D5.2- Generation and Content Testing Results

Project acronym: KNOTS
Project name: Knowledge Transfer-System

Strategic Objective: A knowledge transfer-system for people
                      in care
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Co-ordinator: Dr. Stefan Goetze

Partners: Fraunhofer Gesellschaft (DE)
                      Protronic (DE)
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                      CareTech (SV)
                      Die Johanniter (DE)
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D5.2

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Author: Andreas
Hohn
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Once completed please e-mail to WP leader with a copy to
mgmt@knots-project.eu.

Deliverable 5.2	Executive Summary
This document describes generation of content and their testing results.	

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1. Web frontend for content generation

The KNOTS project focuses on transferring knowledge between users in the case sector, especially to support voluntary care givers. Relatives more and more often take care and visit frequently to help in different tasks from dishwashing to laundry. Professional caretakers may help on more demanding medical or nursing tasks. Voluntary visitors like voluntary services of health organisations may add another informal source of care and warmth to the life of older people. Example scenarios for the KNOTS system are short information snippets (e.g. in form of text, spoken messages or small videos) which transfer knowledge about simple things to be done during (informal and formal) care. Using the KNOTS system a (voluntary) care giver can e.g. make a video of a repeating task like knowledge how and where to exchange a battery in the fire alarm system of a person to be taken care of or how to setup TV channels in a device of a person to be taken care of. To make the content searchable, audio and video content is to be "translated" to text by means of an automatic speech recognition service.

Content is key to the KNOTS system to be accepted which is why this deliverable focuses on how content can be put into the KNOTS data base.

For this purpose a web frontend was (and is) developed to allow experienced users to upload content to the KNOTS system..The main purpose of this web frontend is the administration of content data. The content can be generated in multiple languages and can be released if an administrator releases the content. The following topics describe the web frontend for content. In a later part of the project easy to use interfaces for the elderly end user will be implemented. This deliverable describes the current state of the database and the means to input the basic content.

1.1 Technical Implementation

The web frontend uses the following technics which are combined to create the backend including the web services so that also mobile devices can get data from the system. The web client is implemented in AngularJS/Bootstrap and JavaScript which allows for being used on all state-of the art devices with common browser configuration. A Restful Backend using PHP 5.6 builds the framework for the MySQL 5.6 database.

Protection of the data is an important point, which is why access control is guaranteed by a mandatory login via the web user interface as depicted in Figure 1.
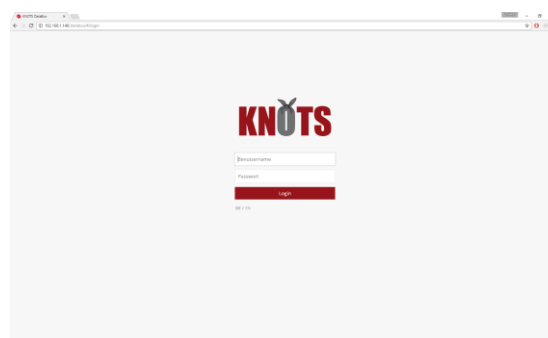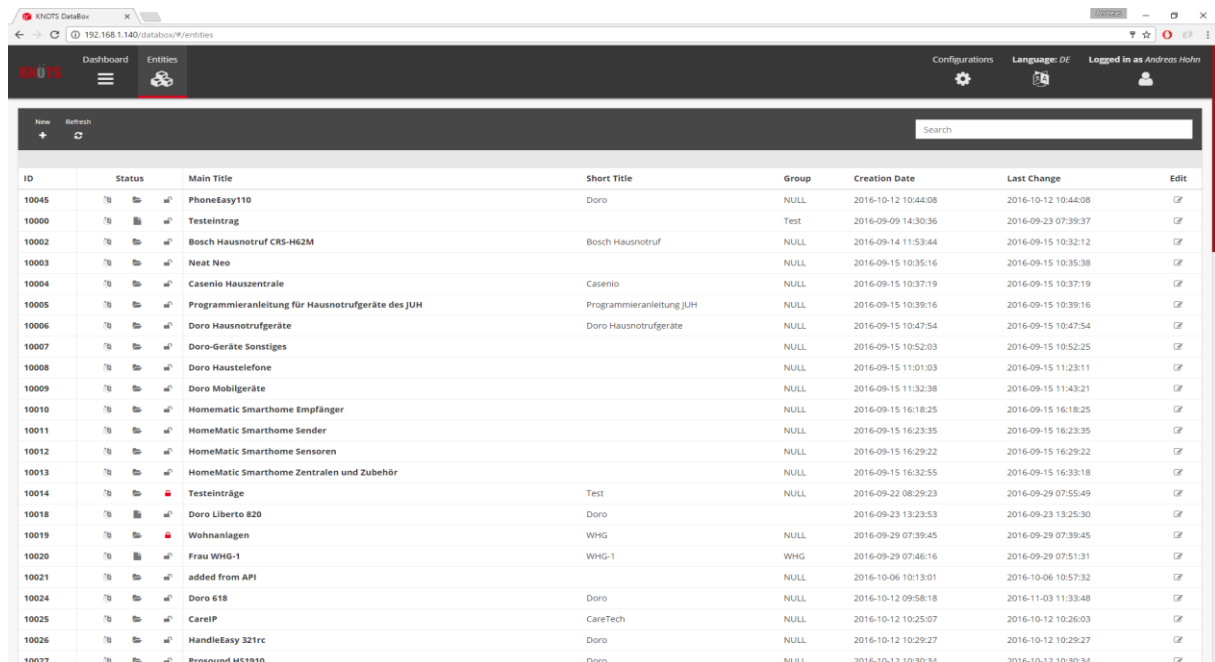

Figure 1: Login view with username and password

1.2 Adding / editing content

During the last months content from various sources has been uploaded to the KNOTS database. Figure 2: Content view with some data in shows the web interface for initial content upload. The term "initial content" here means the content available in the KNOTS system at start, i.e. before the user can add own content. By this, the KNOTS system already contains a broad variety of content, e.g. technical manuals or commonly needed help files. Personal content, e.g. on the topic "where does Mr. Meyer usually put his alarm arm band" will be uploaded later separately and can be added to the general content shown in Figure 2: Content view with some data in (which is the interface for the expert user).

Figure 2: Content view with some data in German

The KNOTS system in developed for the two main languages English and German first, other languages are to follow. Thus, it is possible to change the content language (in this screenshot at the top right). A different language can be assigned to each user and only content in this language is shown then. Content can be edited by a double click on each entry.
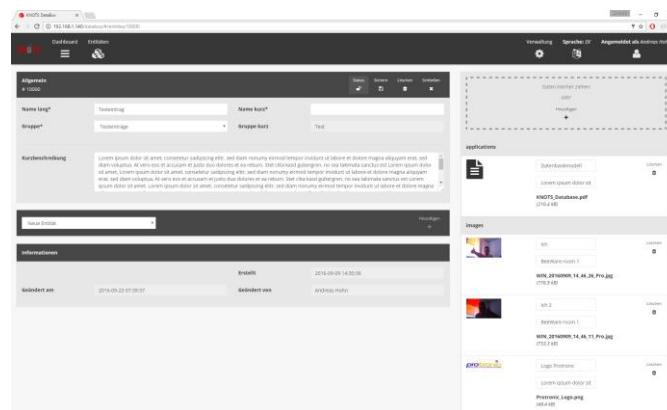

Figure 3: Example figure: Content entry of a Doro home emergency call system

Figure 3 shows the user interface for creating and editing content data. More details of how to add or edit content in this screen can be found in Deliverable 5.3 ("Web-Based Frontend for device independency"). In case content like videos or audio data is added, the audio stram will be automatically extracted and send to the Fraunhofer ASR service to generate subtitles to allow for a text-bases search also in audio/video content.

All partners of the KNOTS consortium provided initial base content which was uploaded to the KNOTS system. This process is still ongoing.

2. Requirements for data

Based on the experience gained from visit of the managed care facilities and the results from the initial interviews with technicians at the end-user partner JUH and HTK, the following requirements have been identified for the KNOTS System for the different envisaged scenarios. It should be noted that not all of the described requirements are yet fully implemented

1.3 Requirements for scenario 1: Technicians and volunteers (device related)

The following data structure is recommended for meeting the requirements.

ID	Device Type	Manufacturer	Model	Content

Table 1: Data structure

Manual way od search:

If the user does not directly search e.g. by spoken command (currently being implemented) or in the search field a tree structure is implemented. In addition to the manual search the KNOTS consortium currently implements a search function based on spoken search queries using FHGs speech recognition service.

The "search by tree" is exemplarily described by the bullets below and visalized in the following figure:

- The app user selects the device type of hardware (e.g. at the elderly's home) from a list, then the manufacturer, then the model
- The user sees the existing files (manual, etc.)
- Note: at the current stage of development the end user has only reading rights (to be changed)
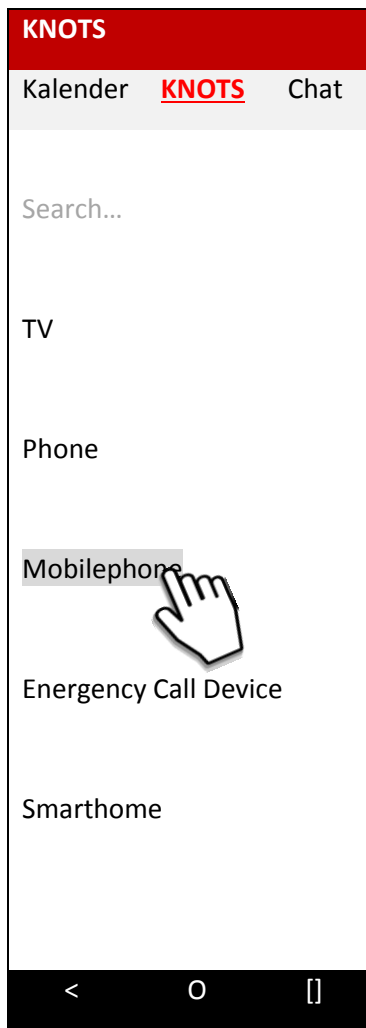
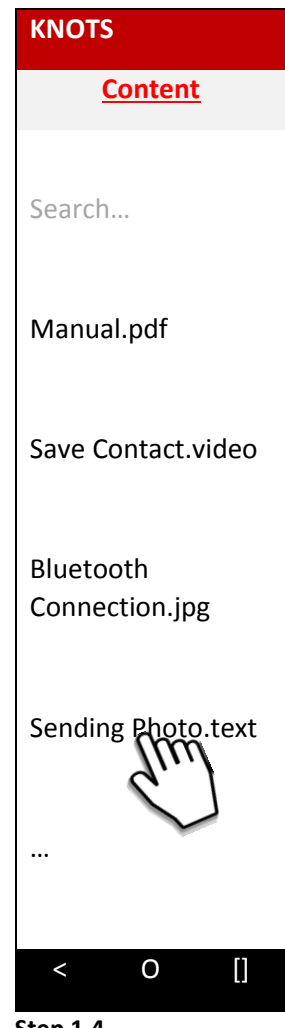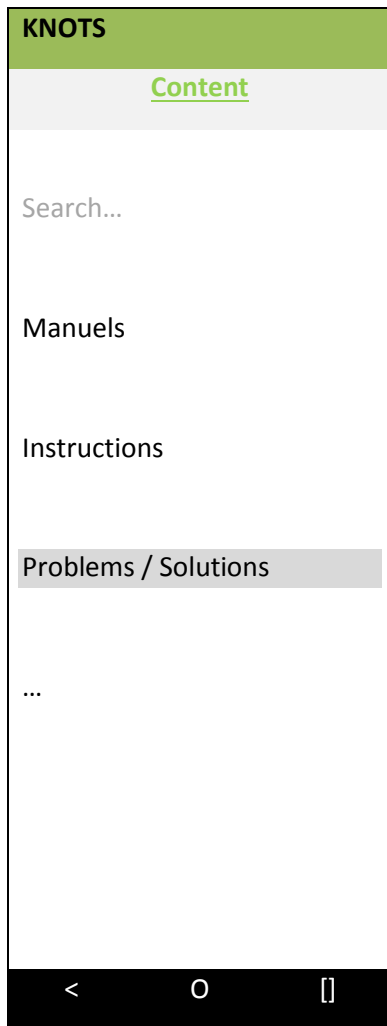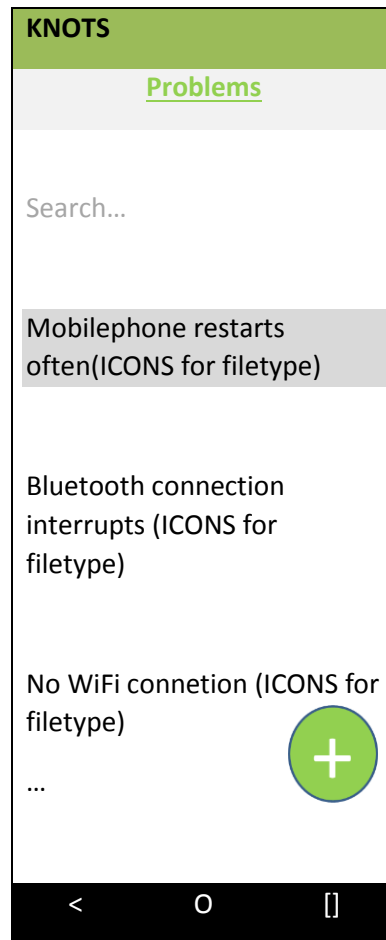| KNOTS	KNOTS	KNOTS	KNOTS
Kalender **KNOTS** Chat	**Mobilephones**	**Models**	**Content**
Search…	Search…	Search…	Search…
TV	Apple	Smart Easy 842	Manual.pdf
Phone	Doro	Liberto 650	Save Contact.video
Mobilephone	Fairphone	Phone Easy 410	Bluetooth Connection.jpg
Energency Call Device	Samsung	Phone Easy 631	Sending Photo.text
Smarthome	Sony	Primo 406	…
< O []	< O []	< O []	< O []
Step 1.1.	**Step 1.2**	**Step 1.3**	**Step 1.4**

Structure of the content in the KNOTS-App (Vision):

Please note that the following design examples are not yet fully implemented.

- Content is sorted by type
- It is possible to add content (s. Function: "Data Input")
- Videos and pictures only will be shown if available

KNOTS	KNOTS	KNOTS
Content	**Problems**	**Solutions**
		Text Video Picture
Search…	Search…	It usually helps to rest the uni to factory settings.
Manuels	Mobilephone restarts often(ICONS for filetype)	
Instructions	Bluetooth connection interrupts (ICONS for filetype)	1. Save Contacts first
Problems / Solutions		2. Go to Settings
	No WiFi connetion (ICONS for filetype)	3. …
…	…	4. …
		5. …
< O []	< O []	< O []

Step 1.4: request

Step 1.5: request (+=Add/Edit)
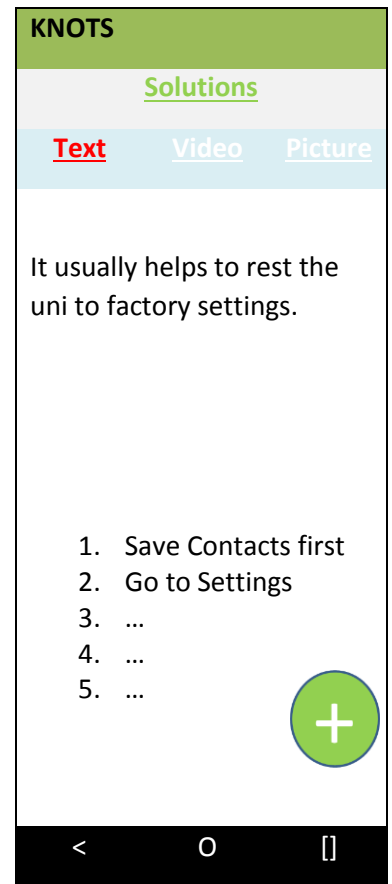
Step 1.6: request (+= Add/Edit)

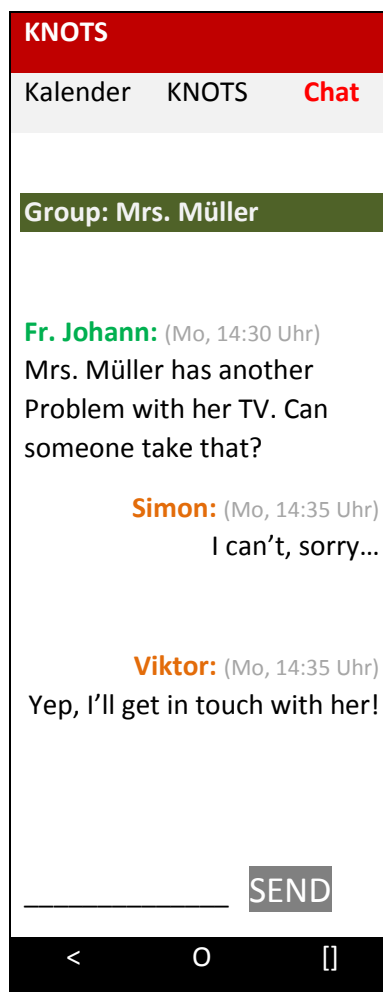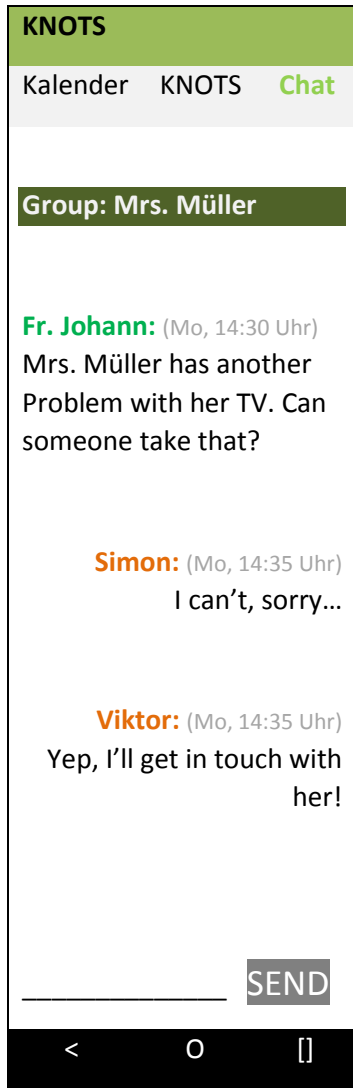## 1.4 Requirements for scenario 2: Volunteers (Personal)

Initial Situation:

1. Caretaker reports a problem to the coordinator
2. In the desktop interface certain helpers (also relatives) are assigned to the caretakers (groups)
3. The Coordinator contacts group (via desktop interface) – Content: Who needs help? With what? Who can provide help?
4. Helpers get the following interface to communicate (KNOTS-App)

KNOTS

Kalender   KNOTS   **Chat**

Group: Mrs. Müller

Fr. Johann: (Mo, 14:30 Uhr)
Mrs. Müller has another Problem with her TV. Can someone take that?

         Simon: (Mo, 14:35 Uhr)
         I can't, sorry…

         Viktor: (Mo, 14:35 Uhr)
Yep, I'll get in touch with her!

_____ SEND

    <   O   []

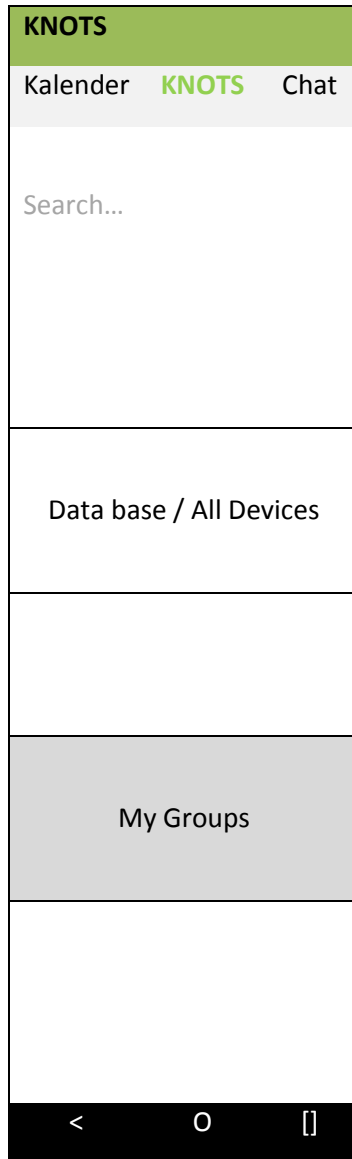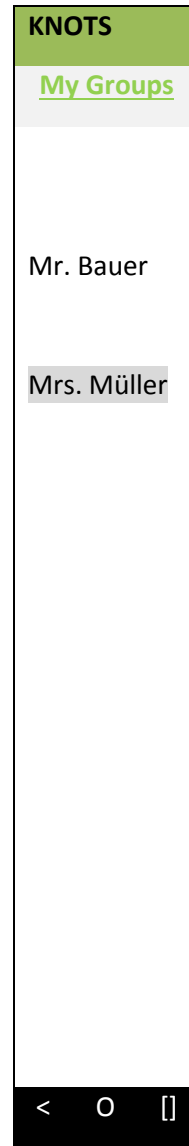Step 2.4

5. The user has now the following options:
   a. As described above: Scenario Technicians/ Volunteers: Device search
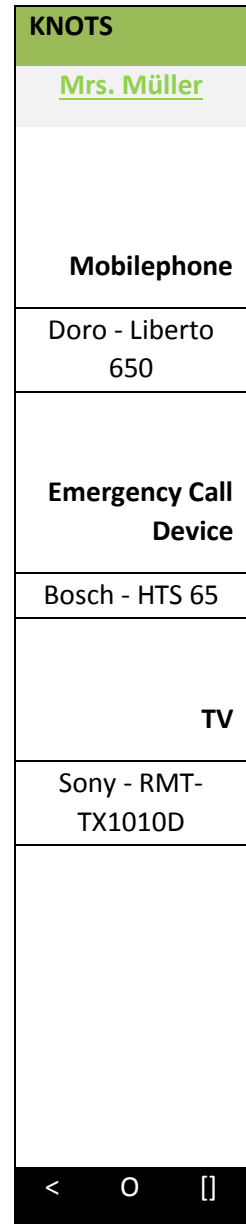   b. (Request) Mrs. Müllers devices are stored in the system based on her profile (below)

KNOTS

Kalender   KNOTS   **Chat**

Group: Mrs. Müller

Fr. Johann: (Mo, 14:30 Uhr)
Mrs. Müller has another Problem with her TV. Can someone take that?

Simon: (Mo, 14:35 Uhr)
I can't, sorry…

Viktor: (Mo, 14:35 Uhr)
Yep, I'll get in touch with her!

_____ SEND

<   O   []

Step 2.5(b)

KNOTS

Kalender   **KNOTS**   Chat

Search…

Data base / All Devices

My Groups

<   O   []

Step 2.6

KNOTS

My Groups

Mr. Bauer

Mrs. Müller

<   O   []

Step 2.7

KNOTS

Mrs. Müller

Mobilephone

Doro - Liberto 650

Emergency Call Device

Bosch - HTS 65

TV

Sony - RMT-TX1010D

<   O   []

Step 2.8 – afterwards Step 1.4 (see above)