization, and Modelling of Systems (LCOMS)
5	LU	University of Luxembourg / Interdisciplinary Centre for Security, Reliability and Trust (UL/SnT)

Partner: Media Interaction Lab

The Media Interaction Lab is a research lab hosted at the Department of Interactive Media at the University of Applied Sciences Upper Austria | School of Informatics, Communication and Media in Hagenberg. The Media Interaction Lab integrates research and education, providing students with a project-based learning environment.



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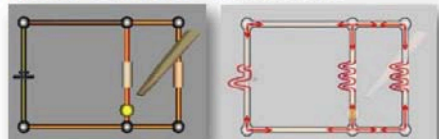
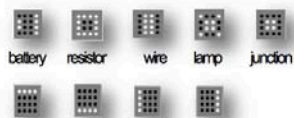
Partner: LCOMS : Laboratory of Conception, Optimization, and Modelling of Systems, Universite de Lorraine

LCOMS is a multidisciplinary laboratory focused on the research and education in fields of Automatics, Computer science, Electronics, Science of sport activities. Two teams of the LCOMS participate in the project: IHM – Human/Computer Interaction, and EPSAP: Assistive technology and performance evaluation.

Haptics for visually impaired users

Collaborative multimodal environment

- MICOLE (European project)
 - 09/2004 to 08/2007
- Visually impaired children and electrical circuits
- Haptic language : tactile and force feedbacks



Motor impairment : Mobility

To help steering electric wheelchairs

Intelligent Wheelchair

- Deictic control,
- Haptic feedback



Driving simulator

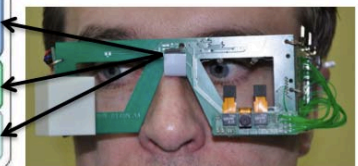
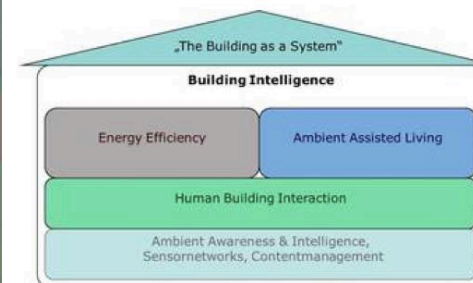


Partner: iHomeLab

The iHomeLab is the Swiss think tank for Building Intelligence. Key research aspects of the iHomeLab are energy efficiency, comfort, and safety; special attention is given to the issue of ambient assisted living and human building interaction. The iHomeLab Living Lab is also a network platform with international impact, where the latest results of joint venture research projects are presented and discussed with experts and wide public.

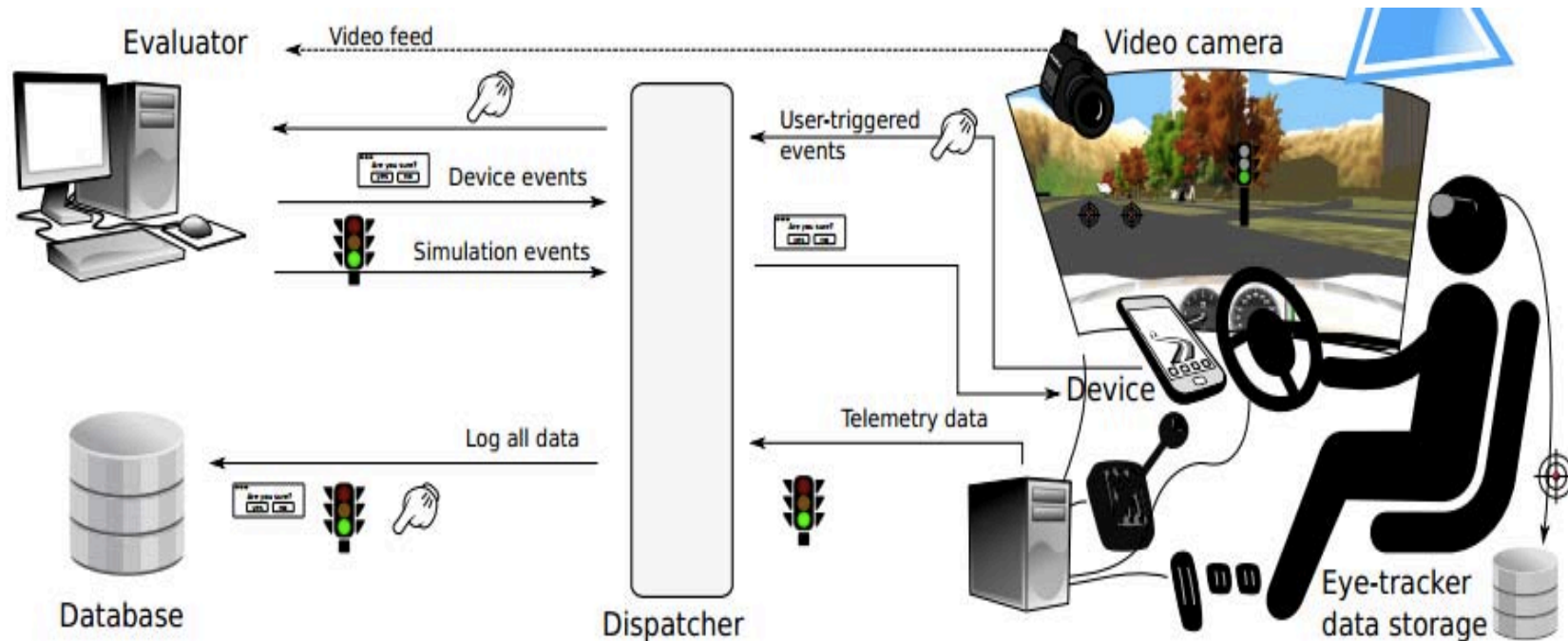


The intelligent building will be used for evaluation and tests of the eGlasses platform and related interaction techniques



Partner: University of Luxembourg / Interdisciplinary Centre for Security, Reliability and Trust (UL/SnT)

UL/SnT has extensive facilities and experience for conducting human-factors related research. On going research in the IGEAR project explores serious games and multimodal interfaces (including eye-tracking) for use in cars. These can be also used for development and evaluation of the eGlasses platform and new interaction techniques developed for the eGlasses



Partner: Department of Biomedical Engineering, Gdansk University of Technology

GUT/DBME has an experience in biomedical engineering, computer engineering, electronics and automatics. The teams of the department are working in the area of fundamental research and applied research. DBME has several laboratories that enable to construct and verify technological innovations (sensors, electronic circuits, telecommunication solutions, etc.). It also includes certified equipment to perform biomedical measurements (e.g. ECG, EEG, SpO2, clinical spirometers, etc.) that can be used for validation of the super-perceptual processing methods.



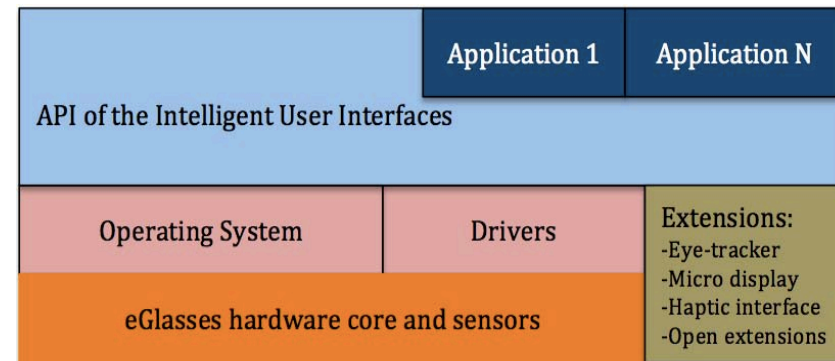
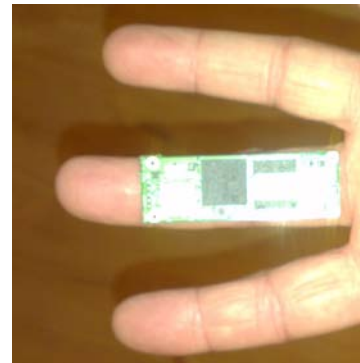
The eGlasses consortium receives the funding support of NCBiR, FWF, SNSF, ANR, and FN

The organisational structure is comprised of the following Consortium bodies to ensure a clear and balanced distribution of responsibilities:

- ***A Steering Committee (SC)*** – one person from each partner.
- ***The Coordinator (Project Manager)***, as an intermediary between the CHIST-ERA, and the consortium, representing the SC. The coordinator is responsible for research activities in the project.
- ***A Technical Manager (TM)*** to oversee the execution of all technological work packages in the project, reporting to the Coordinator,
- ***The Work package and Task leaders*** –play roles of supervisors of the activities within the corresponding work packages and tasks
- ***An Exploitation and Dissemination Manager (EDM)*** to formulate and execute a Plan for the Use and Dissemination of Results and coordinate dissemination activities for the project, reporting to SC.

Initial activities:

Currently we are working intensively on requirements for hardware, methods, software, and on the specification for the hardware.



Initial activities:

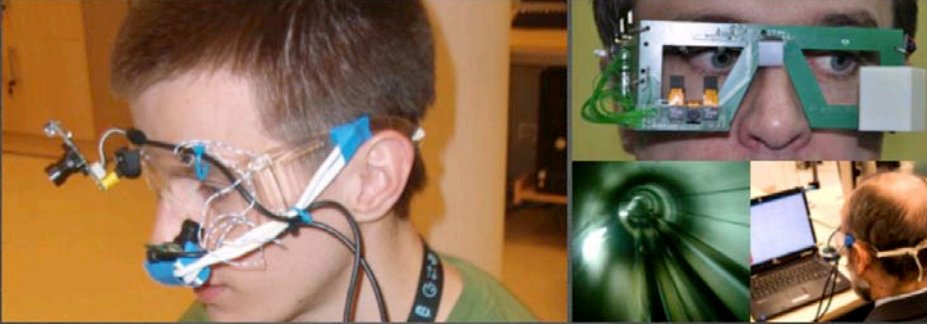
Reserved domains:

www.e-glasses.net www.e-glasses.info

The project web site

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THE EGLASSES PROJECT



WELCOME TO THE EGLASSES WEBSITE

The eGlasses project is focused on the development of an open platform in the form of multisensory electronic glasses and on the integration and designing of new intelligent interaction methods using the eGlasses platform.

Information perceived by the eGlasses is automatically processed using user interaction (e.g. controlled by eye-tracking) or without it (e.g. using context-based analysis). The processing unit, embedded in the eGlasses, can perform reasoning operations. These reasoning operations seamlessly combine multisensory data and information discovered from measured data sets (e.g. respiratory rate from a video

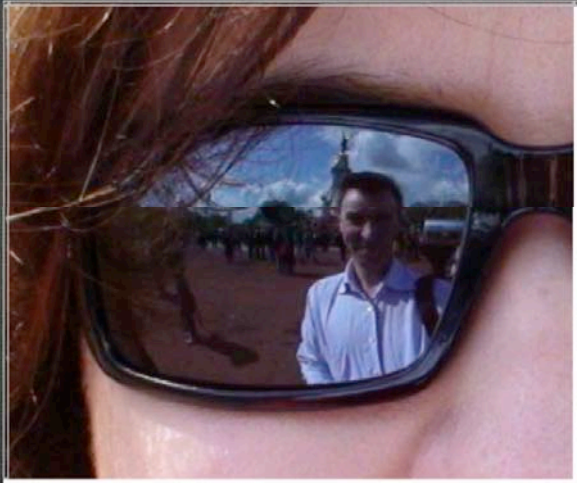
SOON:
4-5 March 2014:
CHIST-ERA Seminar

PAST:
6-7 Feb. 2014:
Kick-off meeting

The

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THE EGLASSES PROJECT



WHAT YOU SHOULD KNOW

TITLE:
The interactive eyeglasses for mobile, perceptual computing (eGlasses)

DATES:
01.01.2014 - 31.12.2016

SPONSOR
CHIST-ERA (NCBiR, FWF, SNSF, ANR, and FNR)

PARTNERS
POLAND, AUSTRIA, SWITZERLAND, LUXEMBOURG, FRANCE

INSTITUTIONS
1. GDANSK UNIVERSITY OF TECHNOLOGY (Faculty of Electronics, Telecommunications and Informatics, Department of Biomedical Engineering)
2. UNIVERSITY OF APPLIED SCIENCES

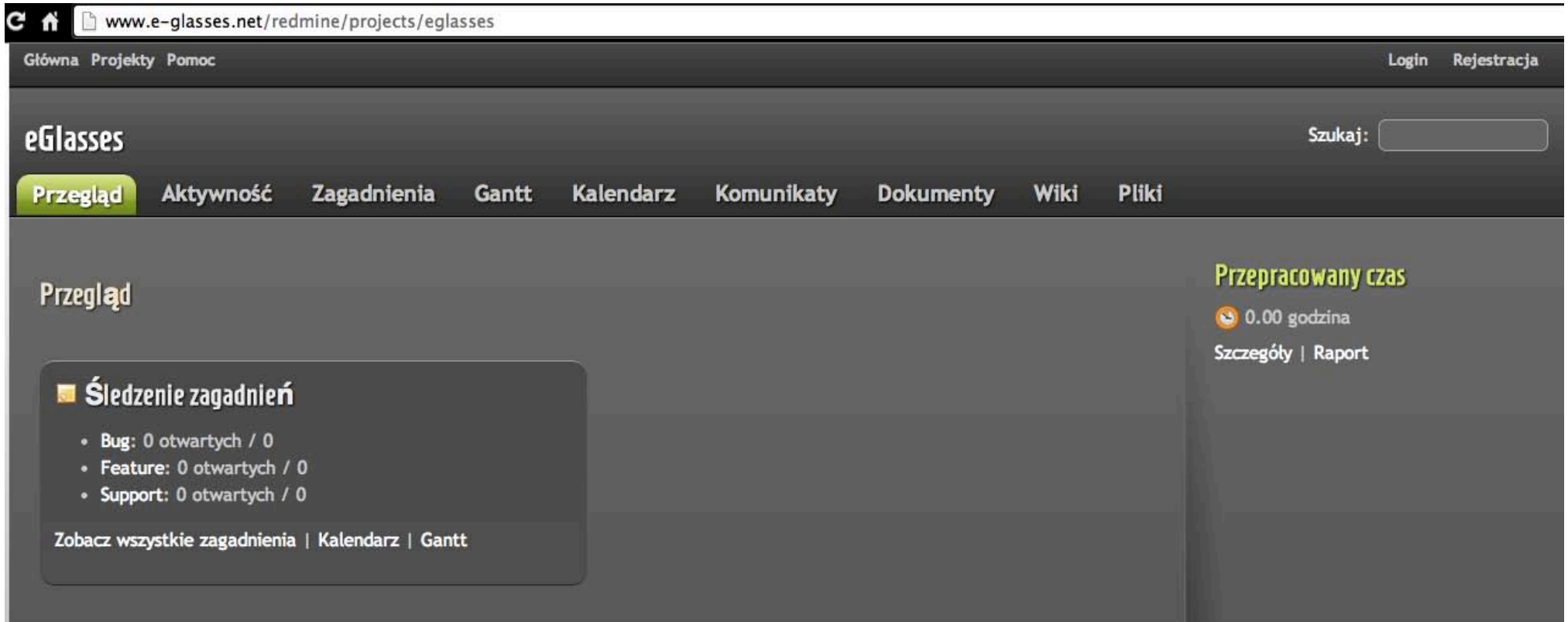
ABOUT THE PROJECT

The eGlasses project is focused on the development of an open platform in the form of multisensory electronic glasses and on the integration and designing of new intelligent interaction methods using the eGlasses platform.

SNF, ANR, and FNR in the framework of the ERA-NET CHIST-ERA II.

Initial activities:

The intranet and project management (REDMINE: www.e-glasses.net/redmine)



The screenshot shows the Redmine web interface for the eGlasses project. The browser address bar displays www.e-glasses.net/redmine/projects/eglasses. The interface includes a top navigation bar with links for 'Główna', 'Projekty', and 'Pomoc', along with 'Login' and 'Rejestracja' buttons. Below this is a search bar labeled 'Szukaj:'. A secondary navigation bar contains tabs for 'Przegląd' (highlighted), 'Aktywność', 'Zagadnienia', 'Gantt', 'Kalendarz', 'Komunikaty', 'Dokumenty', 'Wiki', and 'Pliki'. The main content area is titled 'Przegląd' and features a 'Śledzenie zagadnień' (Issue Tracking) section on the left, which lists 'Bug: 0 otwartych / 0', 'Feature: 0 otwartych / 0', and 'Support: 0 otwartych / 0'. At the bottom of this section are links to 'Zobacz wszystkie zagadnienia', 'Kalendarz', and 'Gantt'. On the right side of the main area, there is a 'Przepracowany czas' (Time Spent) section showing '0.00 godzina' and links to 'Szczegóły' and 'Raport'.

Initial activities:

Kick-off meeting took place in Gdansk, 6-7 February, 2014. During two days of intensive work we discussed tasks for all work packages, made some important decisions, etc.



The eGlasses consortium

A II.





Initial activities:

Currently we also working on choosing the LOGO of the project.

Thank you

Acknowledgment



The eGlasses consortium receives the funding support of NCBiR, FWF, SNSF, ANR, and FNR in the framework of the ERA-NET CHIST-ERA II.



Projekt eGlasses współfinansowany ze środków Narodowego Centrum Badań i Rozwoju w ramach programu europejskiego ERA-NET CHIST-ERA II