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- DFKI .... Deutsches Forschungszentrum Fuer Kuenstliche Intelligenz
- USTUTT .... Universität Stuttgart
- iTV .... Institute of Textile Technology and Process Engineering Denkendorf
- TU/e .... Technische Universiteit Eindhoven (quitted, Dec. 31, 2013)
- ETHZ .... Institute of Electronics, Wearable Computing Laboratory
- SEFAR .... Sefar AG
- Uni PASSAU .... Universität Passau
- HB .... Hoegskolan i Boras

Document History

Version	Issue Date	Author	Content and Changes
1.0	18.05.2015	Jingyuan Cheng	Initial version
1.01	26.05.2015	Jingyuan Cheng	Add chapter 4: Recomendation from EC concerning WP 6 and the efforts taken; add "Overview of partners contribution"
1.01	27.05.2015	Stefan Schneegaß	USTUTT contributions
1.02	27.05.2015	Jingyuan Cheng	Paper list updated
1.03	28.06.2015	Fernando Seoane	Added innovation and exploitation plans
1.04	28.06.2015	Jingyuan Cheng	Merge update from Uni. Passau
1.05	28.06.2015	Jingyuan Cheng	Merge update from ETHZ, reduce information on ISWC workshop
1.06	01.07.2015	Matija Varga	Proof reading
1.07	04.07.2015	Jingyuan Cheng	Final format control
2.0	01.12.2015	Ankur Mawandia	simpleskin website url update

Abstract

The main goal of dissemination is to raise awareness of the project activities in order to not only make SimpleSkin a successful and sustainable project, but to push the core idea of SimpleSkin to broader circle, to bring more manufactures and developers to the field of cheap smart textile. This will be carried by using various communication channels and materials, but also by face to face information, conferences and workshops.

This document describes the _dissemination and communication_ activities that have been promoted during the second 12 months of its activity, i.e_. Jul 2014- Jun 2015_.

The purpose of this document is to formalize all communication and dissemination actions planned in the framework of the project, to provide guidelines on the approach and to set out planned events and actions, to ensure that information is shared with appropriate audiences on a timely basis and by the most effective mean.

Please refer to Deliverable D6.1 for the dissemination activities in the first year.

Table of Content

1 Executive Summary

SimpleSkin pursues an active dissemination and exploitation strategy targeting scientific, industrial, and general public audiences. The dissemination consists of an actively updated web site, a strong publication effort, participation in and organization of workshops and demos, presentation of the concepts on tradeshows (e.g. CEBIT). On the exploitation side we have successfully leveraged industry connection of the partners to generate significant interest (including financial commitment to follow up projects).

In the 2nd year of SimpleSkin project in the area of dissemination and exploitation, we achieved the following:

• 1 industry project started and long-term partnership built with industry partner,
• following proposals together with other Uni. and institutes in plan
• website and repository updated for sharing information and data setup,
• 13scientific papers published,
• various dissemination tasks to broader audience: talks; scientific visits,conferences, workshops,demo at expo and etc.,
• set of ethical documentaiton and experiment workflow created,well established rules followed in experiments to secure subjects health and privacy.

Table 1. Overview of partners contribution in 2nd project year

WP 6 tasks	DFKI (leading)	USTUTT	iTV	ETHZ	SEFAR	Uni. PASSAU	HB
Website	Content managing and server maintenance	Content contribution	/	/	/	Content contribution	/
Ethics	Create ethics documentation	Form up Ethical Board, follow ethical guide in experiments	Not applicable	Follow ethical guide in experiments	Not applicable	Follow ethical guide in experiments	Follow ethical guide in experiments
Industry projects and long-term partnership	Manage 1 industry project, build up 1 long-term partnership	/	/	/	Support industry project with textile material	/	/

Demos	Stand at Cebit 2015, presentation at WT conference, participate in Girls' Day program	/	/	/	Support with textile material	/	/
Initial contact with industry partners	2	/	/	/	/	2	/
Spin-off	1 spin-off in preparation phase	/	/	/	/	/	/
Organizing conference	/	Workshop at MobileHCI 2015	/	Co-organize BSN 2014	/	Co-organize BSN 2014	/
Follow-up projects	1 BMBF proposal under review	/	/	/	/	/	/
Theses written	1 master thesis	1 diploma thesis	/	1 semester thesis	/	/	/

2 Project Overview

SimpleSkin project propose a fundamentally new approach for creating smart textiles and functional garments. The basic idea is to separate sensing textile production, garment manufacturing, the hardware platform, and the software implementation by well-defined abstractions and interfaces. A major innovation is the development of a mass-producible generic sensing fabric, which will allow capacitive, resistive or inductive modes, to measure movement, electrical body signals, activities, and change in body capacity. The sensor density and intelligent signal processing will compensate the simplicity of single sensors. Based on these fabrics "sensing ready" garments can be produced, that are with respect to their properties, looks, production process and price virtually undistinguishable from today's standard garments. We expect that in the long term this will lead to functional clothes becoming the default, much like today smart, sensor-enabled phones have become the mainstream. The "sensor ready" garments become part of a wearable computing system, by adding hardware, that allows self-organizing, dynamic and adaptive processing of input signals converting the specific garment into a general wearable sensor with a dedicated high-level sensing interface. By these means we create an abstraction layer and platform on which application developers can create wearable sensing application, than are independent of the actual hardware they run on. For example, this will allow an application developer to create a sports monitoring application, that includes body posture, movement, and heard rate, which can be deployed to any available "sensing ready" shirt. This will empower a larger number of potential developers to contribute their creativity. The approach taken in SimpleSkin has great potential to build up the foundation for a new era in smart clothing. It aims at moving personal wearable monitoring from a niche topic into major industry with the potential of revolutionizing what we wear.

3 Goals of D6.2

The dissemination and exploitation activities in the SimpleSkin project are carried out within WorkPackage (WP6): Dissemination and Impact.

The Objective, as defined in the DOW, are the following:

- To disseminate the results of the project;
- To maintain the project web-site;
- To participate in EC-level concertation activities;
- To pro-actively monitor health risks and ethical issues as arising in the other WPs.

The plan to these objective will be discussed in detail in chapter 4-7.

4 Handling EC recommendations for WP6

In the Technical Review Report for the first project year, there are 7 recommendations given to WP1-4 and WP6-7, out of which 3 are connected to WP6, the effort taken is reported as below.

Recommendation 1 (all WPs): The overall quality of deliverables for the next period needs to be improved, The deliverables need to be comprehensive about the work described and partner contributions, including references to published papers for details. Deliverables' contributors and quality control procedures should also be clarified.

The following measures were taken:

- **Consistent presentation across all work packages:** We discussed and created the overall structure of all deliverables at project meeting on Mar. 4th 2015, which all partners agree on and is shared on the internal repository. The draft versions of all deliverables were created before the project meeting on Jun. 11-12 and uploaded by the leading partner of each work package to the repository. The project coordinator performed the initial technical quality control across all work packages. The draft version was discussed during the project meeting and a guideline for changes was documented and uploaded to the repository. The project coordinator conducts further improvements and final technical quality control.

- **Comprehensive work description and partner contributions:** Within the "Executive Summary" at the beginning of each deliverable, we added a subsection that describes specific partner contributions in addition to the technical summary.

- **References to published papers:** An appendix of all published papers are created, including the paper list and full content of all papers. In the paper list, the partners that contribute to each paper are listed, the link of the paper to the work packages are also given. For consistency, this appendix is included in all the deliverables.

- **Deliverables' contributors and quality control procedures:** More details are given in the "Document History" at the beginning of each deliverable. Proof reading was carried out both by multiple project partners and externally, both during and after the technical content quality control. A separate chapter "Handling EC Recommendations concerning WP x" is added to every deliverable, the measurestaken by each partner in each WP and the cooperation relationship among partners are listed in corresponding deliverables and summarrized in the periodic report.

Recommendation 6 (WP6): Exploitation plans need to consider other exploitation routes (e.g. technology transfer, start-ups). Exploitation of use cases should be considered.

We have been seeking possibilities in both technology transfer and start-ups. The initial attempt is to transfer technology to car industry, both the project with Volkswagen and Johnson Control are meant to prompt smart textile technology in the general background of smart vehicle. For SimpleSkin project, this is a first step towards transferring technology created in SimpleSkin to car industry. Initial contacts with industry partners are built through direct communication at Expos and conferences, SimpleSkin website. The project coordinator also actively response to the Lean LaunchPad Pilot Initiative, launched by the EC for European start-up entrepreneurs and researchers in the ICT domain. Details are reported in chapter 7.

To increase the chances for exploitation, the consortium has decided to perform patentability searches for those items that we see that are functional successful and have a realistic industrial applications. Such patentability searches will be done by the partners themselves or using the services of the technology transfer offices at the partners universities. The result of this patentability search will provide us with the starting point regarding protection and potential exploitation.

In addition, those results that exhibit high levels of innovation will be shown in innovation and trade shows, once their protection has been ensured.

Recommendation 7 (WP6, WP7): _For the next reporting period more evidence of the activity of the Ethical Board (EB) should be provided. Also, quality of control of the WP deliverables needs to be enforced._

Ethical documents created, shared between partners and uploaded to website, also attached as Appendix. For quality control please refer to Recommendation 1.

5 Target Audiences

SimpleSkin is supported by EU FP7 under theme ICT (challenging current thinking), covering a range of research topics, including Wearable Computing, Ubiquitous Computing, Human Computer Interface and etc. Our target audiences include:

- Research Communities:
  The scientific research partners are leading research groups in the field of Wearable Computing, Ubiquitous Computing, Social Interactive System, Cyber-physical System, Human Computer Interface and etc. Each partner will make full benefit of its existing research circles to promote the result of SimpleSkin project. We will enhance the project also by introducing it to researchers in the related field, e.g. robotics, control theory, network, and form cooperation with them.
- EU Commission:
  We will disseminate the relevant resultto the commission. ICT is important since our work will stimulate additional fundamental questions.
- Companies:
  In the long term we imagine that the technologies developed in SimpleSkin will help textile companies and fashion companies as we see smart textile in the further as a default for clothes on body and in environment. In early part of the project we aim at the companies thatare using conventionaltextile in their products and which can benefits from replacing them with the smart textile we built.
  - *Upstream companies*: covering raw material producers (special functional yarns,woven/non-woven fabric), processing companies (weaving, knitting technics), and fashion designers.
  - *Downstream companies*: companies that use conventional textile can benefit from SimpleSkin result by replacing normal textile with smart textile. The result could be pervasive interaction, physiological monitoring and activity recogniton. These includes sport, healthcare, lifestyleorcar manufactures.
  - *Software Tool and Component Makers*: this group will be an important route for dissemination later in the project when tools and techniques are more mature andwhen the Garment OS and corresponding API's are developed.
- Practitioners:
  The SimpleSkin Consortium members have already connections to hospitals, sports and fashion designers. We will start at the later stage to broadcast information to them.
- General Public:
  Here we are aiming at a "public understanding" audience that presents scenarios and illustrates the utility of the concepts. This should focus on the potentially transformational impact of smart textile technologies and on the broader issue of the ethics and the care that needs to be taken to ensure responsible innovation, ethical implementation and sustainable transformation around the way work is carried out in complex organisations. We will demonstrate through website, open-door-day, scientific actions city-wise and country-wise.In the second year, our main focus was to develop academic, policy and consultancy awareness of the

SimpleSkin approach and networking for further cooperation utilizing result from SimpleSkin. In particular how hybridity, compositionality and diversity-awareness extend the range of application of general smart textile ideas.

6 Online Presentation

The foundation of SimpleSkin website was set up in the first year and has been constantly updated in the second year. The main focus was to make project information open to the public.The following content has been updated:

- *List of papers published within SimpleSkin*, which provides an overview on the latest development.(http://simpleskin.org/?publications)
- *Student theses*, including both bachelor and master theses (currently 4 finished), the title, author, abstract are provided, a link to the full thesisin e-format is given if applicable.(http://simpleskin.org/?studentthesis)
- *News Coverage*,reports from various TV channels and newspapers, links and short descriptions are provided. (http://simpleskin.org/?presscoverage)
- *Ethics documentation*, which we use for experiments and also provide as a template for the public (http://simpleskin.org/?ethics)
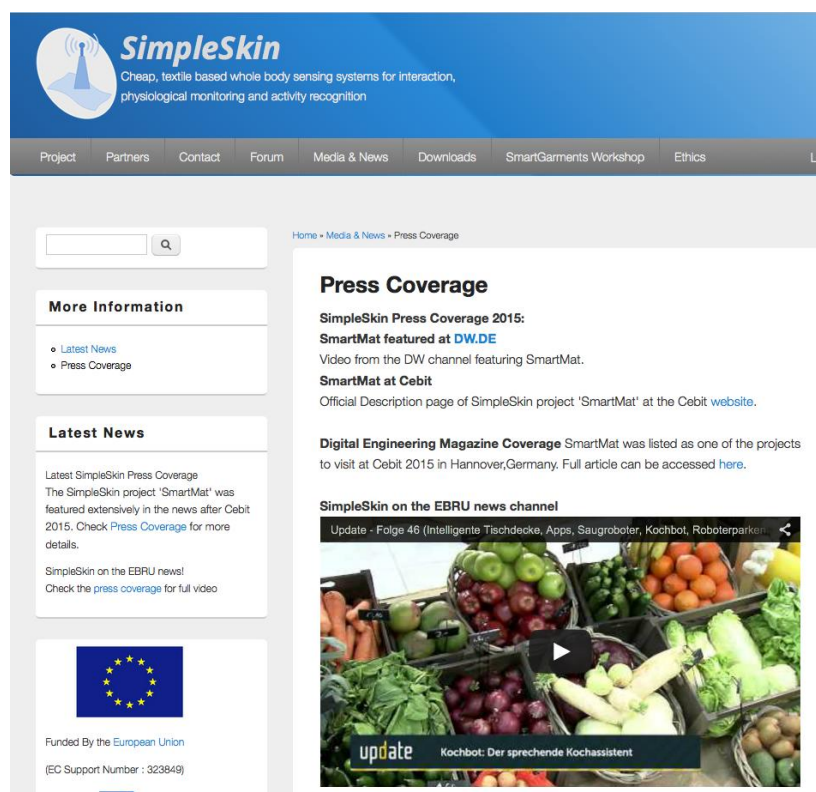

Figure 1: SimpleSkin Press Coverage on its Official Website

D6.1 Dissemination and exploitation plan is uploaded and available to general public, as defined in the DOW and requested by the EC. D6.2 and D7.1 will be uploaded after the approval of content fromEC.

Theinternal SVN repository isconstantly updated for sharing information like project meeting protocols, data set, technical documents, deliverables, reports and feedback

A videoisuploaded to YouTube for demonstration ofSmartMat developed in the project.[1]SimpleSkin website was influenced by Drupal 7 hack in October 2015 when almost all Drupal 7 based websites were compromised due to a major security leak present in Drupal itself. (Drupal is the open source content management system, on which SimpleSkin website and corresponding workshop/symposium pages are based, more details of this hacking can be found at https://www.drupal.org/PSA-2014-003.

The effect on the SimpleSkin website was the following:

1) Creation of two unknown user accounts.
2) Two pages were modified with the addition of hidden links to adware websites.

To remove backdoors, the user accounts and all illicit content have been deleted. Addition of PHP content onto any page has been disallowed.

To prevent any further hacks onto the website, the complete SimpleSkin websiteis being transferred from Drupal into a standard LAMP stack, with minimum and safe use of PHP and MySQL since most content on the website is static. User accounts will alsobe disallowed and all updates to the website will be possible only from within DFKI.

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[1]. https://www.youtube.com/watch?v=OXPHZAM5TCM

7 Dissemination and Exploitation

Duringthe 2nd year,dissemination activities go on further, including industry project and prepared project utilizing SimpleSkin results. The efforts are listed below.

One industry project and *one long-term partnership*

1) Industry project with RECARO GmbH & Co. KG (03-12.2015): Where the major technologies are taken from SimpleSkin.They are further developed, combined with other technologies and implemented into the concrete form of an intelligent truckseat, including 2 sensing modalities and 1 feedback modality, developed within SimpleSkin: resistive pressure mat for seating postures and activities monitoring, resistive pressure mat for gesture input, capacitive sensing mat for breath monitoring. The project is also meant to prompt the idea of utilizing smart textile in future vehicles.
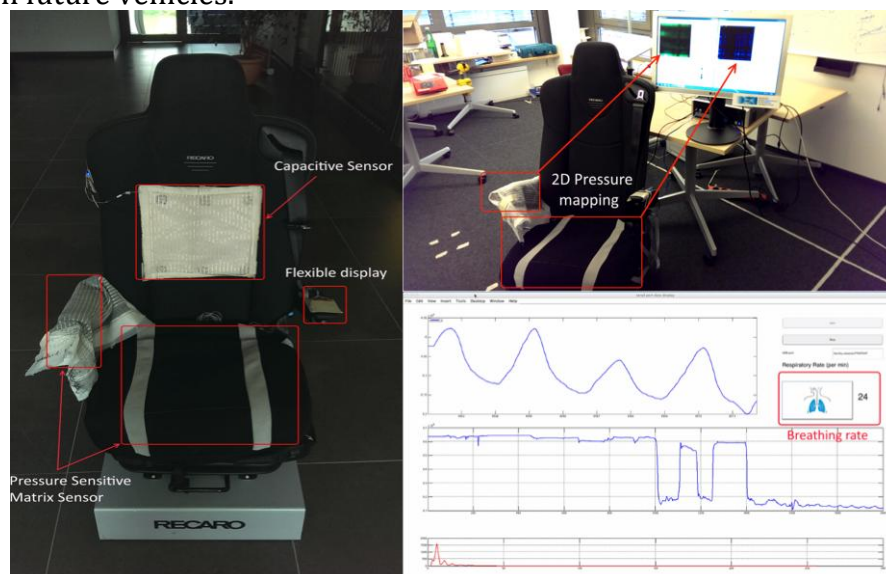

Figure 2 Truck Seat Demo developed for RECARO Aiming at Technology Transfer

2) Long-term partnership with DataLab Volkswagen: the cooperation between DFKI and DataLab Volkswagen starts from industry project "Sensors for car seat" (05-12.2014), which is a direct result from SimpleSkin project. The long-term partnership was fixed in Jan. 2015. The innovation IT-solutions of "Big Data" and "Internet of Things" are to be developed with this close cooperative partnership. Details here:
http://www.dfki.de/web/presse/pressemitteilungen_intern/2015/neue-ideen-fur-intelligente-mobilitat-2013-dfki-ist-partner-des-volkswagen-data-lab

Demos to general public and media coverage

DFKI has demonstrated smart textile developed within SimpleSkin as SmartMat for sport at Cebit, the world's largest and most international computer expo, in March 2015 and got covered by both local and international media. The stand was visited by general public and also various German state or federal politicians, including: Thomas Deufel, the German State Secretary on 17.03.2015; Malu Dreyer, the Rhineland-Palatinate Federal Prime Minister on 17.03.2015,Wolfgang

Tiefensee, the Thuringia Federal Minister of Economy, Science and Digital Society on 19.03.2015.
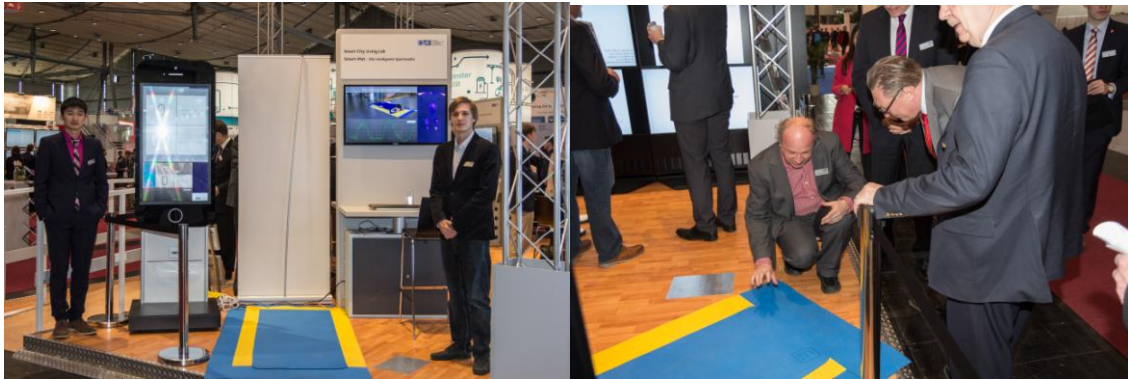
Figure3: SmartMat presented at Cebit 2015 by DFKI
and visited by German State Secretary Prof. Dr. Thomas Deufel

The SmartMat is covered by various local and international media, including: Deutsche Welle andRhein-Zeitung.The full list can be found on http://simpleskin.org/?presscoverage.

The SimpleSkin project was also presented by DFKI at 14thWearable Technologies Conference 2015 on Feb. 2-3, 2015 in Munich, Germany and to the schoolgirls on 20.05.2015 in Kaiserslautern, Germany, within the framework of Girl's Day, funded by the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth, the German Federal Ministry of Education and Research, aiming at opening positive future prospects for girls (http://www.girls-day.de/english).

We are planningfuture demos at the next Cebit, Wearable Computing Center at DFKI and traveling wearable computing exhibition in Europe.

Initial contacts with industry partners

From the contacts in the first and second year, 2 industry projects came into beings, currently we are in contact with the following companies:

company	Company description	cooperation intention	Current status
Vitra AG, switzerland	Designer and manufacturer of contemporary furnishings for home or commercial use	Develop smart furniture which is able to sense body conditions and act as a user interface for different devices	Initial email communication

Össur UK, Iceland	Development, production, and sale of non-invasive orthopedics	Fine pressure distribution matrix in lower-limb prosthetic products for prosthesis installation and long-term monitoring	1st telephone meeting
German local sensor company	/	Miniature tilt sensing.	Several cross-visits at the company and Uni Passau have been made. A joint publication is under preparation
Bosch Sensortec	Mem Sensors and Solutions	Pattern recognition of on-body sensor data	Bosch visited Uni Passau, further communication via e-mail ongoing

Efforts towards a spin-off company:

> The development of the SmartMat, presented at Cebit, heads towards the personalized training/sport market from the very beginning. The prototype already supports on-line gym exercises recognition, performance evalutaion and live feedback on smartphone and GoogleGlass. At Cebit 2015 the most frequent question we received is whether the SmartMat is a prototype or a product, and how much it costs. We are currently considering a spin-off to commercialize the SmartMat and hence take active part in the Lean Launchpad program, provided by EC for FET projects.

Joint organization of conference, symposium, workshop within the consortiumand with other universities or research institutes.

> Uni. Passau coorganized with ETHZ the conference BSN 2014 and served as technical program chair, this event provided a platform to present on-body textile technology and applications.

> USTUTTisorganizing a workshop on enriching mobile input with wearable devices in August 2015. In this workshop we strive to generate further use cases and discuss with experts for mobile interaction the possibilities to use smart garments and other wearable devices on a daily basis. The workshop will be held at the MobileHCI conference that is the main event for researchers working on new interaction methods for mobile devices.

> USTUTT, DFKI and Uni. Passauorganized a workshop on Smart Garments at the International Symposium on Wearable Computing 2014 (held within the 2nd project year but reported already in D4.1 and D6.1).

ThirteenPapers published/accepted

We published in the second project year13papers at well-known peer reviewedjournals / conferences/workshops, with SimpleSkin acknowledged:"This work was supported by the collaborative project SimpleSkin under contract with the European Commission (#323849) in the FP7 FET Open framework. The support is gratefully acknowledged." Some papers that are published during this period were reported in the first year as "accepted" ,"under review"or "to be submitted". Those papers were excluded from here.

Index	Document	Category J: journal, P: conference proceedings; R: internal report	Contribute to WP	Partners or *external research units*	Page Nr.
	2014 (from Jul. to Dec., without those reported in the first year as "accepted")				
CCL2014	Cheng J, Chen X, Lukowicz P. Towards Coexistence of Human and Robot: How Ubiquitous Computing Can Contribute?, 3rd International Conference on Robot Intelligence Technology and Applications (RiTA2014)	P	2,5	DFKI, *University of Science and Technology of China*	37-43
CSH2014	Cheng, J., Sundholm, M., Hirsch, M., Zhou, B., Palacio, S., Lukowicz, P., Application Exploring of Ubiquitous Pressure Sensitive Matrix as Input Resource for Home-Service Robots, 3rd International Conference on Robot Intelligence Technology and Applications (RiTA2014)	P	2,3,5	DFKI	48-60
WCZ2014	Wang, B., Cheng,J., Zhou, B., Zhang,M., Amiraslanov, O., Lukowicz, P., Presentation Evaluation Based on Audience's Activity Recognition with Ubiquitous Smart-Chairs, submitted to: 11th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services(Mobiquitous-14)	P	2,3,5	DFKI	123-126
	2015 (till Jun. 30th)				
AHM2015	Abdelrahman, Y.; Hassib, M.; Marquez, M. G.; Funk, M. & Schmidt, A. (2015), Implicit Engagement Detection for Interactive Museums Using Brain-Computer Interfaces, in 'Adjunct Proceedings of MobileHCI'.	P	5	USTUTT	139-146
MAS2015	Hassib, M., Schneegass, S., Brain Computer Interfaces for Mobile Interaction: Opportunities and Challenges, Workshop on From Mobile to Wearables , MobileHCI 2015 (accepted)	P	5	USTUTT	147-150
MVGT2015	Andreas Mehmann, Matija Varga, Karl Gönner, Gerhard Tröster, A ball-grid-array-like electronics-to-textile pocket connector for wearable electronics, International Symposium	P	1	ETHZ, ITV	151-

	on Wearable Computers (ISWC2015)				154
PDS2015	Pfeiffer, M.; Dünte, T.; Schneegass, S.; Alt, F. & Rohs, M. (2015), Cruise Control for Pedestrians: Controlling Walking Direction using Electrical Muscle Stimulation, in ACM, ed., 'Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (to be published)', ACM, New York, NY, USA.	P	5	USTUTT, *Univ. Hannover, LMU Munich*	155-164
SCH2015	Schneegass, S. (2015), There is more to Interaction with Public Displays than Kinect: Using Wearables to Interact with Public Displays, in 'Proceedings PerDis'.	P	5	USTUTT	165-166
SEO2015	Fernando Seoane, Test Report: Bioimpedance Measurements and Electrode Polarization Impedance of SimpleSkin Fabrics	R	1,2	HB	167-175
SMO2015	Schneegass, S.; Mayer, S.; Olsson, T. & Laerhoven, K. V. (2015), From Mobile to Wearable – Using Wearable Devices to Enrich Mobile Interaction, in 'Adjunct Proceedings MobileHCI'.	P	5	USTUTT, *Tampere Univ. , Univ. Freiburg*	176-179
VMV2015	Varga, M., Muenzenrieder N., Vogt Christian, Troester G., Programmable e-textile composite circuit, IEEE Electronic Components Technology Conference (ECTC2015)	P	1,2,3	ETHZ	180-186
ZCL2015	Zhou,B., Cheng,J., Lukowicz. P., Monitoring dietary behavior with a pressure sensitive smart dining tablet, IEEE Pervasive Computing, Special Issue-Smart Food: Between Farm and Fork, accepted	J	2,3,4,5	DFKI, Uni. PASSAU	187-202
ZCS2015	Zhou, B., Cheng, J., Sundholm, M., and etc, Smart Table Surface: A Novel Approach to Pervasive Dining Monitoring, IEEE International Conference on Pervasive Computing and Communications (PerCom-15)	P	2,3,4,5	DFKI, Uni. PASSAU	203-210
	To be submitted 2015 (by Jun. 30th)				
HKSXXX	Hassib, M.; Khamis, M.; Schneegas, S.; Sahami, A. & Alt, F. (XXXX), Design Recommendations and Applications for Bio-sensing and Affective Wearables, 'to be decided'.	tbd	5	USTUTT, *LMU Munich, Yahoo Research*	211-218
SHRXXX	Schneegass, S.; Hassib, M.; Reis, A.; Wolf, K.; Cheng, J.; Lukowicz, P. & Schmidt, A. (XXXX), Gestures for One-handed Smart Watch Interaction, 'to be decided'.	tbd	4,5	USTUTT, Uni. PASSAU, DFKI	219-226
SHZ2015	Schneegass, S.; Hassib, M.; Zhou, B.; Cheng, J.; Seoane, F.; Amft, O.; Lukowicz, P. & Schmidt, A. (2015), SimpleSkin: Towards Multipurpose Smart Garments, submitted to 'Adjunct Proceedings ISWC'.	P	4,5	USTUTT, DFKI, HB, Uni. PASSAU	227-230

Scientific visits to and from other groups aiming at promoting SimpleSkin.

> Prof. Dr.-Ing. Wolfgang Maaß and his Ph.D. Candidates from Saarland University visited DFKI on Jan. 9th, 2015 concerning wearable sensing technology.

> Scientific staff of Bosch Sensortec visited Uni Passau and gave a talk on current sensor technology developments.

Follow-up projects under preparation

> DFKI is involved in preparation of a project proposal (German Federal Ministry of Education and Research, call on "Medical Technology Solutions for Digital Healthcare",www.bmbf.de/foerderungen/25233.php), where the capacitive sensing developed in SimpleSkin will be specialized and further developed into a textile neckband for swallow diagnose for stroke patients.Together with 5 other partners, the project aims at commercializing the technology into healthcare field.

Lectures for the students and theses written

> The Univ. partners, namely Uni. Passau, Uni. Stuttgart, Uni. Boras, ETHZ and DFKI, are all holding bachelor and master courses, demos are shown in the lectures and students are invited to the labs.

> Uni. Passau created two bachelor and master student seminars on information extraction from fabric materials. A new master-level course on wearable and implantable computing is under preparation for the Mobile and Embedded Systems curriculum and the Intelligent Technical Systems specialisation of the Computer Science curriculum.

> Several bachelor/master theses have been finished.

1) Tobias Birmili, Development of an Architecture for the Operating System of Smart Clothing (Diploma Thesis), supervised by STUTT
2) Orkhan Amiraslanov, Electroluminescent Based Flexible Screen (master thesis), supervised by DFKI
3) Seminar and practical course dedicated to SimpleSkin (StuPro, USTUTT)
4) 90 minutes lecture on Wearable Computing including the presentation of different SimpleSkin technologies to the students (USTUTT)
5) Currently 2 diploma and 4 bachelor thesis supervised with SimpleSkin related topics (USTUTT)
6) Irmandy Wicaksono, Analog Front-end Design for Simultaneous Signal Acquisition of Multi-modal Textile-sensors (ETHZ)

8 Ethical Issues

We have followed the practical framework for Ethics of pd-net (http://pd-net.org/ethics/), a FP7 project where Uni. Stuttgart participated, as discussed and decided in the project meetings of the 1st year. The following templates were created and can be found *in Appendix II*.

- Procedures for Volunteer Studies
- Procedures for Public Trials
- SimpleSkin Ethics Primer
- SimpleSkin Ethical Worksheet
- SimpleSkin Project Overview (to be handed out to experiment volunteers)
- Informed Consent
- Guide to Secure Data Storage

Subjects are recruited from student population, who operated the experiment. No subject was forced into the experiment nor any negative result came or was foreseen from not taking part in the experiment. Before each experiment, the content, duration and the goal of the experiment were explained to the subject. During the whole experiment time, an experiment supervisor (normally the student or employee who designed the experiment or a well-trained 3rd person), who would stop the experiment as soon as the subject reports any intent to quit the experiment. After experiment, feedback were taken from the subjects to see if there is any discomfort.No data are made public, there are reserved only in the consortium and we ensured no identity information is published, except demonstrating pictures about the outlook of the system/experiment after full agreement from the subject, which is in the picture.

For sharing data internally between partners, anSVN repository is set up at DFKI, which is accessible to consortium member only.