Ambient Assisted Living Joint Programme

AAL JP project number: AAL-2011-4-099

Project acronym: ALICE

Project full title: Assistance for Better Mobility and Improved Cognition of Elderly Blind and Visually Impaired

D.6.1 Project management Handbook and Quality Assurance Plan

Deliverable Id :	D 6.1
Deliverable Name :	Project Management Handbook and Quality Assurance Plan
Status :	Final
Dissemination Level :	Public
Due date of deliverable :	M4
Actual submission date :	25.10.2012
Work Package :	WP 6
Organisation name of lead contractor for this deliverable :	Comland
Author(s):	Davorka Šel, Mateja Vižintin
Partner(s) contributing :	

Project funded by the AAL JP and the following national authorities:

REPUBLIKA SLOVENIJA
MINISTRY OF EDUCATION, SCIENCE, CULTURE AND SPORT

Technology Strategy Board
Driving Innovation

HISTORY

Version	*Date*	*Modification reason*	*Modified by*
0.1	23.10.2012	First Draft	Mateja Vižintin, Davorka Šel
0.2	25.10.2012	Insertion of Task leader tasks One reviewer Functional testing Responsibility of D5.1 Quality audit	Davorka Šel

1 TABLE OF CONTENTS

2 LIST OF FIGURES

3 LIST OF TABLES

4 EXECUTIVE SUMMARY

The Project Management Handbook and Quality Assurance Plan document provides the overview of the project management structure, the roles and responsibilities of the consortium bodies – all in Accordance with the Consortium Agreement.

The document also establishes foundation for the quality assurance by describing the project supporting processes from the verification of project deliverables to the continuous improvement of project processes. This is based on the quality plan that describes the necessary procedures to ensure quality of the deliverables. The quality assurance process, based on the quality plan, ensures the quality control of all deliverables (documents and software) that must be submitted to the AAL CMU.

Apart from introductory chapters, the document has three main chapters (6, 7, and 8) and one annex.

Chapter 6 describes general structure of project management, the main consortium bodies, such as Project Management Committee, Technical Management Committee, Work Package leaders and Coordinator.

In Chapter 7 the types of project meetings are presented, their attendees and chairpersons are defined, as well as the corresponding meeting schedule is given.

In Chapter 8 the Quality Plan and Quality Assurance procedures are presented. The plan describes the necessary procedures to ensure quality of the deliverables.

Annex A holds the Deliverables overview list, which is a list of software deliverables and delivery dates which have to be followed accordingly.

5 INTRODUCTION

The purpose of the Project Management Handbook and Quality Assurance Plan document is to provide guidance to the Consortium partners, and information to the AAL CMU and others, about the project development control. It contains the necessary information required to effectively manage project and its quality from project management to delivery of the end results. It defines roles, responsibilities and authorities as well as the quality procedures to be undertaken over project results. Defining the standard for the quality of the deliverables the Project Management Handbook and Quality Assurance Plan has relationship to all other deliverables.

6 PROJECT MANAGEMENT STRUCTURE

6.1 GENERAL STRUCTURE

The organizational structure of the Consortium comprises the following Consortium Bodies:

Project Management Committee (PMC) is the ultimate decision-making body of the Consortium.

Technical Management Committee (TMC) is responsible for monitoring and management of the progress of all research and development issues within the project.

Work Package Leader (WPL) is responsible for the management of a specific Work Package.

Task Leader (TL) is a leader of a Task, which is a unit of a Work Package. A TL is responsible to ensure the preparation of the final task deliverable.

The Coordinator is the legal entity acting as the intermediary between the Parties and the AAL CMU. The Coordinator shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the Consortium Agreement: The Coordinator is Comland d.o.o, IT Solutions Development as laid down in the Project Proposal.

6.2 SPECIFIC OPERATIONAL PROCEDURES FOR THE CONSORTIUM BODIES

6.2.1 PROJECT MANAGEMENT COMMITTEE

6.2.1.1 Members

The PMC consists of one appointed representative of each Party (hereinafter PMC Member). Each PMC Member is duly authorized to deliberate, negotiate and decide on all matters listed in Article 6.2.1.2. of this document.

The Project Manager (PM) - a person appointed by the Coordinator, chairs all meetings of the PMC, unless decided otherwise in a meeting of the PMC. The Parties agree to abide by all decisions of the PMC.

6.2.1.2 Decisions

The PMC is free to act on its own initiative to formulate proposals and take decisions in accordance with the procedures set out herein. In addition, all proposals made by the TMC are also considered and decided upon by the PMC.

The following decisions are taken by the PMC:

Content, finances and intellectual property rights

- Proposals for changes to the Technical Annex of the Consortium Agreement be agreed by the AAL CMU and/or National Funding Authorities
- Proposal for Changes or proposal for decisions

Evolution of the Consortium

- Entry of a new Party to the Consortium and approval of the settlement on the conditions of the accession of such a new Party

- Withdrawal of a Party from the Consortium and the approval of the settlement on the conditions of the withdrawal
- Declaration of a Party to be a Defaulting Party
- Remedies to be performed by a Defaulting Party
- Termination of a Defaulting Party's participation in the Consortium and measures relating thereto
- Proposal to the AAL CMU for a change of the Coordinator
- Proposal to the AAL CMU for suspension of all or part of the Project
- Proposal to the AAL CMU for termination of the Project and the Consortium Agreement

6.2.1.3 Tasks

- The PMC prepares the meetings and propose decisions.
- It seeks a consensus among its members.
- The PMC is responsible for the proper execution and implementation of its decisions.

6.2.1.4 Responsibilities

- The PMC monitors the effective and efficient implementation of the Project.
- In addition, the PMC collects information at least every 6 months on the progress of the Project, examine that information to assess the compliance of the Project with the Consortium Plan and, if necessary, prepares modifications of the Consortium Plan.

6.2.2 TECHNICAL MANAGEMENT COMMITTEE

6.2.2.1 Members

- The TMC consists of leaders of all Work Packages (hereinafter TMC Member).The TMC is chaired by Technical Coordinator appointed by the Coordinator and PMC.
- The Technical Coordinator chairs all meetings of the TMC, unless decided otherwise.

6.2.2.2 Minutes of meetings

- Minutes of TMC, once accepted, are sent by the Technical Coordinator to the PMC members for information.

6.2.2.3 Tasks

- The TMC prepares the meetings and proposes decisions as regards research and development issues within the project.
- It seeks a consensus among its members.

6.2.2.4 Responsibility

- The TMC is responsible for the proper execution and implementation of the decisions of the PMC related to the research and development issues.

6.2.3 COORDINATOR

6.2.3.1 The Coordinator is the intermediary between the Parties and the AAL CMU and performs all tasks assigned to it as described in the Proposal and in the Consortium Agreement.

6.2.3.2 In particular, the Coordinator is responsible for:

- monitoring compliance by the Parties with their obligations
- keeping the address list of Members of consortium Bodies and other contact persons updated and available
- collecting, reviewing and submitting information on the progress of the Project and reports and other deliverables
- preparing the meetings, proposing decisions and preparing the agenda of PMC meetings, chairing the meetings, preparing the minutes of the meetings and monitoring the implementation of decisions taken at the meetings
- transmitting documents and information connected with the Project
- providing, upon request, the Parties with official copies or originals of documents which are in the sole possession of the Coordinator when such copies or originals are necessary for the Parties to present claims.

6.2.3.3 If the Coordinator fails in its coordination tasks, the PMC may propose to the associated national funding administration to change the Coordinator.

6.2.3.4 The Coordinator is not entitled to act or to make legally binding declarations on behalf of any other Party.

6.2.4 WPL (WORK PACKAGE LEADER)

6.2.4.1 The table below presents Work Packages and corresponding WPL.

Work Package	WP Leader
WP1 – End user needs and requirements	I&IMS
WP2 – Platform development	Comland
WP3 – HMI development	Alpineon
WP4 – Evaluation	Comland
WP5 – Dissemination & Exploitation strategy Standardisation	Institut Télécom
WP6 – Project management	Comland

Table 1: Work Packages (WP) and corresponding WPL

6.2.4.2 In particular, the WPL is responsible for:

- ensure the accomplishment of the technical objectives of the WP,

- report and follow the WP progress, deliverables and milestones (scheduling) to the TMC and Coordinator,
- assess the quality of the outputs from their WP (i.e. level of quality of deliverables), initiate and participate actively in the TMC necessary for work progress, and report minutes,
- archive all documents related to the WP they are leading,
- report and suggest to the PMC through TMC changes needed in the WP,
- refer to the Coordinator and/or TMC in case of major issue that affects the completion of the work foreseen,
- identify the knowledge generated in their WP, and evaluating with the Project Manager its potential use,
- manage the interactions between their Work Package with other WPs in the project.

The WPLs are appointed as laid out in the Technical Annex of the Consortium Agreement and shall meet as deemed necessary and make decisions to achieve their WP; meetings may also be held by teleconference or other telecommunication means. Every WPL has the right to convene meetings with some or all WPLs if necessary for the Project. The WPL convening the meeting is responsible to produce the minutes of meetings and to send them to the Coordinator.

6.2.5 TL (TASK LEADER)

6.2.5.1 A TL is a leader of a Task, which is a unit of a Work Package. The TL is responsible to ensure the preparation of the final task deliverable. The table below presents deliverables and TL responsible for their preparation.

Del. No.	Deliverable name	Task Leader
D 1.1	End-user involvement plan and definition of user groups	I&IMS
D 1.2	User requirements input and High level functional specifications	I&IMS
D 1.3	Trial scenarios	ALP
D 1.4	Ethical and privacy guide	I&IMS
D 2.1	Feasibility study: State of the art methods and available sensors	IMT
D 2.2	Definition of HW platform and sensors	Comland
D 2.3	Development of perception and navigation system	Comland
D 2.4	Evaluation and fault tolerance	Comland
D 3.1	Visual Semantic model	IMT
D 3.3	User interaction concept for blind and vision impaired	ALP

D 3.4	Human-machine interface	ALP
D 4.1	Report on final integration testing and interim prototype delivery	Comland
D 4.2	Alignment with functional requirements	Comland
D 4.3	Final report of end-user evaluation testing and prototype delivery	Comland
D 5.1	Project web site and promotional material	Comland
D 5.2	Dissemination plan	IMT
D5.3	Standardization overview	IMT
D 5.4	Dissemination report	IMT
D 5.5	Business and Exploitation plan	Granite 5
D6.1	Project management handbook and quality assurance plan, M4.	Comland
D6.2	Report from kick-off meeting and reports from periodical progress meetings, every 6 months	Comland
D6.3	Interim progress report, M15	Comland
D6.4	Final report, M30.	Comland

6.2.5.2 In particular, the TL is responsible for:

- the technical coordination of the activities of all the partners involved in a specific task of the project,
- keeping the WPL informed on a regular basis of the progress status of the workplan,
- collaborating with WPL,
- preparing deliverables associated with its task in timely and quality manner.

7 MEETINGS

7.1 REPRESENTATION IN MEETINGS

Plenary meeting is a meeting where all members of consortium participate

Any member of a Consortium Body (hereinafter referred to as "Member"):

- should be present or represented at any meeting;
- may appoint a substitute or a proxy to attend and vote at any meeting;
- and shall participate in a cooperative manner in the meetings.

7.2 PREPARATION AND ORGANISATION OF MEETINGS

7.2.1 CONVENING MEETINGS

The chairperson of a Consortium Body shall convene meetings of that Consortium Body.

	Ordinary meeting	Extraordinary meeting
Plenary meetings	At least twice a year	At any time upon written request of the Coordinator or upon written request of any Member of the PMC
PMC	At least twice a year	At any time upon written request of the Coordinator or 1/3 member of the PMC
TMC	At least twice a year	At any time upon written request of any Member of the TMC

Meetings will be hosted each time by different partner.

7.2.2 NOTICE OF A MEETING

The chairperson of a Consortium Body gives notice in writing of a meeting to each Member of that Consortium Body as soon as possible and no later than the minimum number of days preceding the meeting as indicated below.

	Ordinary meeting	Extraordinary meeting
Plenary meetings	30 calendar days	10 calendar days
PMC	30 calendar days	10 calendar days
TMC	30 calendar days	10 calendar days

7.2.3 SENDING THE AGENDA

The chairperson of a Consortium Body prepares and sends each Member of that Consortium Body a written (original) agenda no later than the minimum number of days preceding the meeting as indicated below.

Plenary meetings	14 calendar days, 5 calendar days for an extraordinary meeting
PMC	14 calendar days, 5 calendar days for an extraordinary meeting
TMC	14 calendar days, 5 calendar days for an extraordinary meeting

7.2.4 ADDING AGENDA ITEMS

Any agenda item requiring a decision by the Members of a Consortium Body must be identified as such on the agenda. Any Member of a Consortium Body may add an item to the original agenda by written notification to all of the other Members of that Consortium Body up to the minimum number of days preceding the meeting as indicated below.

Plenary meetings	7 calendar days, 3 calendar days for an extraordinary meeting
PMC	7 calendar days, 3 calendar days for an extraordinary meeting
TMC	7 calendar days, 3 calendar days for an extraordinary meeting

- During a meeting the Members of a Consortium Body present or represented can unanimously agree to add a new item to the original agenda.
- Any decision may also be taken without a meeting if the Coordinator circulates to all Members of the Consortium Body a written document which is then signed by the defined majority (see Article 7.3.) of all Members of the Consortium Body.
- Meetings of each Consortium Body may also be held by teleconference or other telecommunication means.
- Decisions will only be binding once the relevant part of the Minutes has been accepted according to Article 7.5.

7.3 VOTING RULES AND QUORUM

- Each Consortium Body shall not deliberate and decide validly unless two-thirds (2/3) of its Members are present or represented (quorum).
- Each Member of a Consortium Body present or represented in the meeting shall have one vote.
- Defaulting Parties may not vote.
- Decisions shall be taken by a majority of two-thirds (2/3) of the votes.

7.4 VETO RIGHTS

- A Member which can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of a Consortium Body may exercise a veto with respect to the corresponding decision or relevant part of the decision.
- When the decision is foreseen on the original agenda, a Member may veto such a decision during the meeting only.
- When a decision has been taken on a new item added to the agenda before or during the meeting, a Member may veto such decision during the meeting and within 10 days after the draft minutes of the meeting are sent.
- In case of exercise of veto, the Members of the related Consortium Body shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all its Members.

- A Party may not veto decisions relating to its identification as a Defaulting Party. The Defaulting Party may not veto decisions relating to its participation and termination in the Consortium or the consequences of them.
- A Party requesting to leave the Consortium may not veto decisions relating thereto.

7.5 MINUTES OF MEETINGS

- The chairperson of a Consortium Body shall produce written minutes of each meeting which shall be the formal record of all decisions taken. He shall send the draft minutes to all Members within 10 calendar days of the meeting.
- The minutes shall be considered as accepted if, within 10 calendar days from sending, no Member has objected in writing to the chairperson with respect to the accuracy of the draft of the minutes.
- The chairperson shall send the accepted minutes to all the Members of the Consortium Body and to the Coordinator, who shall safeguard them.
- If requested the Coordinator shall provide authenticated duplicates to Parties.

7.6 COMMUNICATION WITHIN CONSORTIUM

Communication within consortium shall be held as follows:

- Mailing lists (general, PMC, TMC, for specific groups)
- Meetings
- Web site
- Audio conferences

8 QUALITY ASSURANCE PLAN

The purpose of this Quality Assurance Plan (QAP) is to control the quality of all deliverables (documents and software) that must be submitted to the AAL CMU. The plan describes the necessary expectations which have to be met in order to ensure the quality of the deliverables.

The WP Leaders, Task leaders and Project manager are responsible for quality control process, but all participants in ALICE project are committing to perform the work to a high standard.

The QAP is intended to be used by WP leaders, Task leaders, those responsible for planning of activities and preparing deliverables, appointed reviewer and in general by Consortium partners for providing timely input and qualitative deliverables. Once accepted by the Consortium, the Project Management Handbook and Quality Assurance Plan becomes an official project document.

Quality assurance process will control the input and output as well as the interactions between all WPs within the project. Each Task leader will be responsible for the quality of their deliverables. In addition, internal reviewing procedure will be taken to assure the quality of deliverables, process and results. Internal review will be performed by project coordinator and two technical partners for each deliverable.

Quality audits will be performed at regular intervals (two months) by Project Manager in order to ensure that all partners involved carry out all necessary tasks in line with project goals and that quality assurance process is respected.

External peer review is envisaged by AAL CMU.

8.1.1 DEFINITION OF PROJECT QUALITY

The quality of the project is defined as

1. Submitting agreed deliverables at agreed deadlines, as set out in Annex 1,

2. Ensuring a quality and functionality of deliverables as set out in the Technical Annex to Consortium Agreement,

3. Implementing the process to ensure 1 and 2.

8.1.2 QUALITY EXPECTATIONS

ALICE device should meet the qualities specified below:

- ALICE device should have implemented functionalities as described in Technical Annex to the Consortium Agreement,
- ALICE device should meet user expectations, verified through user testing,
- Deliverables must be handed over at the time specified in the Technical Annex to the Consortium Agreement,
- The project must be completed by November 2014,
- Project cost must be completed within the agreed grant.

8.2 QUALITY ASSURANCE PROCESS

Quality assurance plan is executed through the quality assurance process. Procedures covered by Quality assurance process will include:

- plenary meetings at regular intervals and in particular at key milestones in the project as defined in Chapter 7,
- document and deliverable control,
- project reviews (internal at plenary meetings and external by AAL CMU) and
- quality audits.

Quality Assurance is based on the following principles:

- Project quality criteria will be defined by PM in consultation with the WP leaders for each WP and deliverable.
- Tools, methods and techniques are set out in chapter 8.2.1 and 8.2.2 below.
- PM will perform quarterly review of compliance with the Quality Plan
- The templates will be defined for each deliverable setting partners involved, schedule of drafts, appointed reviewer, and published on ALICE website – members only area .

8.2.1 DOCUMENT AND DELIVERABLE CONTROL

Official outputs of the project are defined as deliverables. In Appendix A, »Deliverables overview list« is the full list of deliverables with deliverable name, number of corresponding work package, responsible partner, contributors, nature/type of deliverable, deliverable, dissemination level and delivery date.

8.2.1.1 Document deliverables

Deliverables will be produced by each responsible project partner (Task Leader) as indicated in Appendix A, »Deliverables overview list«.

Partners shall use templates for deliverables and presentations. Templates and all draft and final versions of the documents will be published on the project website private area as described in Article 8.2.3.

Process of document preparation and review is shown in Figure 1.

8.2.1.2 Document properties

Document properties are shown on the title page and/or the header/footer of the document. Properties shall be changed during document creation.

The first page of the document include Logos of Alice project, AAL JP project number, project acronym, project full title, document name and other document properties:

- Deliverable Id
- Deliverable Name
- Status
- Dissemination Level
- Due date of deliverable
- Actual submission date
- Work Package
- Organization name of lead contractor for this deliverable
- Author(s)

- Partner(s) contributing

Name of the document consists of: deliverable number and deliverable name Example: D.1.1 Project management Handbook and Quality Assurance Plan

Version: Version is indicated in the History Table on Page 2. The draft versions start with 0.1 and are incremented by 0.1. Released versions receive x.0 version numbers, e.g. 1.0.

Template for deliverable will be published on the project website private area. Template will describe all necessary elements of documents including fonts, appearance of tables and other relevant elements of documents.

Each document should have the following sections:

- History
- List of figures
- List of tables
- Executive summary
- Introduction
- Main content
- Conclusions
- References
- Appendix

8.2.1.3 The overall process of Document control

In the overall process there are 4 phases. Figure 1 describes each phase with the activities of the phase, the responsibility of the phase and deliverable.

Responsibility	Activity	Deliverable
Task Leader	Establishing the document's structure, coarse TOC, and preliminary abstract	Deliverable Definition
Task Leader	Preparing the detailed work-plan for developing the deliverable	Deliverable Work-plan *DEF*
PM, WP leaders	Review	Emails
Task Leader , Contributors	Elaboration of first, complete deliverable draft	First complete deliverable draft *DRAFT1*
PM, designated reviewer	Review	Review comments
Task Leader, Contributors	Elaboration of second, complete deliverable draft	Second complete deliverable draft *DRAFT2*
PM, designated reviewer	Approval	Email
PM	Release and submittal to EC	Final deliverable *FINAL VER.*

Figure 1: Deliverable Process: Document Preparation and Review

- In Table 2 »Deadlines of documents and reviews« all deadlines of documents and reviews are shown.
- All versions of the document should be distributed via the project private web site as described in Article 8.2.3.

- An email notification should be send each time when document is ready for download to the reviewer and all other parties that may be involved.
- A discussion about open issues should take place via email or at regular meetings.
- As indicated in Appendix A, »Deliverables overview list« each deliverable will be produced by responsible Task Leader and Contributors assigned to the particular deliverable.
- The reviewer is assigned at the beginning of deliverable preparation.
- To each document deliverable one partner is appointed as a reviewer which shall not come from the Task Leader organization.
- If the review regards technical issues reviewer shall have IT skills.

The first phase starts with tentative document structure, coarse table of content and preliminary abstract. The detailed work plan should incorporate tasks and activities, the contributing partners (if there will be any) the responsible editor (Task Leader) and reviewer.

The responsible editor (Task Leader) should prepare and distribute the Workplan via the project private web site in 2 weeks' time as shown in Table 2. PM and WP Leaders provide their comments on Workplan in 1 week.

The responsible document editor (Task leader) should prepare the first complete deliverable draft (Draft 1) and distribute it via the web site in 6 weeks' time. The first draft is reviewed by the PM and designated reviewer in 2 weeks' time. Based on reviewer comments the document editor should prepare in 1 week time the second complete deliverable draft for approval (Draft 2).

The document is sent to final revision and approval to PM and designated reviewer. The final revision should be performed in 1 week time. In case of minor revisions document editor incorporates the corresponding corrections in 1 week time and provides the final version of the deliverable to the PM and designated reviewer for approval. Final approval takes 1 week time.

At the very last stage the PM forwards the document to the AAL CMU.

Table 2 describes the phases required to create a particular deliverable and deadlines of documents and reviews. As shown in Table 2, Task Leader should start the process of the deliverable 15 weeks before the expected due date.

Phase	Description	Deliverable	Deadline
DEF	Detailed work plan for developing the deliverable, establishing the document structure with TOC, and preliminary abstract	Workplan, TOC, preliminary abstract	2 weeks
	Review of Work Plan and TOC	Revisions of TOC and workplan	1 week
DRAFT 1	Elaboration of first, complete deliverable draft	Draft 1	6 weeks
	Review of draft 1	Revisions of Draft 1	2 weeks
DRAFT 2	Elaboration of second, complete deliverable draft	Draft 2	1 week
	Review of draft 2	Revisions of Draft 2	1 week
FINAL VER	Elaboration of final deliverable	Final deliverable	1 week
	Approval of complete document in final version and submission to AAL CMU	Approval and Final delivery	1 week

Table 2: Deadlines of documents and reviews

8.2.1.4 Document distribution

Deliverables, templates, presentations, meeting minutes, meeting venue information and other information about project shall always be distributed via the project private web site. On site www.alice-project.eu is private area (Members only) where all members of the Consortium should sign in in order to access the project deliverables. The repository of the documents gathers all deliverables generated during the project lifetime.

The structure of the repository is as follows:

Plenary Meetings

In this section the documents from plenary meetings are available such as: presentations, meeting minutes, meeting venue information etc. All partners can download/upload documents.

Project Management Committee

This section contains documents related to the work of Programme Managemenet Committtee (PMC). All members of PMC can download/upload documents.

Technical Management Committee

This section contains documents related to the work of Technical Managemenet Committtee (TMC). All members of TMC can download/upload documents.

WP 1: End-user needs and requirements

This section contains documents related to the work of WP 1: End User Needs and Requirements. All partners can view documents, while only WP 1 partners can upload them.

WP 2: Platform development

This section contains documents related to the work of WP 2: Platform Development. All partners can view documents, while only WP 2 partners can upload them.

WP 3: HMI Development

This section contains documents related to the work of WP 3: HMI Development. All partners can view documents, while only WP 3 partners can upload them.

WP 4: Integration and Evaluation

This section contains documents related to the work of WP 4: Integration and Evaluation is available. All partners can view documents, while only WP 4 partners can upload them.

WP 5: Dissemination & Exploitation strategy, Standardization

This section contains documents related to the work of WP 5: Dissemination & Exploitation strategy, Standardization is available. All partners can view documents, while only WP 5 partners can upload them.

WP 6: Project management

This section contains documents related to the work of WP 6: Project management. All partners can view documents, while only WP 6 partners can upload them.

8.2.2 SOFTWARE DELIVERABLES

8.2.2.1 Release scheduling

Software releases will be dictated by the Waterfall or Agile software development process model. Software will be developed incrementally (Incremental Waterfall) or in sprints (Agile). In Appendix A, »Deliverables overview list« is the list of software deliverables and delivery dates which will be followed accordingly.

8.2.2.2 Testing and validation

Software testing will be performed internally to enforce code quality and good engineering. Three types of testing will be used:

- Code testing
- Integration testing
- Functional testing
- User testing

8.2.2.2.1 CODE TESTING

Standard techniques such as **unit testing** and **code reviews** will be used for software code testing by all partners developing code.

Unit testing will be used to verify the functionality of a specific section of code. Observable behavior of classes and methods will be specified beforehand.

Code review (often known as peer review) will be used to find and fix mistakes overlooked in the initial development phase, improving both the overall quality of software and the developers' skills. Reviews can be done in various forms such as pair programming, informal walkthroughs, and formal inspections.

8.2.2.2.2 INTEGRATION TESTING

Integration testing will be performed by technical partners participating in WP 4.

Integration testing will be performed to detect defects in the interfaces and interaction between integrated components (modules). Progressively larger groups of tested software components corresponding to elements of the architectural design will gradually be integrated and tested until the software works as a system. Testing of compliance with test cases will be performed and expected behavior of each part will be measured.

System integration testing will be used to verify that programming modules are integrated with HW platform and sensors as defined in the system requirements. At this stage, series of repeatable tests will be performed using sensory data recorded using case scenarios. Compliance with test cases will be performed at this stage.

During the development also following tests will be performed: Stress and performance tests and tests of the device autonomy.

8.2.2.2.3 FUNCTIONAL TESTING

Functional testing is a black box testing which will be performed to check if the software performs according to functional specifications. Functional testing will be carried out on the predefined set of test cases.

8.2.2.2.4 USER TESTING

Usability testing will involve measurement how well test subjects respond in four areas: accessibility, efficiency, accuracy, ease of use and emotional response (Acceptance level and sense of security)

For **Safety testing** safety-oriented usability goals will be defined in close relation to the risk of the product. Risks that may result in use errors will be identified; for each of them, usability goals will be defined taking into account the severity of the potentials consequences of the risk in terms of user safety.

Once beta version of the product will be released **Beta version testing** will be performed by selected group of final users (blind and visually impaired) so that further testing can ensure the product has few faults**.**

Acceptance test will be performed by the End user organization. During this test End users will personally test the system in real situations. Evaluation will be conducted as follows: First a Preconditions and Expected requirements will be defined. Precondition requirements will be set, describing what outcomes are expected. Obtained results will be empirically measured or observed, that will determine the extent to which the expected outcomes have been met.

Since users safety is our primary concern, »**man behind the curtain**« method is used for all stages of user testing. That means that during testing, tester is always followed by a sighted person, who is able to intervene in case of erroneous interpretation of environment.

The final releases will be validated by the WP Leaders. They will fill in a template document final report.

9 CONCLUSIONS

In the present document general project management structure is described and quality plan as well as quality assurance process is presented.

Consortium members should follow guidelines within this document in order to ensure that project goals and contractual commitments are met in a timely and qualitative manner.

10 REFERENCES

A. APPENDIX A – DELIVERABLES OVERIVIEW LIST

Del. No.	Deliverable name	WP	Responsible	Contrib-utors	Nature/type of deliverable	Deliver-able	Dissemin-ation level	Delivery date
D 1.1	End-user involvement plan and definition of user groups	1	I&IMS	Com, UBPS, COMBD	Research	Report	Public	M4
D 1.2	User requirements input and High level functional specifications	1	I&IMS	Consortium	Research	Report	Public	M9
D 1.3	Trial scenarios	1	ALP	Consortium	Research	Report	Public	M9
D 1.4	Ethical and privacy guide	1	I&IMS	Consortium	Research	Report	Public	M9
D 2.1	Feasibility study: State of the art methods and available sensors	2	IMT	I&IMS, Comland	Research	Report	Public	M4
D 2.2	Definition of HW platform and sensors	2	Comland	I&IMS, IMT	Research	Report	Restricted	M14
D 2.3	Development of perception and navigation system	2	Comland	IMT	Research	Report / Software	Restricted	M22
D 2.4	Evaluation and fault tolerance	2	Comland	I&IMS, IMT	Research	Report	Restricted	M24
D 3.1	Visual Semantic model	3	IMT	Comland	Research	Report	Restricted	M18
D 3.2	User interaction concept for blind and vision impaired	3	ALP	Comland, Granite 5	Research	Report	Restricted	M12
D 3.3	Human-machine interface	3	ALP	UBPS, COMBD, Granite 5, Comland	Research	Report / Software	Restricted	M22

D 4.1	Report on final integration testing and interim prototype delivery	4	Comland	I&IMS, IMT, ALP, UBPS,COMBD	Development	Report	Restricted	M24
D 4.2	Alignment with functional requirements	4	Comland	ALP, IMT	Development	Report	Restricted	M28
D 4.3	Final report of end-user evaluation testing and prototype delivery	4	Comland	I&IMS, IMT, ALP, UBPS, COMBD	Development	Report	Restricted	M30
D 5.1	Project web site and promotional material	5	Comland	Consortium	Dissemination	Report / Software	Public	M10
D 5.2	Dissemination plan	5	IMT	Consortium	Dissemination	Report	Restricted	M6
D5.3	Standardization overview	5	IMT	I&IMS, Granite 5, Comland	Dissemination	Report	Restricted	M6
D 5.4	Dissemination report	5	IMT	Consortium	Dissemination	Report	Public	M30
D 5.5	Business and Exploitation plan	5	Granite 5	Consortium	Dissemination	Report	Restricted	M28
D6.1	Project management handbook and quality assurance plan, M4.	6	Comland	ALP, IMT, I&IMS, GRanite 5	Management	Report	Public	M4
D6.2	Report from kick-off meeting and reports from periodical progress meetings, every 6 months	6	Comland		Management	Report	Public	Months 1, 6, 12, 18, 24
D6.3	Interim progress report, M15	6	Comland	Consortium	Management	Report	Public	M15
D6.4	Final report, M30.	6	Comland	Consortium	Management	Report	Public	M30