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1.0 Quality Assurance Plan

1.1 Introduction

The goal behind the Quality Assurance Plan for Indoor Positioning using Ultra Wideband is to ensure that by time of completion, we are able to meet all of the requirements for success of this project.   
It is to make sure that the client will be satisfied by the end of the project and aware of the progression of the project.

1.2 Purpose

The Quality Assurance plan is a working map to guide and direct the progress of the project to ensure that the project meets the standards. The team has to follow the Quality Assurance plan to have the best possible high quality outcome from the project during the software developing process. It will help to smooth the work to activate the goal of Indoor Positioning using the Ultra Wideband technology.

1.3 Policy Statement

***“TQM Soft Dev team is dedicated to meet customer needs through building a good understanding bridge between the team and the client to gain the client satisfaction through achieving excellence in software operations and services including developing and testing software”***

To meet our dedication we will:

* deliver the requirements of our Quality System and keep improving it to make it more effective by reviewing and updating our quality objectives.
* be on customer expectations by delivering our projects on price, quality and timeframe.
* Support and skill up our team to ensure the best performance

1.4 Scope

The purpose of this project is to produce software for TQM Robotics to support Indoor Positioning using Ultra WideBand through the use of Decawave. Decawave is a module that helps develop software solutions and designs that enable real-time, ultra-accurate and reliable local area micro-location services. The system will support unlimited tags and a minimum of four anchors to provide information to the main PC on the exact whereabouts of each supermarket trolley. The main objectives of this project are to create a working software which supports features of the robotic hardware and framework, to attempt to add more anchors by coding on the TCP/IP layer and enhance the code to fit the target audience’s needs. Through the completion of this project, customer satisfaction is highly important and will be measured by the end result being a fully functioning software, compatible with the hardware provided by TQM robotics suitable for holding 4 to 8 anchor points. From this, benefits will include a complete, working software and framework prototype that may be implemented by TQM Robotics as an innovative new idea.

2.0 Management

2.1 Organizational Structures

The TQM Soft Dev Team is using the Scrum framework in Agile project Management methodology to ensure that the team will deliver the project goal with equal engagement of every team member. The team follows the Agile principles for more information visit <http://agilemanifesto.org/principles.html> and read the Agile Manifesto on <http://agilemanifesto.org/>

2.2 Roles and Responsibilities

2.2.1 Technical Monitor/Senior Management

2.2.2 Task Leader/Project Manager/Product Owner

* assign task to teams
* leads the team through the project
* build client- team relations during meetings and other communication windows.
* communicate with stakeholders to ensure that everyone is satisfied

2.2.3 Quality Assurance Team

* check product is delivered with high quality
* check that the team is following the policy statement
* check that the team is using the right templates to deliver the project proposal.

2.2.4 Data Producer Researcher

* extract the required information from the client to manipulate the project
* search for related information in similar projects done in the industry.
* process the collected information to feed the project with the right and accurate data

2.2.5 Change Manager

* ensure that all the changes are recorded
* ensure all the issues are identified, recorded and shared with everyone to be aware of
* ensure all risks are captured and managed to guarantee the project successful.

2.2.6 Document Manager

* ensure that the team are using the correct Template
* ensure the team is documenting all the progress
* ensure the team is using Trello board to maintain communication and clarity.

2.27 Software Development Team

* ensure using the right software required by the client
* ensure writing clean and readable software code
* ensure the code is functioning effectively.

3.0 Required Documentation

* Issue Log Register
* Milestone Report
* Risk Register
* Quality Assurance Plan
* Stakeholder Register
* Communication Plan
* Project Charter
* Issue Log Register
* Skill Register
* Change Management Plan
* Team Contract
* Project Research
* Team Roles
* Scope Statement Document
* WBS Method
* Approach/Method Practices
* Project Schedule
* Resource Plan
* Training Plan
* Project Review Plan
* Code of Ethics
* Meeting Minutes
* Critical Reflection
* IT Skills Matrix

4.0 Quality Assurance Procedures

Quality Assurance procedures refers to all activities required to be done by the team to ensure that they deliver high and efficient products with high Quality and high performance. The procedures should be applied on 2 levels:

Individual Procedures:

Plan

* Check Mails, facebook group discussion, Microsoft Teams group first as soon as you login to your computer.
* read the outcome of the last meeting minutes and find out what needed to be done.
* Read and understand all the activities required to be done today
* have a notebook system to note down all the activities and tasks are you intended to work on that day.
* prioritize your tasks and approved it with the team on the daily stands up

Do:

* Start working on then approved tasks and priorities it according to the plan
* Each task has to be competed in a logical time frame with accuracy and efficiency.
* complete tasks in order of easy-medium- hard order to make sure that more objectives are done.
* update Trello board with your current work to make the communication clear between the Team members.

Check:

* compare the plan and the do stage to prepare for the evaluation process.
* identity the differences between plan and do stage to know the difference between the actual outcome and the expected outcome.

Act:

* Analyse the differences between the actual and the expected outcome.
* discuss improvement plans to do the required changes to meet the plans in the future.
* apply the new changes to reduce the gap of differences between plan and do stages.

Project Level procedures:

Plan:

* absorb the customer requirements and break them into sprints
* prioritize the revealed requirements.
* schedule the requirements and identify the risks related to it.
* discuss and reveal the required resources to achieve the requirements.

Do:

* work on the plan which has been set in the Plan stage
* Each task has to be competed in a logical time frame with accuracy and efficiency.
* complete tasks in order of easy-medium- hard order to make sure that more objectives are done.
* check and update Trello board with your current work to make the communication clear between the Team members.

Check:

* compare the plan and the do stage to prepare for the evaluation process.
* identity the differences between plan and do stage to know the difference between the actual outcome and the expected outcome.
* at the end of each sprint, ensure correct and efficient work has been done through verification, validation, testing etc…

Act:

* Analyse the differences between the actual and the expected outcome.
* discuss improvement plans to do the required changes to meet the plans in the future.
* apply the new changes to reduce the gap of differences between plan and do stages.

4.1 Walkthrough Procedure

The aim of the Walkthrough Procedure is to review and check possible errors in the project. The process will be performed frequently after each sprint. The Quality Assurance team will:

* put through a request by one of the team members to hold a Walkthrough meeting
* develop an agenda of the meeting and have this prepared before the meeting begins. The agenda should discuss:
* whether or not the model meets the project objectives
* is the model clear and meet the requirements
* is the model do what it suppose to do
* is the model easy to use and customer friendly.
* Evaluate the technical work done by the team on the selected sprint and make sure that it follows the guidelines and requirements of the project.
* a notetaker should note down all the minutes meetings.

4.2 Review Process

4.2.1 Review Procedures

The Review Procedures will include:

* Requirements Review
* Design Review
* Acceptance Test Review
* Post Implementation Review

4.4 Evaluation Process

4.5 Process Improvement

the process Improvement procedure will take place after collecting feedback information from the client, the Team members themselves and the Aut Academic team

4.5.1 Client Feedback

the feedback will be collected from :

* Client meetings
* Client Emails

4.5.2 Team Feedback

The feedback will be collected from:

* Team members facebook page
* Team members meetings
* Team members emails

4.5.3 Aut Academic Team

The feedback will collected from:

* Tutorial meeting on Tuesday with Ramesh
* Mentor meetings on Tuesday and Friday with Chyrell
* Academic Team emails through Aut Email

5.0 Problem Reporting Procedures

5.1 Non Compliance Reporting Procedures

In Case of Non Compliance to the discussed procedures :

* A team meeting should be hold to discuss the issue and the cause of it
* A referral to the Aut Academic Team should take place in case the team couldn’t solve the issue.