Project FoSIBLE
Fostering Social Interactions for a Better Life of the Elderly

D7.2 – Test Results (in the form of problems to be solved in update packs)

Responsible

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Deliverable

D7.2 – Test Results (in the form of problems to be solved in update packs)

Dissemination level: (PU, PP, RE, CO): PU

Abstract

This deliverable is part of WP7 which is dedicated to the practical evaluation of the FoSIBLE system. The focus is on long time usability and user experience aspects and the interaction functions of the developed software and hardware. This version is the first one, and additional versions will be delivered until M41 according to the iterations of the system. The aim is to track all the problems identified during the tests, and the solutions given by the technical partners. This version is written just before the start of the field evaluation. It does then focus on the results of the tests that were performed to insure a good roll-out. These tests concerned the widget and the UCOS Sensor for gesture recognition. For the widget, we describe the iterative process among the partners, for the sensor, we describe the tests that were conducted in the lab and the related conclusions in terms of user acceptance. This deliverable also includes the methodological framework for the field evaluation and the related tools to support technology appropriation and data collection with end-users in their home environment.

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1. Introduction

1.1 Background and Related Tasks

This deliverable is part of WP7 which is dedicated to the practical evaluation of the FoSIBLE system. The objective of this WP is to test the system in home environments with members of the target group. The focus is on long term usability and user experience aspects and the interaction functions of the developed software and hardware.

The evaluation of the FoSIBLE system has different objectives. First, we want to receive user feedback to be able to deliver the product optimally supporting the user needs. In addition, we aim to understand why end-users like or dislike some of the features, to broaden the scope of results. It will permit to understand the acceptability of this kind of AAL product. Finally, we would like to understand how social interactions are taking place to understand the key factors of this kind of product. These objectives are represented by the following list of goals of the evaluation phase (WP7):

1. Update integrated scenarios (improvements from the user experience feedback)
2. Study the evolution of the perception of the FoSIBLE platform to learn about the acceptability as well as the evolution of the usage experiences during the time
3. Analyze the social interaction with the tool:
    a. Describe the social interactions with the platform (how are the exchanges in the system, e.g. forum and chat, realized)
    b. Evaluate the quality of exchanges

WP7 consists of six tasks. This deliverable is mainly related to three of them: task 7.2: Development of methodological framework for the Living Lab tests, task 7.3: Installation of hardware and software in home environments, and task 7.4: Living lab testing of applications and hardware prototypes.

1.2 Scope of this Deliverable

It is planned to have different versions of this deliverable between M34 and M41 according to the iterations of the system. The aim is to track all the problems identified during the tests, and the solutions given by the technical partners.

This first version of this deliverable is written just before the start of the field evaluation, including the following sections:

1. Test results related to installations in home environments
    a. Related to the widget
    b. Related to the UCOS sensor (gesture recognition)
2. The methodological framework for the field evaluation and the related tools to support technology appropriation and data collection

2. Test Results Related to Installation in Home Environments

2.1 Testing the Widget

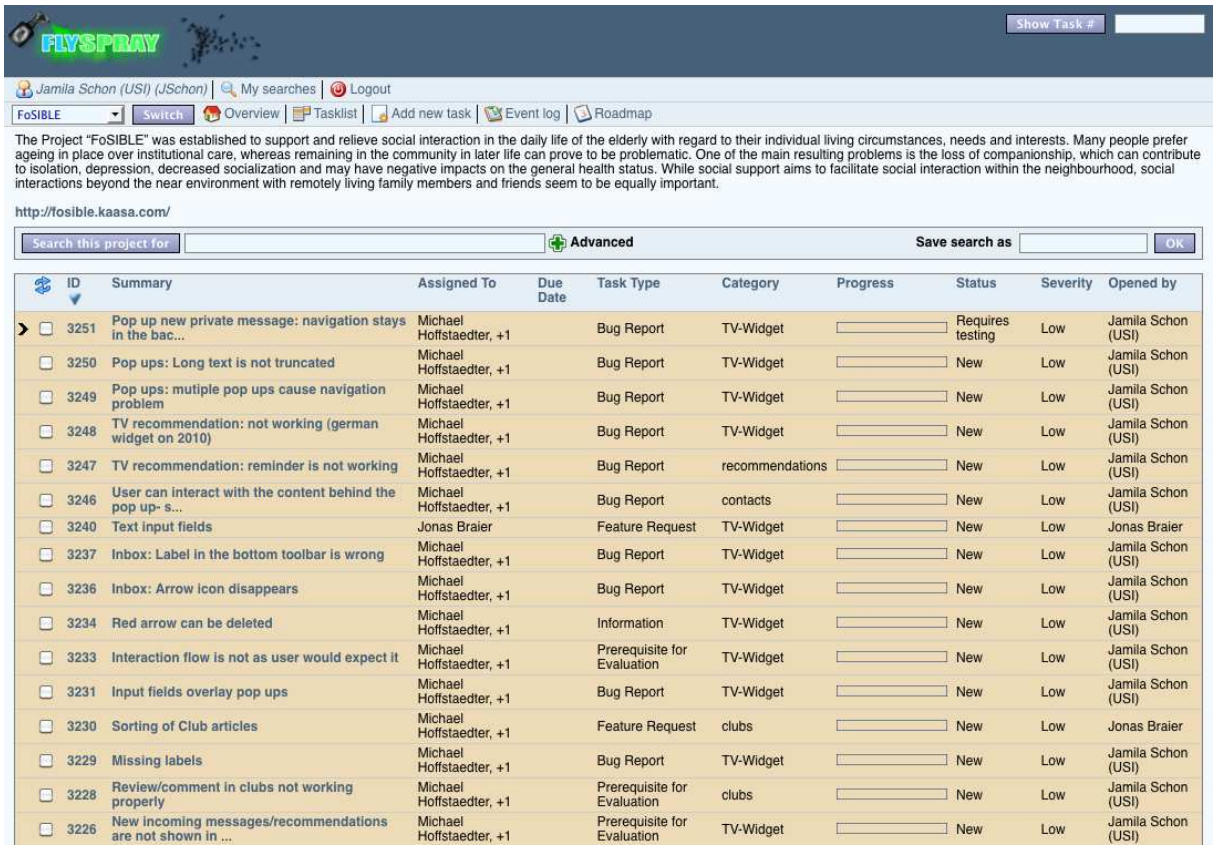
2.1.1 Goals of the testing

The goal of testing the widget before the installation in the home environment is to guarantee a running and usable system, which meets the user expectations and delivers an adequate user experience. To achieve this goal we conducted several expert testing sessions each time a new version was sent by the development partners and maintained a continuous communication between the development partners and the living lab partners.

2.1.2 The Use of a Bug tracking System

During the development of the prototype for the real environment tests, all consortium partners used the Bug Tracking System "FlySpray" to collect bugs, feature requests and general feedback while testing the prototype before the empirical work started (Figure 1). Feedbacks are related to main usability problems and especially to check if the developed widget meets the proposed functionalities, which were specified by analysing the end-users' needs, before the evaluation starts at home.

To keep track of the reported feedback, every reported entry in "Flyspray" is saved with a unique ID, the person in charge, a severity and priority level, a description and the option to attach an image. If a reported entry is solved, whether a bug or a feature request the person in charge is changed to one of the other partners to inform him/her that this issue is ready to be tested in order to verify if the reported entry is really solved in an acceptable manner. With "Flyspray" it is also possible to leave comments on reported issues which enable the possibility to clarify questions or to add further information to an already reported issue. "Flyspray" offers also the possibility to send notifications whenever a task was changed by someone in order to maintain a continuous communication in a timely manner between task owners, task creator or someone who commented on a task.



ID	Summary	Assigned To	Due Date	Task Type	Category	Progress	Status	Severity	Opened by
3251	Pop up new private message: navigation stays in the bac...	Michael Hoffstaedter, +1		Bug Report	TV-Widget		Requires testing	Low	Jamila Schon (USI)
3250	Pop ups: Long text is not truncated	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3249	Pop ups: mutiple pop ups cause navigation problem	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3248	TV recommendation: not working (german widget on 2010)	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3247	TV recommendation: reminder is not working	Michael Hoffstaedter, +1		Bug Report	recommendations		New	Low	Jamila Schon (USI)
3246	User can interact with the content behind the pop up- s...	Michael Hoffstaedter, +1		Bug Report	contacts		New	Low	Jamila Schon (USI)
3240	Text input fields	Jonas Braier		Feature Request	TV-Widget		New	Low	Jonas Braier
3237	Inbox: Label in the bottom toolbar is wrong	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3236	Inbox: Arrow icon disappears	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3234	Red arrow can be deleted	Michael Hoffstaedter, +1		Information	TV-Widget		New	Low	Jamila Schon (USI)
3233	Interaction flow is not as user would expect it	Michael Hoffstaedter, +1		Prerequisite for Evaluation	TV-Widget		New	Low	Jamila Schon (USI)
3231	Input fields overlay pop ups	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3230	Sorting of Club articles	Michael Hoffstaedter, +1		Feature Request	clubs		New	Low	Jonas Braier
3229	Missing labels	Michael Hoffstaedter, +1		Bug Report	TV-Widget		New	Low	Jamila Schon (USI)
3228	Review/comment in clubs not working properly	Michael Hoffstaedter, +1		Prerequisite for Evaluation	clubs		New	Low	Jamila Schon (USI)
3226	New incoming messages/recommendations are not shown in ...	Michael Hoffstaedter, +1		Prerequisite for Evaluation	TV-Widget		New	Low	Jamila Schon (USI)

Figure 1: The FlySpray Bug Tracking System

The reported bugs and feature requests where solved and tested in a continuous manner. To co-operate closely with each other in order to avoid duplication of work within "Flyspray" (like reporting bugs twice which had been already reported), the partners USI and UTT regularly tested the widget together via several teleconferences.

The main related issues discussed on "FlySpray" which are being resolved are:

- General issues:
  - The possibility to enable/disable certain features in the widget that are not needed by some partners and if it will be possible to have different versions in the future for all requested features. few can quote for instance the idea to have the "VitalData" module as an option. As it was not possible to test it in all the countries, it is replaced by the "StayInTouch" module which was described on the first mockups for allowing users to send asynchronous messages (it could be like a mail box, or a space dedicated for that).
  - Translation of the interface in French and German.
- Ergonomic issues
  - Interface and interaction consistencies.
  - Feedback messages:
    - Messages which inform the user about a successful interaction, like adding or deleting a contact, as well as sending a message or recommendation to a contact.

- ▪ Messaged which ask the user to use the tablet as an input device (to write a comment in a club for instance).
  - o Very long messages are not truncated. The letters were either overlaying itself or were displayed outside the text field.
- Performance and technical issues
  - o Being able to send messages to offline contacts (and not only those who are online)
  - o Problems related to the compatibility between the different versions of the TV models.
  - o Problems within the interaction and communication between the TV widget and tablet, like using the tablet to control the TV.
  - o Bugs which cause the system to crash or which hinder the automatically update of new messages to the channel chat

2.1.3 Prioritization of Work

With the number of reported issues within “Flyspray” the complexity to keep track of the most important ones, which are really necessary for starting the evaluation at the home of the participants, increased. Furthermore, the partners used different kind of TV sets which lead to different test results. In order to maintain an overview over the most important issues and to ensure the smooth start of evaluation at the home of participants, the reported problems were prioritized. The resulting list of problems and suggestions helped to keep track of the platform improvements.

Therefore we introduced an excel sheet to collect and structure all issues reported in “Flyspray” and added dedicated columns for every partner to add their test results. Within this excel list we structured every issue as either bug or feature request and prioritized every issue on a scale from 1 to 5, whereas 1 stands for the highest priority. The excel sheet was not a replacement of “Flyspray” it was more an additional way to keep track of every issue and their actual status (Figure 2). After receiving a new version on the widget prototype the partners used the excel sheet to mark solved and unsolved issues. The issues that were marked as solved from all partners were also marked in “Flyspray” as solved to keep track of all solved and still open issues.

FoSIBLE Widget									
	Feature Requests	Prio	Comments UTT	Bugs	Prio	Comment / Question Kaasa	Comments UTT	Comments UDE	Comments USI
Login	FS#3125 - Hide entered password with ***	4			1				
	FS#3212 - There should be one login for the whole session - no matter if you are using tablet or the smart TV widget. At the moment several logins on both devices are necessary within one session.	3							
	Feature Requests	Prio		Bugs	Prio	Comment / Question Kaasa	Comments UTT	Comments UDE	Comments USI
Clubs	FS#3164 - It is not possible to create a new club and/or invite others - please provide this functionality.	2							
	FS#3230 - The Club Articles should be sorted (newest first)always	2		FS#3166 - You can't add Themes or discussions with the tablet. The user input isn't displayed. Jamila: Is this like FS#3228?	1	have to contact Mario	Not fixed	still not working	still not working
	FS#3137 - Add Date/ Time stamp to comments in Clubs (without seconds)	3		FS#3228 - "Add comment" should be disabled when there is no content to comment on	1	Fixed on our side Please check with latest widget	Not fixed		
	FS#3145 – Inconsistency in the menubar (the transparent buttons should be invisible like in the other windows)	2							

Figure 2: The use of an Excel Sheet to prioritize the work

The high prioritized issues are related to the following elements:

- Program recommendation
- Message sending
- Ergonomic guidelines

2.2 Testing the UCOS sensor (gesture recognition)

2.2.1 Goals of the evaluation

The evaluation of the UCOS sensor has various goals. First, we want to receive feedback of users about the system. Second, we want to know how well accepted such a system could be. To sum up the goals of the study are:

- To describe possible interactions with the platform.
- To evaluate the usability of these interaction.

2.2.2 Method

To identify main drawbacks of the usability of a system it is sufficient to involve a small amount of study participants. Furthermore, it would be interesting to see how younger adults can deal with the UCOS in comparison to the FoSIBLE target group of older adults. For this reason we invited two younger and two older adults, one male and one female in each group. The participants consented to participate before the study was started.

2.2.3 Apparatus

The users tested the UCOS sensor with the following system configuration (see Figure 3). The FoSIBLE TV widget was represented by a mock-up menu structure on a screen for evaluation means. A 3 x 3 grid of squares symbolized a user interface with an on-screen menu to be navigated. Navigation could be performed by dynamic UP, DOWN, LEFT and RIGHT gestures. The result was displayed by moving the highlighted blue coloured rectangle (“marker”) on the screen. To avoid a confusion of the user the navigation would stop at the outer border of the 3 x 3 grid (i.e. no “overrun” of the grid was possible).

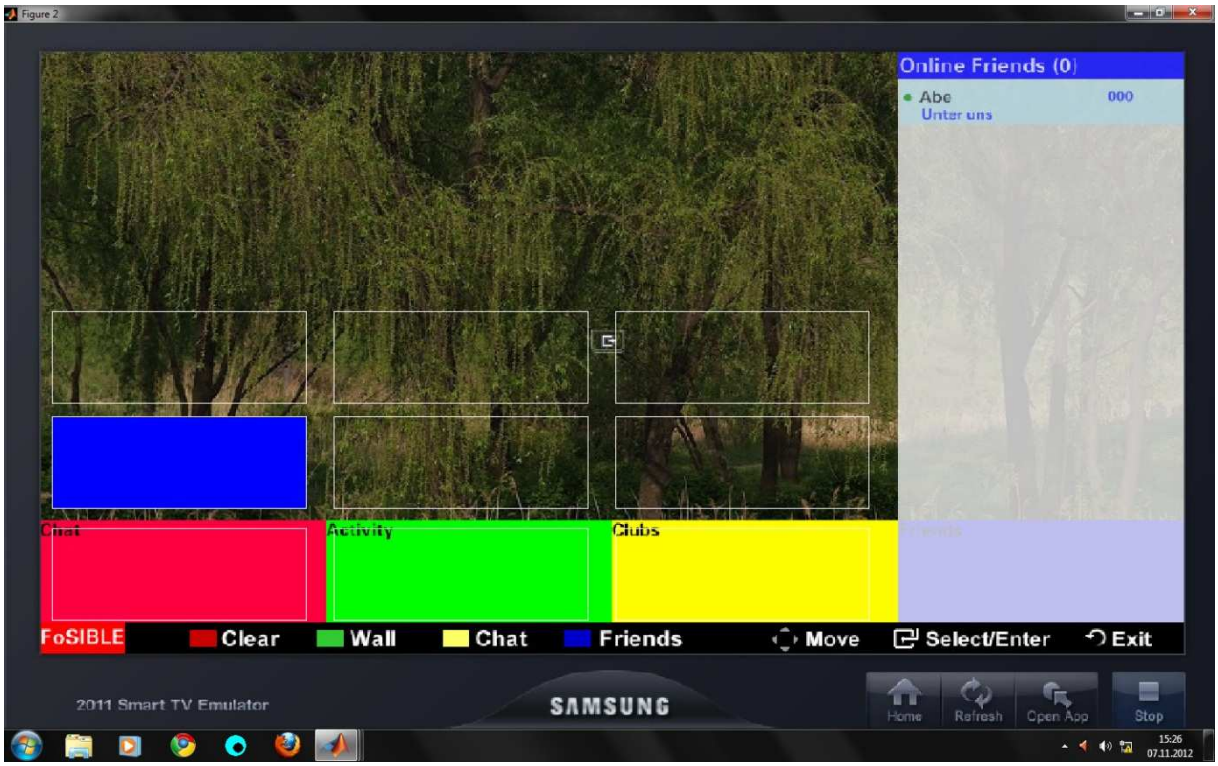


Figure 3: The visible user interface that was controlled via the UCOS sensor

The setup in the lab consisted of a TV screen and the UCOS sensor positioned at the side of the screen on a tripod (see setup in Figure 4). A Media-PC as specified earlier (D5.1) to be used in the project was used for the data processing and the actual gesture recognition task based on the real-time data received from the UCOS sensor. The user was positioned approx. 2 meters in front in the centreline of the screen on a chair.

The gesture recognition software was rule-based, based on finding the dominant orientation of the gesture track and was executed in real time in a Matlab[1] environment. Matlab has a limited real-time performance which may cause some latency in the reaction of the mock-up menu on the screen, with respect to the gestures performed. An on-board implementation of these algorithms was not possible within the project due to limited time constraints. Thus, a PC based prototype written in MatLab had to be used.

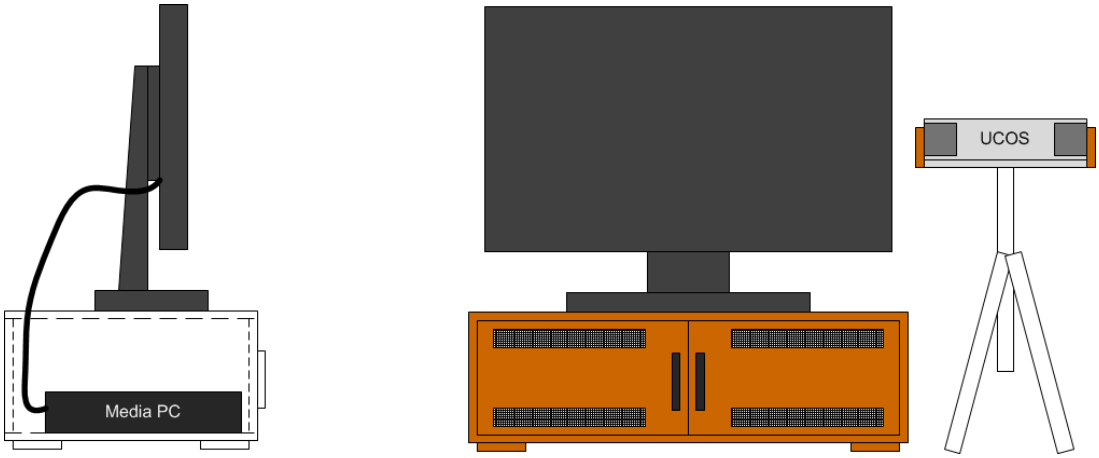


Figure 4: Physical setup of TV screen and UCOS sensor for this study

2.2.4 Procedure

At the beginning of this study the participants were asked to spend some minutes to try out the prototypes so that they get used to them. They should learn how the sensors are reacting to their movements of the hand. With the help of their recognised hand movements the participants could control a blue rectangle moving to several positions of a 3 x 3 grid (see Figure 3).

After this training phase the participants conducted 15 navigation tasks. Task completion time was recorded for every task separately. There was no time limit and the participants have to finish all tasks, none could be omitted. The tasks were formulated as instructions to what position the blue rectangle (referred to as marker) should be moved. Such a task is for example: "Move the marker from the top right position to the green box." or “Move the marker from the bottom left to the center of the grid." The end of one task was served as the beginning position of the next task. There was no given path the marker had to be moved along. The tasks were designed in a way that all possible distances between the fields of the grid were covered at least once.

After the conduction of all tasks each participant was asked to rate seven selected items of the TAM3 questionnaire (Venkatesh, 2008) on a 5-point Likert scale. The selection of TAM3 items was made because many items do not apply for such a prototype. The following seven items of the TAM3 were utilized to gain self-assessed feedback on the acceptance of the gesture-based menu interactions in terms of enjoyment, usability and behavioural intention (Venkatesh, 2008): Enjoyment (ENJ3), Perceptions of External Control (PEC1), Perceived Output Quality (OUT1 and OUT2), Perceived Ease of Use (PEOU4), Behavioural Intention (BI1 and BI2).

To better understand the results of performance and acceptance measures we asked the participants to fill a questionnaire on technology usage at the beginning of the evaluation. The main objective of the questionnaire is to find out how often the participants use various technical devices. The following technical devices that might exist within the homes of older adults were included in the questionnaire (see Table 1).

Table 1: How often do you use those technical devices?

Landline Phone (+ answering machine)	Mobile phone
Fax	Computer/laptop
Internet	TV
Receiver (TV/SAT receiver)	Radio/clock radios
Video-/DVD Player	Game consoles
Camera/video-camera	CD/MP3-Player
Digital picture frame	Emergency-Call-System (Clock, mobile,…)
Alarm system	Oven timer
Sphygmomanometer	Blood Glucose Meter
Medicament dispenser	Home trainer
Navigation system	Remote control for light/ thermostat/blinds/garage/garden irrigation
Bluetooth device (i.e. Handy free system, PC keyboard)	Weather station
Universal remote control	

2.2.5 Results

In this section we present the results of the study. We will refer to our participants as TP1 – TP4. TP1 and TP2 were part of the group of younger participants, whereas TP3 and TP4 were older than 60 years. The sex distribution was as follows: TP1 and TP3 were male and TP2 and TP4 were female.

2.2.5.1 Use of technology

In the results of the questionnaire on use of technology are displayed. Most of the devices were known; only two devices were unknown to two test persons: the digital picture frame and the Emergency-Call-System. The majority of the devices aren't used, although the participants did know them.

Table 2: Results of questionnaire: Use of technology

Scale					
At least 1x per day	At least 1x per week	At least 1x per month	Rare	Never	Not known
1	2	3	4	5	6

Device	**TP1**	**TP2**	**TP3**	**TP4**
Landline Phone (+ answering machine)	4	2	1	1
Mobile phone	1	1	1	1
Fax	5	5	4	5
Computer/Laptop	1	1	2	5
Internet	1	1	3	5
TV	1	2	1	1
Receiver (TV/SAT receiver)	1	2	1	5
Radio/clock radios	1	1	1	1
Video-/DVD Player	3	4	4	1
Game consoles	3	4	5	5
Camera/video-camera	3	4	4	3
CD/MP3 Player	1	5	4	2
Digital picture frame	5	6	5	1
Emergency-Call-System (Clock, mobile,…)	5	4	6	5
Alarm system	5	5	5	5
Oven timer	5	5	4	4
Sphygmomanometer	4	4	4	1
Blood Glucose Meter	5	5	5	5
Medicament dispenser	5	5	5	5
Home trainer	5	4	2	5
Navigation system	5	3	5	5
Remote control for light/ thermostat/ garage/garden irrigation	5	5	5	5
Bluetooth device (i.e. Handy free system, PC keyboard)	5	5	0	5
Weather station	2	5	5	1
Universal remote control	5	4	5	1

2.2.5.2 Performance

In spite of the training phase before, participants needed some time to handle the system for task control at the beginning of the tasks. This led to long task completion times for some participants at some tasks. The reaction latency of the gesture recognition software and low contrast of the users hand with respect to background led to false recognitions. However, starting with task 5 the recorded times for the following times got more conform. Due to the task design we could expect that the tasks have a different level of difficulty. But even simple tasks sometimes led to difficulties and rather long task completion times. For example, when looking at the last task which only required one movement of the marker to the left, TP4

needed more than 15 seconds. Especially the older participants suffered from these problems as they needed a longer time frame than one minute to accomplish a task (see Figure 5). Although the seniors (TP3, TP4) needed on average more time for completing the tasks, the younger participants had also problems which led to rather high task completion times for some tasks. It seemed that small hands were hard to detect by the system which also might be caused by contrast problems. For this reason we tried to use black gloves with TP2 which led to a slight better performance of the system. This effect seems to occur because of the extension of the hand and the better contrast to the background. TP2 had on average the shortest task completion times of all participants. It was also tried with gloves for TP4 but on this occasion the tasks was similar difficult to solve as without.

2.2.5.3 Acceptance

After the participants completed all tasks, an acceptance questionnaire had to be filled in. In general, the system was not accepted well. Just one participant (TP2, young and female) rated the system at least partly neutral (see orange highlighting in Figure 6) or better. This could be caused by the shortest task completion times. The other participants gave very poor ratings to all questions.

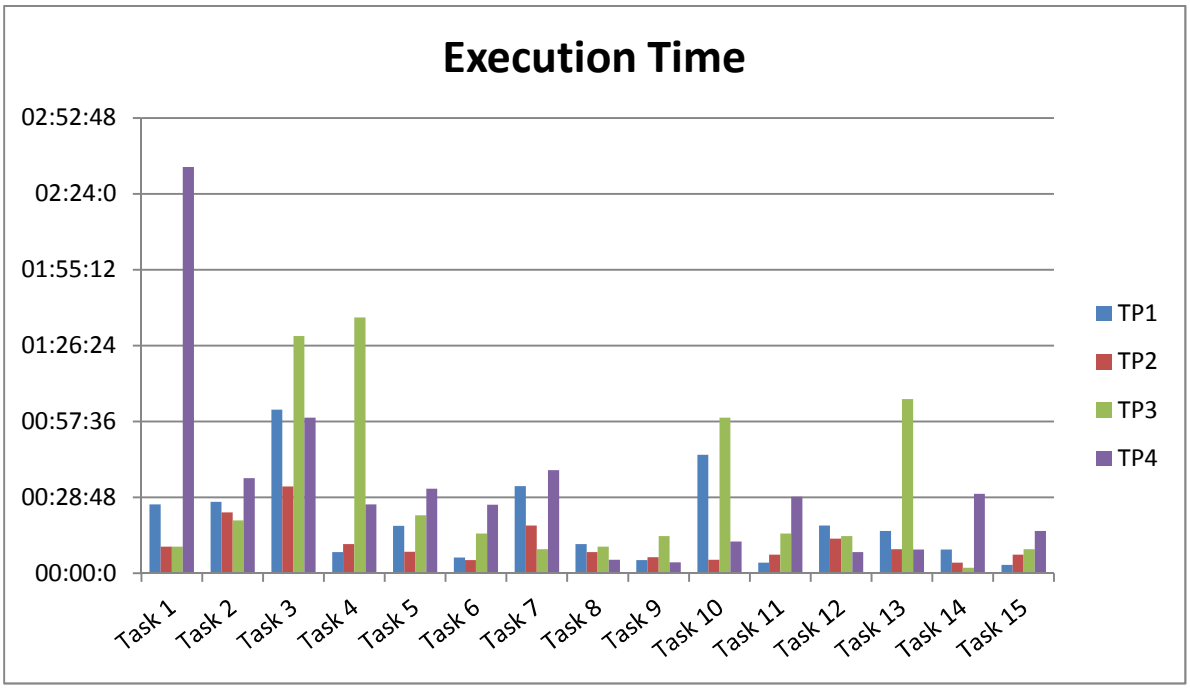


Figure 5: Execution time

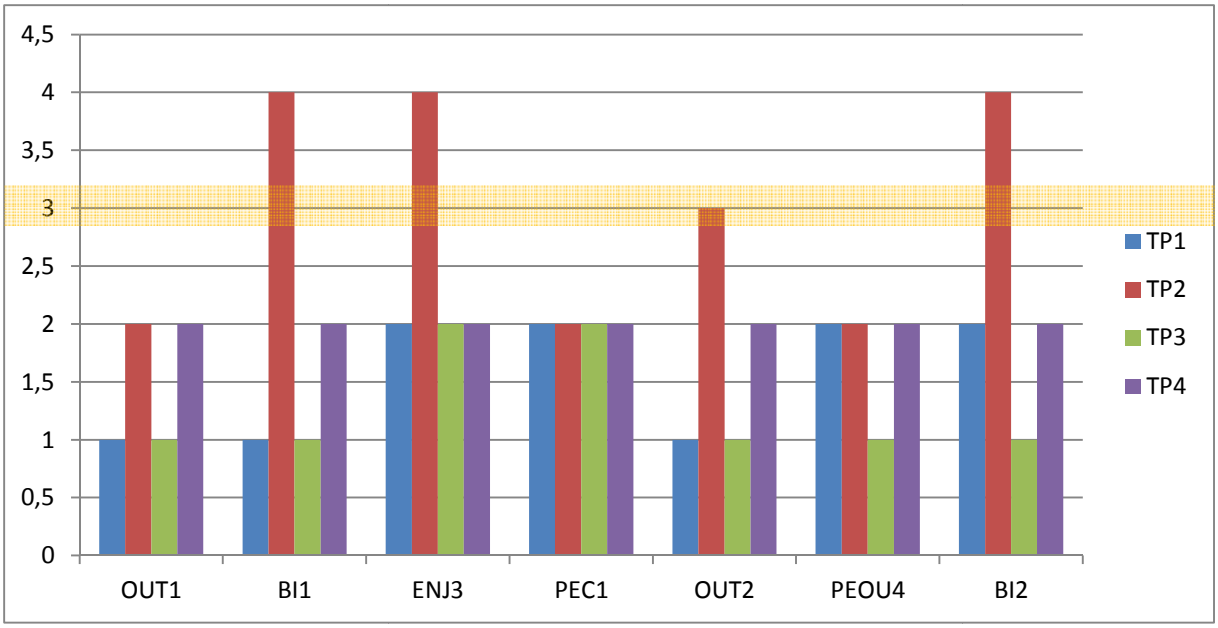


Figure 6: Results acceptance questionnaire

2.2.5.4 Feedback of the users

The users claimed that the system is not responding accordingly. Most of the movements weren't recognised correct and accurate. For older persons it is difficult to make very broad sweeping gestures. Especially the older users claimed that it testing the UCOS was "nearly like attending a gym class".

The system also had problems with recognizing smaller hands. The UCOS worked slightly better when the test persons had worn dark gloves or hold a piece of paper. However, some directions were not performed correctly; sometimes the cursor went into the opposite direction or didn't respond at all.

2.2.6 Conclusion

The recognition of gestures did not work well and received ratings accordingly by the participants. For older persons it is hard to perform the necessary gestures. The connection between speed and how long the distance has to be is very difficult to find out, even for younger adults. The UCOS system including the gesture recognition was found to be inadequate for being used within the FoSIBLE system.

The result of the study has shown that the current implementation of the gesture algorithm is insufficient for a user acceptance. The major point of criticism, cause and –if applicable- proposed mitigation strategy are stated in the following.

- **Latency/Response:** There is a noticeably latency of the on-screen reaction and the result seen/feedback on the screen. This is caused by the slow performance of Matlab in real-time applications. The performance optimization and the compilation of the Matlab code can improve this by shortening the latency between actual gesture and reaction on screen.

- **False recognition rate:** The false recognition rate of the system is still too high for practical use of the system. Due to time constraints the results of the gesture algorithm development performed by M. Zima (Zima, 2012) have not yet been implemented in the system that was analysed in this study (the results were available only shortly before the study). The algorithm used in the present study followed a "rule based" approach. The thesis by M. Zima shows a potential of nearly 100% recognition rated (on test data sets) when using a decision tree (DT) approach for the gesture recognition algorithm. The implementation of the DT algorithms is straightforward and could improve recognition rates.
- **"Broad" swipe gestures:** The large and articulated movements necessary to perform the gesture have exhausted the users. For this currently no mitigation strategy can be proposed. The relatively small resolution of the UCOS stereo sensor of 128 x 128 pixels and the need for the gesture path to consist of a sufficient number of points calls for a "broad" gesture.

2.2.7 References

Venkatesh, V. and Bala, H., 2008. Technology Acceptance Model 3 and a research agenda on interventions. *Decision Sciences*, 39, 273–315.

M. Zima, 2012. Hand/Arm Gesture Recognition based on Address-Event- Representation Data, Diplomarbeit, Technische Universität Wien.

3. Methodological Framework for the Field Evaluation and Related Tools

3.1 Goals of the field evaluation

The goals of the field evaluation are:

1. Update integrated scenarios (improvements from the user experience feedback)
2. Study the evolution of the perception of the FoSIBLE platform to learn about the acceptability as well as the evolution of the usage experiences during the time
3. Analyze the social interaction with the tool:
    a. Describe the social interactions with the platform (how are the exchanges in the system, e.g. forum and chat, realized)
    b. Evaluate the quality of exchanges

3.2 Methods and planning

Goal 1: updating the usage scenarios

Method	**Planning of the realization**	**Planning for the preparation**
Focus groups to collect experiences and users opinions	Expect one session every 3 months - March 2013 - June 2013 - September 2013	June 2012: Methods to precise the question types, development, recording/saving terms. →if necessary can be refined for the session of March 2013

Goal 2: Studying the evolution of the tool's perception

Method	**Planning of the realization**	**Planning for the preparation**
Questionnaire / Interview + Group interviews	Expect one session of group interviews every 3 months - March 2013 - June 2013 - September 2013	September 2012: - Precise the points which are specifically studied - Build a questionnaire

Goal 3: Analysing the social interactions with the tool

Method	**Planning of the realization**	**Planning for the preparation**
Analyze the interactions	Data collection once the users become familiar with the tool (e.g. April 2013) Analyze the interactions - How the exchanges take place - Which usage patterns exist: e.g. exchange is initiated following watching a movie or being a part of a forum or a chat Analyze the quality of the exchanges (find 2 or 3 indicators to be able to diagnosis the quality of exchanges: e.g. expression of emotions, participation, interactivity)	April 2013 collect data: - See what can be recovered and in what form - Determine the conditions of the collection (time, what will be said to the participants) - How to ensure anonymity and confidence to the participants

3.3 Tools to support technology appropriation and data collection

In 2012, several tools have been developed to support the end-users in the appropriation of the technology and to foster communication and information exchange between end-users and researchers during the field study: a handbook a media diary book and a mobile feed-back tool.

3.3.1 Handbook

A handbook addressing single use cases of the interactive TV system has been developed (see Figure 7 and Figure 8). This handbook is based on a story-telling approach in order to make the appropriation of the system as easy as possible. Each household will be handed out a handbook. Two versions of the handbook have been created: one in German and one in French.

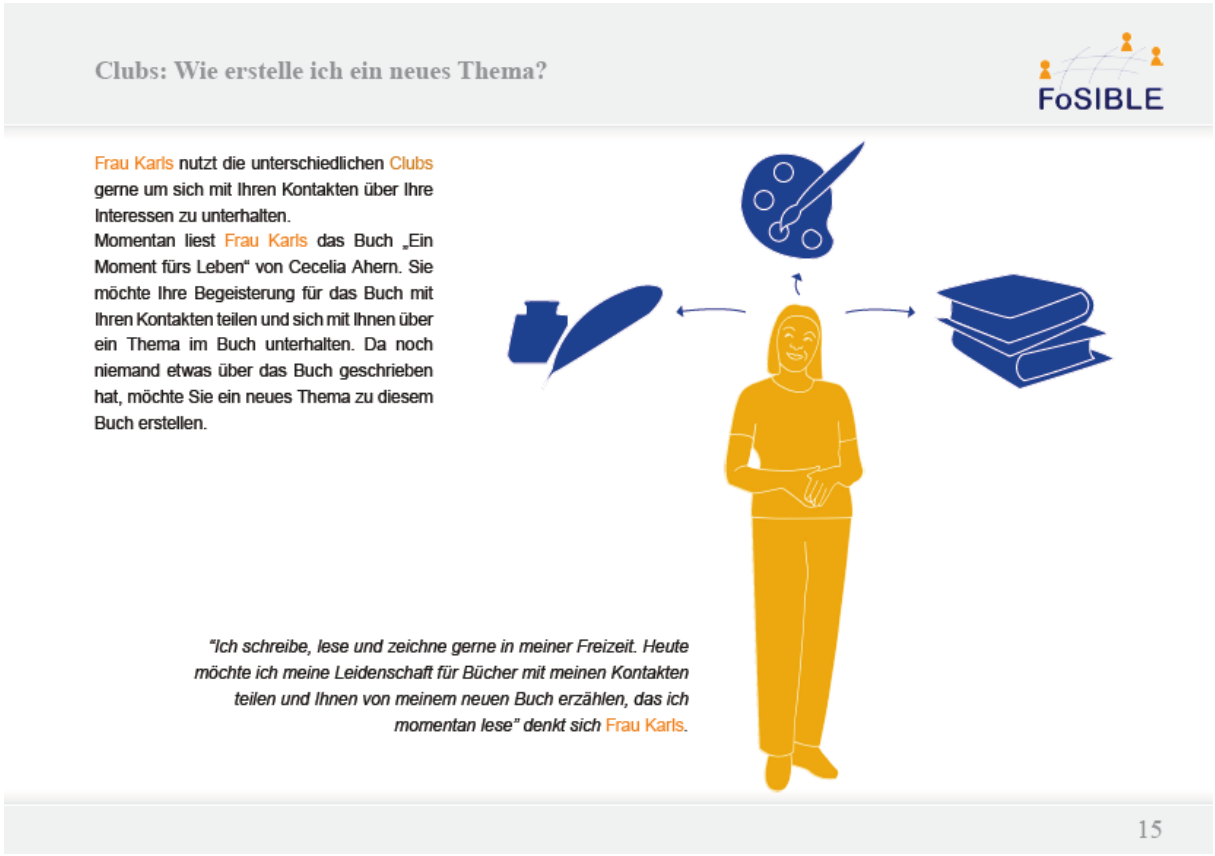


Figure 7: Description of the "Clubs" in the Handbook (German version)

Figure 8: How to create a new theme in an existing Club (here, the reading club) – German version

3.3.2 Media Diary Book

The media diary book (see Figure 9) has been developed in alignment with elderly visitors of the *AlterAktiv* seniors' club (in Siegen). It will support the collection of data during the evaluation phase of the technologies in the households. The media diary book will help to leverage phases when the researchers are not in the households. Drafting notes on certain instances in their every-day life will help the end-users to remember aspects they might want to discuss concerning technology appropriation and usage when researchers are on-site for interviews. In addition, the media diary book contains certain tasks for the end-users to accomplish in relation to the adoption and usage of the new technologies. These tasks will support a deeper reflection of new media by the end-users which will give researchers a better understanding of the social effects of the media in the households and the end-users' networks.

As the German and the French end-users do not have the same level of knowledge regarding the use of technology (see D2.1), we developed two versions of this Media Diary Book. The French one is simpler in terms of tasks to execute and is accompanied by a recorder in case the end-users would be reluctant to write down their impressions and/or problems in the diary.

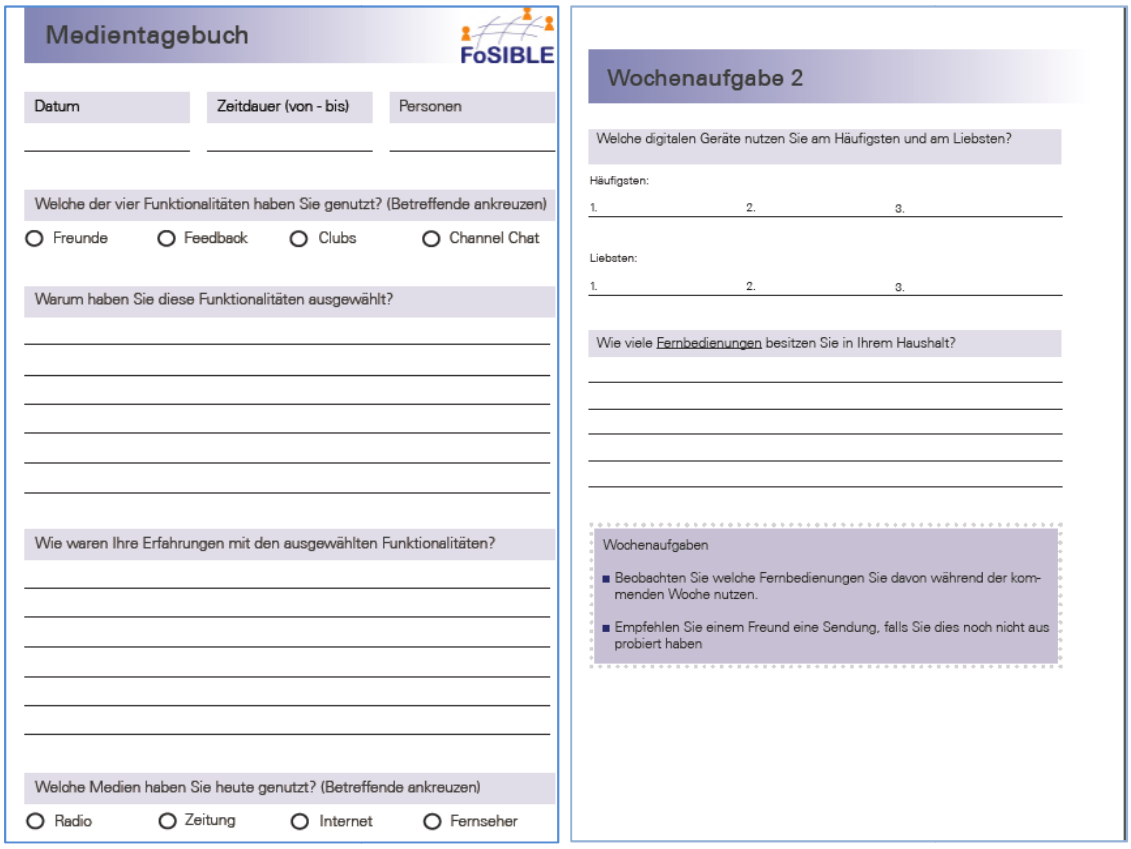


Figure 9: The Media Diary Book (German version)

3.3.3 Mobile Feedback Tool

A mobile, smart-phone based feed-back tool (see Figure 0) has been designed to complement the media diary book. If the end-users have a problem with the technology, they are able to take a picture of the iTV or tablet screen and comment on it. This feature supports a problem description in the context where the problem occurs and thus will enable the research team to find a solution in time.

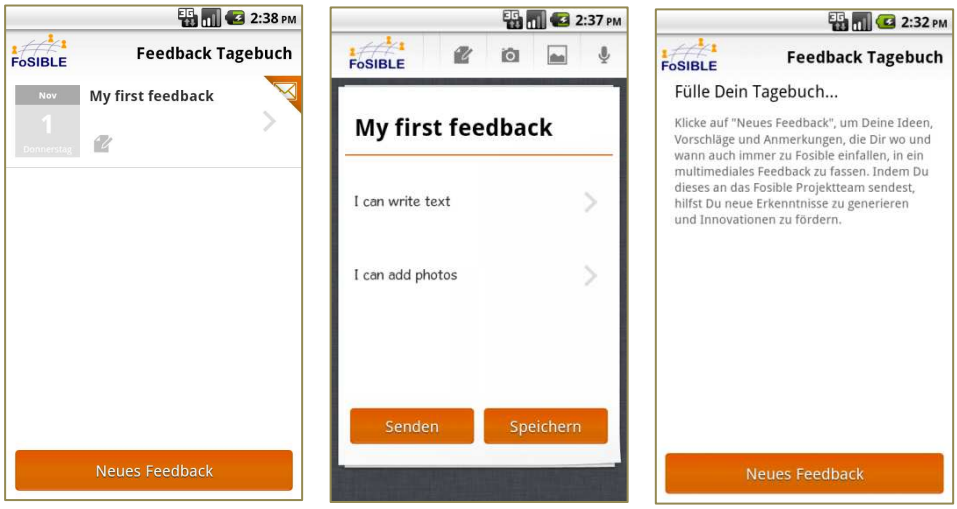


Figure 10: The mobile feed-back tool

4. Further plans

The roll-out is actually ready to start: all the data collection tools are available, and TVs and internet connexion were installed when needed. Final technical and ergonomic improvements are under development. The effective roll-out and the first group interviews and focus groups will allow us to eventually identified new problems to be solved, which will lead us to deliver a new version of this deliverable (D7.1).

The effective roll-out will also allow us to deliver the first elements of usability evaluation which will be described in D7.3 (M36) that will be enriched by new findings M41.

These usability findings will be completed by a psychological assessment of the impacts of using the system that will described in D7.4 (M41).