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1. Progress and quality

Milestone	Researched	Realized	Tested	Category
Assessment current status	Done	Done	Done	Documentation

Milestone	Researched	Realized	Tested	Category
Willy Improvisation	Done	Done	Done	Hardware Software Documentation
Design	Done	Done	Done	Software
WillyWiki	Done	Done	Done	Software
Willy web	Done	Done	Done	Software
Indoor navigation	Done	Done	In progress (fine tuning)	Software Hardware
Plating	Done	In progress		Hardware
Social interaction	Done	In progress		Software

1.1. Progress report

Assigment current status

Requirement	F/Q/P	Test case	Result by ..
Documentation corresponds to the current status of Willy	functional	compare documentation with the current status of Willy	Positive
Documentation meets the DOD	Principle	Documentation is reviewed conform the DOD	
Components of Willy are explained	functional	Hardware, Software and Documentation is understandable and traceable	Positive
Configuration can be traced through Documentation	Quality manageability	Willy can be installed from scratch without back-up	Positive

F/Q/P = functional / Quality / Principle

Willy Improvisation

Requirement	F/Q/P	Test case	Result
Current status of Willy correspondents to the current documentation and expectations of the client	Functional	Documentation and expectations of the client are compared with the current status of Willy	Positive
Hardware, Software and Documentation satisfies the DOD	Principle	The Current Documentation had been tested on the DOD	

Requirement	F/Q/P	Test case	Result
Current functionality is reliable and stable	Quality (availability)	Current Software, Code and hardware is tested and is operational while tested multiple times	Positive
Design decisions are substantiated	Principle	Design decisions are underpinned by research or customer preference	Positive

F/Q/P = functional / Quality / Principle

Design

Requirement	F/Q/P	Test case	Result by ..
The design meets the expectations of the client	Principle	The design has been approved by the client	Positive
Dimensions are traceable from the design	Principle	Dimensions can be digitally exported from the design	Positive
The design is flexible	Quality scalability	New adjustments can be made by future groups by editing a flexible file format (sldprt - Solidworks)	Positive

F/Q/P = functional / Quality / Principle

WillyWiki

Requirement	F/Q/P	Test case	Result by ..
The WillyWikki is simple to understand	Quality manageability	Design and user documentation is available.	Positive
Documentation is up-to-date	Principle	All documentation is trasfered into .adoc format and added to GIT	Positive
The WillyWiki is modular	Principle	Information on the WillyWiki is exportable to multiple file formats.	Positive
New information can be added	Quality Manageability	The Willywiki automatic updates based on a git repository	Positive

F/Q/P = functional / Quality / Principle

WillyWeb

Requirement	F/Q/P	Test case	Result by ..
The WillyWeb must be dynamic and scalable	Quality scalability	The WillyWeb must be wide compatible with other software components of Willy	Positive
The WillyWeb must able to display real time information about Willy	Quality availability	The WillyWeb is compatible with ROS (previous requirement) and have a delay less that a second	Positive
The WillyWeb can Read and Read data to ROS	Principle	The WillyWeb can subscribe to ROS topics	Positive

F/Q/P = functional / Quality / Principle

- Known Bugs
- Parameters
- Software

Web interface

- Development Guide
- SAD
- RosNodeJs
- Interaction

Research

- Hardware
- Peripherals
- Sensors
- Social interaction
- Software
- Web interface

Design

- Background
- Design Guide
- Technical
- Realisation

Status and Advice

- Status
- Todo & Advice

Archive

- (2016/2) Initial design
- (2017/1) Base & Functionalities
- (2017/2) Research

2. ToDo and Advice

2.1. ToDo

2.1.1. Indoor navigation

Indoor navigation was realized with the use of a lidar and ultrasonic sensors. Willy can map a

space and plan routes within it. The following features and improvements are recommended:

- Fine-tune indoor navigation
- Indoor navigation localization registration; Remember where Willy was in a certain room so he explores new places first.
- The storage and loading of previously mapped spaces and recognizing Willy's current location for further navigation.
- Navigating in spaces with a large audience. Recognizing moving objects and making decisions based on this.

2.1.2. Outdoor navigation

The only thing that has been realized so far with regard to outdoor navigation is GPS and the compass. GPS coordinates can be received inside ROS when subscribed on the /GPS topic.

- Location based on GPS
- Visualize GPS location.
- Accessibility determination based on location
- Route determination based on GPS and location determination
- Indoor navigation localization registration to keep Willy within a certain area.

2.1.3. Social interaction

Social interaction has been investigated. As a group we have focused on offline functionality at the request of the client. Offline functionality has been investigated; Research Social Interaction

Offline wakeword recognition has been realized through the use of 'Snowboy'. Documentation about Snowboy can be found on: Snowboy Documentation.

Implementation of Snowboy on Willy is described here: https://artofrobotics.github.io/WillyWiki/Config/index.html

2.2. Advice

First, it's important to try to understand Willy and get trusted with the robot. Reading of all the documentation and trying to understand it is a must. Use the documentation to drive Willy. Another essential part of understanding Willy is the understanding of the underlying framework. Understanding how ROS works makes understanding Willy much easier.

Willy is a large and complicated project. There are a lot of things that can go wrong. At the start of the project this can give a lot of frustation. When this happens it is essential to know Willy. Dealing with such situations can help understanding Willy even more.

Another advice is that it is essential to keep updating this wiki. That way contunation of the project keeps guaranteed.