ICT4LIFE

Final Conference

ICT4Life field work - tailored solutions in diverse regional context

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Why a field work with users in a research project?

The objectives of carrying out a field work can be summarised as follows:

- demonstrate the **feasibility of implementation** of ICT4Life
- lead **field tests** and **user feedback/validation**
- **validate pilot application and prototype interfaces** and issuing **reccommendations**
- **adapt project results** (languages and cultural environments)
- gather **conclusions for** improving **product design.**

ICT4Life field work

The interaction with users (e.g. field work) has been divided in 3 main phases:

- o Users requirements (M1-M5)
- o Testing (M10-M36)
- o Survey submitted to the target group (M30)

The testing has been divided in 3 phases according to the project timeline:

- o Early tests (M10-M13)
- o Iterative testing phase (M14-M24)
- o Pilot tests (M24-M36)

Early tests

- Very early stage to test the beginning of the development of the solution: The mobile app, the games on the Smart TV, the sensors, bracelets and the camera were tested.

- Who was involved?: 11 patients, 4 professionals and 3 caregivers

- Allowed to collect early feedback:

  - *Methodology:* the interview grid used to get to know the user was found too long.

  - *Technology*: the games on the Smart TV needed some adjustments, the usability of the app needed to be improved.

  - *Social acceptance*: avoid references to patient's disease.

Iterative testing phase

- Occurred during one year (second year of the project)
- Testing specific component (not an integrated version)
- High number of testers involved
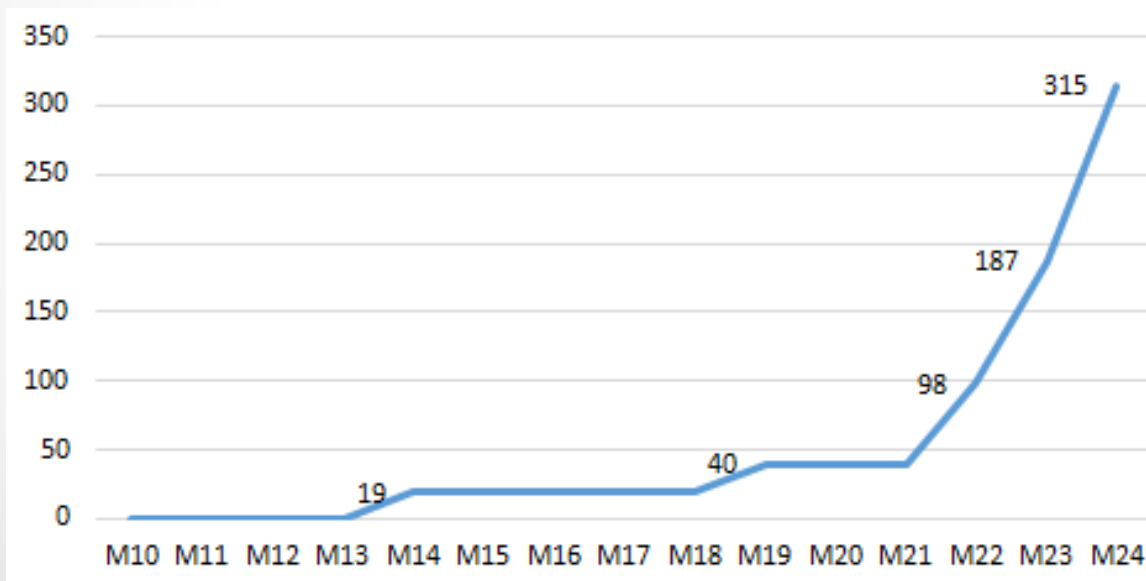
Evolution of the users' feedbacks received by the ICT4Life project (M10-M24)

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Research techniques used to reach that amount of users

- A higher involvement of users has been possible thanks to the implementation of collective tests during the second iterative testing phase.

- Therefore, 3 testing techniques were used to collect patients, caregivers and health professionals' feedback:
  - Deep tests: initial interviews, tests with a task list and exit interviews
  - Focus groups: system introduced to participants (patients, caregivers and health professionals) and collection of reaction
  - Collective testing: only with the Smart TV games, participants asked to interact with the TV

Key concepts derived from the iterative testing phases

- **Co-design** process well accepted by the users. Feeling of usefulness.

- **General concept** of the ICT4Life technology well accepted.

- Adaptation of **ergonomic aspects** according to users' feedback.

- Usability correlated with the **previous use of ICTs.**

- Usability correlated with **the age** of the users.

- ICT4Life seen as a way to **save time** by health professionals.

- Clear **differences between Alzheimer's and Parkinson's** patients:
  - Parkinson's: are able to understand and learn how to use the app
  - Alzheimer's: health professionals have some doubts about the fact that Alzheimer's patients could use the app at an intermediate and advanced stage. This will be further tested.

- **Cognitive games** are highly accepted on the Smart TV.

Pilot tests

- **Real environment**: ICT4Life system is deployed in 3 cities following 3 identified scenarios.

- **3 locations**: Madrid, Pècs and Paris

- **3 scenarios**: implementation of ICT4Life system in day care centres, rehabilitation room (only in Spain) and at patient's homes.

- Integrated version (PC, Zenith camera, Kinect camera, sensors, bracelet & Smart TV)
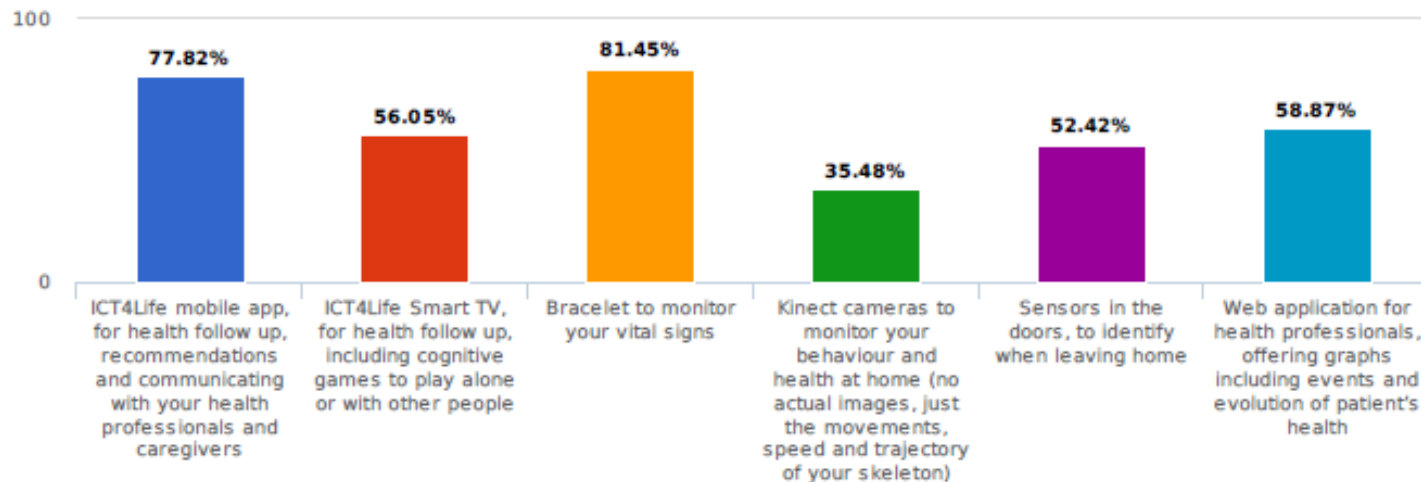
Main results of the field work (1/2)

- High acceptance of the concept
- Co-design process implemented
- Feeling of usefulness of the users
- Feeling of safety by wearing the band
- Mobile App complicated to use for a patient with Alzheimer's without any previous use of a Smartphone
- Cognitive games on the Smart TV are well accepted and perceived useful if played together with the patient.

Main results of the field work (2/2)

- Passive behaviour of the patients involved toward the system enhancing a higher acceptance of the wearable devices. Point underlined by the responses to the survey.

11 Would you accept having a similar system, including the mobile application, web application, cameras, sensors, bracelets and Smart TV at your home? Please, mark all the modules that you would accept

	ICT4Life mobile app, for health follow up, recommendations and communicating with your health professionals and caregivers	ICT4Life Smart TV, for health follow up, including cognitive games to play alone or with other people	Bracelet to monitor your vital signs	Kinect cameras to monitor your behaviour and health at home (no actual images, just the movements, speed and trajectory of your skeleton)	Sensors in the doors, to identify when leaving home	Web application for health professionals, offering graphs including events and evolution of patient's health
%	77.82%	56.05%	81.45%	35.48%	52.42%	58.87%

Implementation of the codesign process in ICT4Life

Functionality tested	Phase	Feedback collected	Co-Design
Mobile App	Early testing	▪ Reduced visibility ▪ Difficulties with tactile interaction ▪ Avoiding reminder of the pathology in the user's profile	• Contrast function implemented • Voice control implemented • Reference to the patient's pathology removed
Mobile App	First iterative testing phase	▪ Difficulties to find functionalities ▪ Translation mistakes ▪ Some symbols not clear enough	• Arborescence improved • Mistakes corrected • Symbols' function more explicit
Mobile App	Second iterative testing phase	▪ Events not displayed when clicking the calendar; Users scrolling down until the bottom of the	• Calendar shows events without any action of the user

ISSP	First iterative testing phase	▪ Navigation not intuitive	● Changes in progress
ISSP	Second iterative testing phase	▪ "Knowledge base" icon in the centre creates confusion ▪ Titles of the icons not understandable in the users' languages ▪ Starting new procedures complicated	● "Knowledge base" icon moved from the centre to the bar in the top page ● Translations corrected ● "Add" button added to start new procedures
SCS	Second iterative testing phase	▪ Users changing the language manually as SCS in English ▪ Size of the icons too small ▪ Double menus confusing	● SCS in the language of the mobile app ● Size of the icons increased ● Account drop down manure moved and logout option removed
Smart TV	Early testing	▪ Level of the games need to be adapted to the patients' skills	● Different levels implemented
Smart TV	First iterative testing phase	▪ Navigation complicated because of colours	● Colours changed to make the navigation easier

Conclusions

Even though the user involved in the field work were coming from diverse regional contexts, the feedback collected was homogenous:

o Users don't want extra burden.

o Passive behaviour. They value positive cameras, bands and sensors since they do not to be active, however, they value negative the app since they have to be more active.

o Caregivers don't see themselves as users.

o Mobile App too complicated to be used by Alzheimer's patients if no previous use of ICT tools.

o Cognitive games well accepted.

o Better performance of the patients affected by Alzheimer's playing the games when they are not tired.

o Feedback concerning the wrist band quite heterogeneous: can be seen as a duty or can be a motivation tool.

o Sensors system & Kinect camera well integrated in a daily routine (not noticed anymore by the users after a while).

Thank you very much for your attention

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