DELIVERABLE 7.2b

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ICT Call 7 - Objective 5.4 for Ageing & Wellbeing

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DOCUMENT HISTORY

Version	Date	Status	Changes	Author(s)
1.0	**2012-11-18**	**Draft**	**Initial Draft**	**Sinead Gorham**
1.1	**2012-11-20**	**Revisions**	**Draft**	**Farshid Amirabdollahian**

AUTHORS & CONTRIBUTERS

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Contributors: **All partners**	**Consortium**	**Consortium**

Short description

This report provides an overview of the dissemination activities the ACCOMPANY partners have undertaken within the second year (Month12-24 inclusive) of the project until 30 September 2013. It also briefly outlines the future activities planned in the final year of the project. Dissemination within ACCOMPANY draws upon the results in all technical work packages and all partners are contributing to its achievements.

1 ACCOMPANY Dissemination Instruments

- Website
- Leaflet
- Twitter

1.1 Website

The ACCOMPANY website is accessible at the following URL http://www.accompanyproject.eu/

The website set-up has been described in detail within D7.1 report Year 1. The project webpages serve as a means for continuous dissemination of information to the public and all project stakeholders. The website is a tool for the visibility of the project, and has been updated throughout Year2 of the project on publications and public deliverables. We have also linked our dissemination activities to our project twitter page-@accompanyeu.

The website has been accessed 166,155 times in 2013 (accessed 21 Nov 2013), while "About the project" page had the largest number of views (11,385 times) and the main project page accessed 8714 times. Table 1 shows the number of downloaded project documents and deliverables.

Downloaded	Document title/topic	Full Download	Partial Download
D6.2	Ethical Norms	663	87
Leaflet	Project leaflet	135	91
D3.2	Initial design and implementation of the memory visualisation and narrative generation	125	41
D1.3	Phase one scenarios and report on system functionality	99	44
D1.2	Report on user and system requirements and first outline of system functionality	77	30
D1.1	Status of elderly care provision in Europe, potential for service robotics	83	27
D7.2	Dissemination report	31	2
Total		**1213**	**322**

Table 1. Deliverables and project documents downloaded in 2013

1.2 Leaflet

The project leaflet has been revised twice in Year 2 (M18) and (M24) to include achievements from the ACCOMPANY project to date and to disseminate these easily. An updated leaflet is available for download on the website under the “About Accompany Project section” and printed copies are made available at events (such as, conferences, workshops, etc.) where ACCOMPANY participates. The information provided in the leaflet contains a general overview outlining our achievements to date. It addresses both experts and non-experts. The main intention of the leaflet is to draw interested people towards the website, where more in-depth information can be found, and where the public deliverables of the project are available and project contacts can be reached. See Appendix 1 for latest version.

1.3 Twitter

Accompany has a twitter account @accompanyeu where news from the project, pictures and event highlights are tweeted. Currently the project has 34 followers from a range of European and National stakeholder’s organisations and we are following a number of strategic contacts.

Figure 1

1.4 Promotional videos:

A demonstration video showing the second year project scenario has been made at Zuyd and is available at:

https://www.youtube.com/watch?v=t9OAExbRAnI

1.5 Detailed list of dissemination activities:

1.5.1 Conference submission/publications (28):

Lead Partners	Conference Title	Reference (author, title, conference ,date)	Status
UH	**AAATE (Assoc. Advancement Assisted Tech. Europe) 2013**	Joe Saunders, Nathan Burke, Kheng Lee Koay, Kerstin Dautenhahn, **A User Friendly Robot Architecture for Re-ablement and Co-learning in A Sensorised Home,** Assistive Technology Research Series, Volume 33: Assistive Technology: From Research to Practice, pp. 49 - 58.	**Published**
UH	**ARE (Adaptive Robotic Ecologies) 2013**	Joe Saunders, Maha Salem, and Kerstin Dautenhahn, **Temporal Issues In Teaching Robot Behaviours in a Knowledge-Based Sensorised Home,** 2nd International Workshop on Adaptive Robotic Ecologies, ARE'13. 3-5 Dec 2013, Dublin, Ireland.	**Accepted**
UH	**IEEE Symposium on Artificial Life, 2013**	K.L. Koay, G. Lakatos, D.S. Syrdal, M. Gacsi, B. Bereczky, K. Dautenhahn, and A. Miklosi, M.L. Walters, **"Hey! There is someone at your door. A hearing robot using visual communication signals of hearing dogs to communicate intent,"** Symposium on IEEE Artificial Life (ALIFE), 2013, pp.90,97, 16-19 April 2013.	**Published**

UH	**AAATE (Assoc. Advancement Assisted Tech. Europe) 2013**	W.C. Ho, K. Dautenhahn, N. Burke, J. Saunders, J. Saez-Pons, **Episodic memory visualization in robot companions providing a memory prosthesis for elderly.** Assistive Technology Research Series, Volume 33: Assistive Technology: From Research to Practice, pp.120 - 125.	**Published**
UH	**ACHI 2013 (Advances in Human Computer Interaction)**	Lehmann, H., Syrdal, D., Dautenhahn, K., Gelderblom, G.J., Bedaf, S. M. A., Amirabdollahian, F. (2013)**, What can a robot do for you? Evaluating the needs of the elderly in the UK , The Sixth International Conference on Advances in Computer-Human Interactions (ACHI 2013),** February 24 – March 1, 2013 – Nice, France.	**Published**
UH	**ACHI 2013 (Advances in Human Computer Interaction)**	Nate Derbinsky, Wan Ching Ho, Ismael Duque, Joe Saunders, Kerstin Dautenhahn, **Resource-Efficient Methods for Feasibility Studies of Scenarios for Long-Term HRI Studies,** in ACHI 2013 pp. 95-100, February 24 - March 1, 2013.	**Published**
UH	**ACHI 2013 (Advances in Human Computer Interaction)**	Ismael Duque, Kerstin Dautenhahn, Kheng Lee Koay, Ian Willcock and Bruce Christianson, **Knowledge-driven User Activity Recognition for a Smart House. Development and Validation of a Generic and Low-Cost, Resource-Efficient System,** in ACHI 2013 pp. 141-146, February 24 - March 1, 2013	**Published**
UH	**RO-MAN 2013 (IEEE International Symposium on Robot and Human Interactive Communication)**	M.L. Walters, K.L. Koay, D.S. Syrdal, A. Campbell, and K. Dautenhahn, **Companion Robots for Elderly People: Using Theatre to Investigate Potential Users' Views,** in Proc. of IEEE RO-MAN 2013, pp. 691 - 696, Gyeongju, South Korea,	**Published**

		26-29 Aug. 2013.	
UH	**ICSR 2013 (International Conference on Social Robotics)**	K.L. Koay, M.L. Walters, A. May, A. Dumitriu, B. Christianson, N. Burke, and K. Dautenhahn. **Exploring Robot Etiquette: Refining a HRI home companion scenario based on feedback from two artists who lived with robots in the UH Robot house**, in Proc. of ICSR 2013, pp 290-300. Bristol, UK, October 27-29, 2013.	**Published**
Consortium	**HSI 2013 (International Conference on Human System Interaction) .**	Amirabdollahian, F., op den Akker, R., Bedaf, S., Bormann, R., Draper, H., Gelderblom, G.J. Gutierrez Ruiz, C., Hewson, D., Koay, K.L., Krose, B., Marti, P., Prevot-Huille, H., Reiser, U., Saunders, J., Sorell, T. and Dautenhahn, K. (2013), **Accompany: Acceptable robotiCs COMPanions for AgeiNg Years – Multidimensional Aspects of Human-System Interaction**s, 6th International Conference on Human System Interaction (HSI2013), June 6-9, Gdansk, Poland.	**Published and Winner of best paper award**
UH	**ICSR 2013 (International Conference on Social Robotics)**	Dag Sverre Syrdal, Kerstin Dautenhahn, Kheng Lee Koay, Michael L. Walters, Wan Ching Ho, **Sharing Spaces, Sharing Lives – The Impact of Robot Mobility on User Perception of a Home Companion Robot**. in Proc. of ICSR 2013, pp.321-330, Bristol, UK, October 27-29, 2013.	**Published**
UH	**ICSR 2013 (International Conference on Social Robotics)**	Lehmann, Hagen and Walters, Michael L and Dumitriu, Anna and May, Alex and Koay, Kheng Lee and Saez-Pons, Joan and Syrdal, Dag Sverre and Wood, Luke and Saunders, Joe and Burke, Nathan. **Artists as HRI Pioneers: A Creative Approach to Developing Novel Interactions for Living with Robot**.	**Published**

		in Proc. of ICSR 2013, pp.402-411, Bristol, UK, October 27-29, 2013.	
MADoPA	**Université d'été de la performance en santé**	C. Gutiérrez Ruiz**, « Comment faire le lien ? L'intégration du réseau relationnel des personnes âgées dans un protocole d'évaluation : l'expérience ACCOMPANY »** August 30th-31th, Nantes, France.	**Poster accepted**
UNISI	**AROB2013** **Proceedings of the 18th International Symposium on Artificial Life and Robotics**	Marti, P. & Stienstra, J.T. **Engaging through her eyes: embodying the perspective of a robot companion,** AROB2013	**Published**
UNISI	**CHI 2013** **Conference on Human Factors in Computing Systems**	Stienstra, J.T., Marti, P. and Tittarelli, M. **Dreamy Eyes: Exploring Dynamic Expression in Human-System Interaction,** CHI 2013	**Published**
UNISI	**RO-MAN2013** **22nd IEEE International Symposium on Robot and Human Interactive Communication**	Marti, P., Iacono, I., Tittarelli, M. & Stienstra, J.T**. "Shaping Empathy Through Perspective Taking"** , RO-MAN2013	**Published**
HZ		Vermeulen J., Man Y.P., Bedaf S.M.A. (2012). **Nieuwe technologie in de ouderenzorg: hoe ouderen en onderzoekers samen producten ontwikkelen die aansluiten op de behoefte van de gebruikers.** Tijdschr Gerontol Geriatr, 43(4),	**Published**

		213-215.	
HZ, UH, MADoPA	**ICORR 2013**	Bedaf S., Gelderblom G.J., de Witte L., Syrdal D., Lehmann H., Amirabdollahian F., Dautenhahn K., Hewson D. (2013). **What should a care robot be able to do? Evaluating problematic activities threatening the independence of elderly persons.** ICORR 2013.	**Published**
HZ	**AAATE 2013**	Bedaf S., Gelderblom G.J., de Witte L. (2013)**. Differentiation in service robot goals based on user ability.** AAATE 2013, Vilamoura.	**Published**
IPA	Humanoids 2012	Richard Bormann, Jan Fischer, Georg Arbeiter and Alexander Verl: Adding Rotational Robustness to the **Surface-Approximation Polynomials Descriptor**, Humanoids 2012	**Published**
IPA	**Proceedings of the 13th International IEEE-RAS International Conference on Humanoid Robots, 2013**	Richard Bormann, Thomas Zwölfer, Jan Fischer, Joshua Hampp and Martin Hägele : **Person Recognition for Service Robotics Applications,** Humanoid Robots, 2013	**Published**
IPA	**ICRA 2013, 8th Workshop on Software Development and Integration in Robotics (SDIR-VIII)**	Ulrich Reiser, Simon Ebner: **A Tool-chain for deploying component-based applications on complex service robots,** ICRA 2013, Karlsruhe, May 6th, 2013	**Published**
IPA, UVA	**International Conference on Robotics and**	Ninghang Hu, Richard Bormann, Thomas Zwölfer, and Ben Kröse**,**	**Submitted**

	Automation 2014	**Multi-User Identification and Efficient User Approaching by Fusing Robot and Ambient Sensors,** submitted to ICRA 2014	
UvA	**IROS**	**Ninghang Hu, Gwenn Englebienne, Ben Kröse,** **Bayesian Fusion of Ceiling Mounted Camera and Laser Range Finder on a Mobile Robot for People Detection and Localization,** IEEE International Conference on Intelligent Robots and Systems (**IROS**) workshop on Human Behavior Understanding, Vilamoura, Portugal, October 7-12 ,2012	**Presented**
UvA	**ICML**	Ninghang Hu, Zhongyu Lou, Gwenn Englebienne, Ben Kröse, **Semi-Supervised Sequential Labeling with Latent Structured SVMs**, International Conference on Machine Learning (ICML 2014)	**Submitted**
UT	**RO-MAN**	Gallego-Perez, J., Lohse, M., & Evers, V. (2013). **Robots to Motivate Elderly People : Present and Future Challenges.** In RO-MAN, 2013 IEEE. Gyeongju, South Korea.	Published
UT	**ICSR**	Gallego-perez, J., Lohse, M., & Evers, V. (2013). Position paper : **Robots as companions and therapists in elderly care**. In ICSR 2013. Bristol.	Published
UT	**HRI**	Gallego-perez, J., & Evers, V. (2014). **Robot roles for the psychological wellbeing of elderly and younger**	Submitted

		people. In HRI ’13. Bielefeld.	

1.5.2 Journal Publications: (6)

Partner	Reference	Status
All	Amirabdollahian, F., Bedaf, S., Bormann, R., Draper, H., Evers, V., Pérez, J. G., … & Dautenhahn, K. (2013) **Assistive technology design and development for acceptable robotics companions for ageing years.** Paladyn, Journal of Behavioral Robotics, 1-19.	Published
UNISI	Marti, P. & Stienstra, J.T. ; “**Exploring Empathy in Interaction: scenarios of respectful robotics”. Journal of Gerontopsychology and Geriatric Psychiatry**, 26 (2), 2013, pp 1-12 DOI: 10.1024/1662-9647/a000086	Published
UNISI	Marti, P., Iacono, I., Tittarelli, M. ; “**Empatia ed espressività nella relazione persona-robot”. Submitted to the special issue on “Vivere ed imparare con i robot**” in Ergonomia	In press
UNISI	Marti, P. (ed.) "**Robot nella società**". Special issue of Ergonomia.	In press
HZ, UH, MADOPA	Bedaf S., Gelderblom G.J., Syrdal D.G., Lehmann H., Michel H., Hewson D., Amirabdollahian F., Dautenhahn K., de Witte L. **Which activities threaten independent living of elderly when becoming problematic; Inspiration for meaningful service robot functionality. Disability and Rehabilitation: Assistive Technology**. Oct 1, 2013.	Published

UoB, UW	DraperH., SorrellT.,'**Robot Carers, Ethics, and the Elderly', to Ethics and Information Technology,** Ethics and Information Technology.	Submitted: Awaiting reviewers' comments

1.5.3 Invited talks: (30)

Partner	Accompany presented in talks- Event Title	Date, further information, links
UH	Farshid Amirabdollahian presented the project at the ICT Cluster meeting in Crete where 25 other projects in the cluster presented progress to date.	26-27 September http://atlas.ics.forth.gr/REACTION/Clustering_Event/
UH	Farshid Amirabdollahian presented the project the the HRI summer school in Cambrige, UK	This was a joint activity between the Aliz-e project, Robot-Era and Accompany taking place between 26 August-30 August. www.hrisummerschool.org
UH	BILETA2013, Plenary: Kheng lee Koay, Autonomous Systems	10-12th April 2013. Being part of the panel to give a 5 minutes statement/presentation on Robotic Home Companion (Accompany Project Year 1 scenario video was presented) and to discuss the question "What regulatory and governance frameworks do we need to balance innovation and human values in the age of autonomous systems?"
UH	ICSR 2013, Kheng lee Koay invited Speaker for Workshop 2: Embodied Communication of Goals and Intentions	27th - 29th October 2013. Giving a lecture to workshop audiences on Interaction with socially interactive robot companions, focusing on interaction modalities and social norms in domestic environment. Accompany Project Year 1 scenario video was presented.

UH	ICSR 2013 (International Conference on Social Robotics), Kheng Lee Koay, M.L.Walters ,Plenary Panel Discussion	27th-29th October 2013. Being part of the panel, providing 5 minute statement/presentation on issues related to Robotic Home Companion and to discuss the question "Companionship".
UH	Kerstin Dautenhahn keynote speaker at the 5th York Doctoral Symposium on Computer Science	8th November, 2012, title of talk: Social Robots as Assistants. http://www.cs.york.ac.uk/yds/?page_id=49
UH	Kerstin Dautenhahn Invited speaker at the Liverpool Symposium on Legal, Ethical and Social Autonomous Systems	14th November 2012, Forsight Centre, University of Liverpool. The title of presentation was "Problems with Social Robotics? Challenges!" http://cgi.csc.liv.ac.uk/~michael/ethical2012_web.html
UH	Kerstin Dautenhahn invited speaker at the IROS 2012 workshop on "Cognitive neuroscience robotics"	12 October 2012, as part of IROS 2012, October 7-12, 2012, Vilamoura, Algarve, Portugal. The workshop is being organised by Kenichi Narioka (Osaka University), Yukie Nagai (Osaka University), Minoru Asada (Osaka University), and Hiroshi Ishiguro (Osaka University). Title of presentation "Interaction with Robot Companions – Psychological and Neuro-Biological Factors".http://www.iros2012.org/site/
UH	Kerstin Dautenhahn invited speaker at Technical University of Chemnitz, Germany	3 May 2013, talk entitled "Challenges in Human-Robot Interaction", followed by a workshop/discussion round with PhD students of the CrossWorlds - DFG-Graduiertenkolleg at TU Chemnitz
UH	Kerstin Dautenhahn lecturer at Summer School on Social Signal Processing, on behalf of SSPNet, the European Network of Excellence on SSP	3-7 June 2013, Vietri Sul, Mare, Italy http://www.dcs.gla.ac.uk/~vincia/sspschool/index.html
UH	Kerstin Dautenhahn invited Keynote Speaker at COST Event -	10-13 June 2013. Title of talk "Social robotics and real world applications – an

	The Future Concept and Reality of Social Robotics: Challenges, Perception and Applications Role of Social Robotics in Current and Future Society, International Press Centre, Brussels (BE)	interdisciplinary perspective"http://www.cost.eu/events/socialrobotics
UH	Kerstin Dautenhahn speaker at Bentley Wood High School, part of the Speakers for Schools programme	11 February 2013, title of talk "Robots Interacting with People".
UNISI	"From Perceptual interaction to extended cognition"	The aim of this seminar is to test out the dialogue between Philosophy (phenomenology, epistemology), Experimental science (psychology, modelling, robotics) and Technology (pROSthetic devices, design) in order to evaluate the feasibility and the openings for research of a minimalist enactive approach to extended social cognition. In this perspective, we will take up the theoretical and experimental gains from studies of perceptual interactions, and then attempt to generalize them. This seminar should lead to a publication.
UNISI	ACCOMPANY Presented at Campus Party - London 2013	02-07 September, Campus Party is the biggest event of technology and science. Campus Party is an annual week long, 24-hours-a-day technology festival where thousands of “Campuseros” (hackers, developers, gamers and technophiles), equipped with laptops, camp on-site and immerse themselves in a truly unique environment. - See more at: http://www.campus-party.eu
HZ	11th National Gerontology	05-10-2012 Ede NL. The presentation was part of a special workshop about the

	congress in Ede (NL)	participation of elderly in technological care developments. Focus group 1 was used as an example. 30 person
HZ	Robot Supporting care day	02-10-2013 Heerlen NL, Accompany presentation. 150 persons
HZ	ICORR, International conference on rehabilitation robotics, Seattle USA.	June 25th, Seattle- presentation of Accompany poster. 150 people.
HZ	AAATE 12th European Assitive Technology Conference, Portugal	September 20th , Vilamoura 60 persons presentation of Accompany paper
HZ	Cambridge HRI Summer school, HRI and elderly.	29th August ,Christ's College Cambridge UK, 35 persons
HZ	Windesheim UaS, Summer course	4th July 2013, Windesheim, LaSalle university, Almere, 15 persons.
HZ	Future Proof for Care project. 3 lectures for regional stakeholders	May 13th 2013, Zuyd UaS. Heerlen, 120 persons
HZ	Health Valley Event Nijmegen (National Congres)	March 13th , Nijmegen, 50 persons
HZ	Presentation at Aliade research day (care organisations)	March 21st ,Leeuwarden, 30 persons
HZ	Invited external expert for Philips Elderly care products brainstorm session	19th February ,Eindhoven, 20 persons
HZ	Keynote speaker, symposium Tokyo Rehabilitation Centre , Japan	February 9th., Tokyo Japan, 150 people
HZ	Presentation during In voor zorg congress Eindhoven Netherlands	November 26th, Eindhoven, 60 persons
IPA	Richard Bormann- ROSCon 2013	12th May 2013, title: "Hi Richard – Personalize your Robot with the cob_people_perception Stack"

		ROS developer meeting, introduction of new methods, modules, etc. to the robotics community, ca. 200 participants,
IPA	Ulrich Reiser, Florian Weißhardt, Martin Hägele- RSS 2013 Workshop on Common Platforms in Robotic Manipulation	23-25 October 2013, title: Care-O-bot 3: towards Real World Experiments in consumer domain
UVA	Ben Kröse, 'The digital life & ambient robotics: How can IT and robotics be used in our daily lives?'	28th May ,EMGO+ Annual Meeting 2013, RAI Amsterdam
UVA	Ben Kröse, 'International Summer School on Social Human-Robot Interaction' Christ's College	26-29 august 2013, Cambridge, United Kingdom
UB/UW	Robots and ACCOMPANY ethics work plan	Date: 11th October 2012 Brief Description: Heather Draper and Tom Sorell were invited to speak to a group in UoB working on robotics for other consortia funded by the EC (Coglaboration & CogWatch). The talk presented issues raised in their first deliverable (6.2) Audience: 12 Outcome: possible future collaboration
UT	zorgevent.nl	June 2013. Vanessa Evers from UT, gave a talk at zorgevent.nl ,an annual event about healthcare technology, with approximately 2000 people (patients, caregivers and care-technology providers) and highlighted the Accompany project.

1.6 Engagement with Public/ Press

We have had some press coverage in Year 2 and engagement with the public which is outlined in the table below.

1.6.1 Coordination activities/ Engagement with the Public

Partner	Brief description of activity	Links to publicity
UH	Ideal World Season – Are we having an out of body experience?, Invited panel member for public discussion event.	http://www.watfordpalacetheatre.co.uk/page/collective-body-experience
UH	KT-EQUAL workshop on Showcasing research to promote active ageing: from Rehabilitation robots to Assistive technologies and beyond, 19 October 2012, Hatfield, UK. Title of presentation was "Robots helping elderly independence, is that a reality?".	http://kt-equal.org.uk/calendar/96/56-Showcasing-research-to-promote-active-ageing-from-Rehabilitation-robots-to-Assistive-technologies-and-beyond
UH	ACCOMPANY Caring for the future 2013, Birmingham, 29th October, UK, circa 150 participants	http://accordgroup.org.uk/filemanager/resources//Technology.pdf
UNISI	Patrizia Marti interviewed on ACCOMPANY Project by newspaper. The interview is in Italian.	Interviews to Patrizia Marti appeared on La NAZIONE (Local Newspaper) on February, 17th 2013 Please find pdf on the website http://accompanyproject.eu/
HZ	Robot Supporting care day – ACCOMPANY demonstration	Television:http://www.l1.nl/video/l1nws-2-okt-2013 (start 07:00) News piece is in Dutch. See extract from programme figure 2 below.

HZ	Robots supporting care day –Limburg Economic development	Youtube:http://ledbrainport2020.nl/portfolio/robots-supporting-care/ (piece in dutch)
UVA	Ben Kröse: 'Robots & hersenen: wie is slimmer? De synergie tussen neurowetenschappen en kunstmatige intelligentie' academic-cultural center Spui25, 4 april 2013	http://www.spui25.nl/programma/item/04.04.13---robots--hersenen-wie-is-slimmer.html
UVA	Arnoud Visser: EURON Workshop at the European Robotics Forum 2013 Lyon, France	Towards a topic groups on Robotics for Health, 21st of March 2013 from 8:30 - 12:30.
UB	Poster presentation at College event UoB	2nd May 2013 (H Draper prepared and presented a poster outlining the ethics component of ACCOMPANY for University of Birmingham College research Day

1.7 Cross Project Relations/Integration

- Colleagues from Aliz.e (Aliz.e www.aliz-e.org) and the Robot-Era (www.robot-era.eu) project joined forces with Accompany organising a summer school in 2013 where Human-robot interaction and assistive technologies featured
- We have linked with some research on other European projects in the field covering similar themes and we established a connection with them through The REACTION Consortium Clustering Event (http://atlas.ics.forth.gr/REACTION/Clustering_Event/) with the title of "Ambient Intelligence Advanced Technologies in Support of Healthcare and Assisted Living" . The event took place at the Foundation for Research & Technology - Hellas, in Heraklion, Crete, Greece, on 26-27th September, 2013. The aim of the clustering event was to bring together European projects for demonstrations, presentations of innovative solutions, and discussions of potential synergies and cooperation. A round table was set up to discuss ambient intelligence technologies in support of healthy ageing and healthcare of which ACCOMPANY was a part. This was an opportunity for us to shared project information with similar projects in the field.

2 Future Plans

During the next year of the project, we will continue an active dissemination via its website and using newsfeeds (RSS) channels, as well as its twitter account.
The consortium will continue on publishing at peer-reviewed conferences and attending high quality workshops.

Additionally, this work package (7) has plans towards informing the economic model and business case development using user and industrial forums/workshops as well as using a supportive evaluation protocol.
This task will include expanding the scenarios with stakeholder relevant for the business case. A value chain analysis will be done in NL, UK, and FR, resulting in a description of parties and critical factors for adopting the ACCOMPANY system in healthcare provision and a European economic model for home companion robot for independent elderly. This model will be developed for the three countries in which the robot will be evaluated. An open house will be provided in each country, with will include the presence of policy makers and potential industrial partners for the ACCOMPANY solution. The capacity of the ACCOMPANY system to enhance independent living will be demonstrated.

2.1.1 Conferences and activities considered for 2013

The consortium will aim at publishing at the annual conferences such as those used during the 2013. In addition, some of the activities leading to workshop proposals are listed in this table.

Conference Website	Location	Conference Dates	Submission Deadlines
http://rehabilitationrobotics.net/ro-man14/ RO-MAN 2014 The 23rd IEEE International Symposium on Robot and Human Interactive Communication Accompany project plans a workshop at this conference with specific themes supporting knowledge trasnfer from/to the project	Edinburgh, Scotland, UK	25th- 29th August 2014	10th Jan 2014 (workshops, special sessions, tutorials) 16th Feb 2014 (regular papers)

http://isg2014.org ISG2014 – 9th World Conference of Gerontechnology	Taipei, Taiwan	18th – 21st June 2014	15/12/2013 (regular papers)
http://sites.uninova.pt/hsi2014/ HSI2014 (Human-Systems Interaction) A workshop proposal is planned at this conference, with the deadline of 5th January.	Portugal	June 16-18, 2014	January 12, 2014
Third International Symposiumon on New Frontiers in HRI Two-day Symposium at AISB 2014, Goldsmiths, University of London	UK	April 3rd - 4th 2014	Submission Deadline: 3rd January 2014
ACCOMPANY: Open house plan	MADOPA & UH	March2014 May 2014	
Accompany has proposed a workshop for the next EURobotics Forum which is planned to take place on March 2014	Rovereto, Italy	12-14 March 2014	

ACCOMPANY

Acceptable robotiCs COMPanions for AgeiNg Years

The ACCOMPANY system will provide a platform to research issues surrounding independent living at home for elderly people, using a state of the art service robot platform, Care-O-bot® 3 within a smart home environment.

Context

According to EuroStat, the percentage of the European population aged 65 years and over will grow from 16% in 2010 up to 29.3% in 2060 (EuroStat, 2011). As the proportion of older people continues to rise, we expect to see an increase in the number of people that prefer to continue to live independently in their own homes. Robot companions are one way in which older people can be supported to live independently, by providing assistance with everyday tasks that have become difficult for them and by offering motivational coaching and cognitive stimulation in the home. This allows the elderly person to retain their independence. In addition staying at home independently for longer is a more economically viable option, as health care costs continue to escalate.

Identification of user needs

ACCOMPANY is using the Care-O-bot 3 (developed by Fraunhofer IPA, Germany) to assess user requirements and user acceptance of the robot and to implement and evaluate home-assistance scenarios.

User panels included three different types of users: elderly people, their informal caregivers and healthcare professionals. Three activity domains (mobility, self-care, and social activities) were highlighted as being the most problematic for elderly. Identifying these activities resulted in a set of requirements that informed the research undertaken throughout the project. User panels and evaluation of ACCOMPANY scenarios are conducted across three test sites in three European countries (UK, the Netherlands, and France).

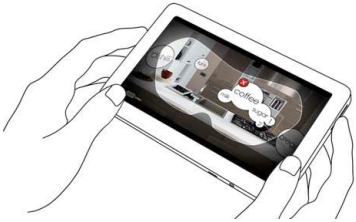
In year 1 the team implemented a scenario showing a fully autonomously operating companion robot integrated in a sensorized (smart) home. A basic fetch-and-carry task was selected, related to the activity domains mobility and self-care. We utilised the University of Hertfordshire's 'Robot House' – a real domestic house extended with sensors for this purpose.

e-inclusion Be part of it! SEVENTH FRAMEWORK PROGRAMME

Social & empathic interaction design

We are also working on exploring how relationships between elderly people and the robot can be established and developed, by providing more social and emotional interactions. The aim is to build a mutual understanding between a user and the robot that facilitates socially acceptable assistance.

The elderly person will use a tablet to directly interact with the Robot. The tablet graphics can function as a "window to the world through the robot eyes", so the elderly person sees the world through the robot's view. The internal states of the Care-O-Bot are expressed via a shape-changing mask on the tablet screen and action possibilities can be explored.



The "Squeeze Me" and "Call Me" are prototype interaction devices that enable the elderly person to attract the robot's attention, making the robot come closer in order to start a richer interaction through a squeeze action. These interaction devices enable the system to provide assistance in everyday home tasks, physical, cognitive and social, in a motivating and socially acceptable manner.

Social acceptance using context awareness

To improve users' social acceptance of the Care-O-bot, a context-aware planner for the generation of the robot's social behaviours has been developed. Current work focuses on improving the Care-o-bot's behaviour when approaching the user for interaction. The robot must adapt its approach distances and orientation, taking account of the task (e.g. activity, location, and role), the context (e.g. activity, location, preference, social situation) and context history, hence improving its social acceptance. User studies will be conducted to understand and verify participants' responses and preferences to the above.

Robot learning and adaptive Interaction

The robot will contribute to the re-ablement of the user, by assisting them to carry out daily tasks on their own, as well as encouraging a co-learner relationship, where the robot and user can learn from one another. Often the robot will provide help and assistance, however, we envisage that the robot will have to adapt to the ever changing tasks as well as needs and requirements of the

user, and therefore in return, the robot also requires help and assistance from the user.

For a robot to be more accepted in a social context, its ability to learn and recall is an important feature. Researchers are working on a "Teach me - Show me" design for a centralised database which forms the central memory hub for the robot.

This system allows non-technical persons to implement robot behaviours and form the first stage in generating autonomous behaviour in the robot.

The facility allows users and others (carers, relatives) to review the behaviours of the robot. This will benefit users by allowing them to review past events, allow exploitation of the robot by learning from previous experiences and aiding socialisation between users and carers, as well as serving as a memory prosthetic.

Environment and activity monitoring

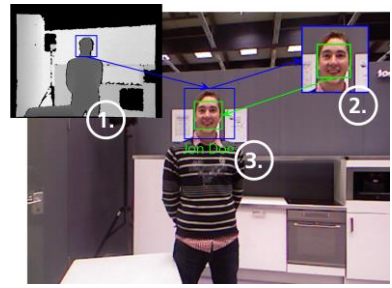
During the first and second years the team also focused on advancements in environment and activity monitoring, a very important aspect in robot assisted-living scenarios. The system incorporates multiple types of sensors, including robot on-board sensors (i.e. cameras and laser range finder on the robot) as well as the ambient sensors (i.e. cameras mounted on the ceiling and an extensive network of simple sensors such as contact, heat and temperature sensors, switches on the kitchen cabinets, pressure mats on the seats).

Data from different types of sensors are fused to ensure the state of both the objects and people are estimated accurately by the Robot.

Object recognition and categorisation

Care-O-bot needs to perceive objects in its environment in order to fulfil useful tasks and to display appropriate action possibilities on the tablet for the user.

We are working on identifying localised persons, using cameras mounted on Care-O-bot's head as they have a better perspective on people's faces.



Researchers are also working on recognising human postures as it provides frame-based evidence for probable human activities.

Acceptability

Studies were carried out on robot roles suited to independently living elderly people. Robots in different roles will be expected to display different behaviours. For instance, a coach is expected to behave differently compared with a

cleaner. In order to successfully design robot behaviours and in order to enhance acceptance of ACCOMPANY robots we investigate people's responses to robots in specific tasks and contexts. We aim to research acceptance of specific functions, roles and behaviours using longitudinal field studies.

The work currently underway is focused on the development of the experimental protocol for studies to be carried out in a smart-house (at three sites), involving elderly persons with their own informal carer and healthcare professional (called-relational triads). Data collection includes an observation system (video camera, two researchers present) and a face to face debriefing that will be both individual and collective (by triad). The expected results will inform us on how to further develop the robot into the assumed roles of a co-learner or a re-ablement coach.

Ethics

ACCOMPANY proceeds on the basis that the ethical issues raised by the use of robots, as a form of care technology in elders' homes, should be addressed as far as possible at the design stage, whilst taking into account the views of potential users.

Accordingly, care needs to be taken to ensure that the correct balance is struck between ensuring that the robot is a realistically useful and economically viable care option, and that the user retains control over his or her private information.

A series of ethical principles such as autonomy, independence, enablement, safety, privacy and social connectedness were identified, using theoretical analysis.

The project has developed a framework that allows us to identify the tension between some of these principles and to highlight these tensions in knowledge transfer activities. Our planned future user studies allow for prioritising these principles.

The consortium's long-term vision is to prevent elderly people having to go into care homes prematurely.

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