

# **WRISTY REQUIREMENTS MANAGEMENT PLAN**

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Version 1.1  
09/29/2021

VERSION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Tammy Husnetdinova and Alex Verkest	09/01/2021			Initial setup
1.1	Tammy Husnetdinova and Aex Verkest	09/29/2021			Established project name Filled in project requirements (functional and nonfunctional must haves and nice to haves)

UP Template Version: 11/30/06

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## 1 INTRODUCTION

### 1.1 PURPOSE OF THE REQUIREMENTS MANAGEMENT PLAN

The Requirements Management plan is used to document the necessary information required to effectively manage project requirements from definition, through traceability, to delivery.

The Requirements Management Plan is created during the Planning Phase of the project. Its intended audience is the project manager, project team, project sponsor and any senior leaders whose support is needed to carry out the plan.

## 2 REQUIREMENTS MANAGEMENT OVERVIEW

### 2.1 ORGANIZATION, RESPONSIBILITIES, AND INTERFACES

People and Roles:

**Tammy Husnetdinova and Alex Verkest** will be responsible for the following:

The team members will most likely be working on a multitude of things, the above list is just a rough outline of what the plan is. The role of Team Leader will be shared equally between the two team members throughout the duration of the project.

### 2.2 TOOLS, ENVIRONMENT, AND INFRASTRUCTURE

WRISTY will use various software tools to help design and implement the project:

- **GitHub** will be used to store the software of all parts of the project
- **Trello** will be used to keep track of meeting dates and sprints
- **Google Docs** will be used to keep track of project milestones and gather meeting notes and research
- **CircuitPython** and **MU Editor** will be used as coding platforms for the Adafruit Feather
- **Windows** will be used as the OS for development and testing

WRISTY will use various hardware tools to help design and implement the project:

- **Adafruit Feather RP2040 chip** will be used as the microcontroller main-board for the watch
- **Wired miniature electret microphones (3)**
- **PDM Mems microphone breakouts (3)**

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## 3 REQUIREMENTS MANAGEMENT

### 3.1 ASSUMPTIONS/CONSTRAINTS

The Project Assumptions of ESP include factors that we believe to be true through the project's life cycle.

#### **Assumptions:**

- Requirement will be finished on the scheduled completion date
- Requirement will be fully testable or will already be in the testing process
- Requirements will be met within the budgetary constraints
- Project Manager and Project Team will provide functional and fully operational apps, an API, and a database.

#### **Constraints:**

- Individual scheduling for each requirement must not surpass the designated time
- The Project must be completed by the end of May 2022

### 3.2 REQUIREMENTS DEFINITION

#### **Project Requirements:**

Project 1 (Semester 1): Create a low fidelity functional prototype that addresses all of the must have functional requirements.

#### **Product Requirements:**

##### **Functional:**

##### **Must Haves:**

- Senses audio of the individual and alerts them
- Least distracting interactions
- Durable and affordable
- Uses data from the room to tell individual apart from ambient noise
- Modular (necklace, app, etc.)
- Is made with hypoallergenic materials
- Manual fine-tuning
- Must be self-powered
- Hard reset option when in an unstable state

##### **Nice to Haves:**

- Tells time
- Programmable profiles (school, home, etc)
- Smaller form-factor (fits on wrist)
- Learning tool/virtual friend with mood check-ins

- Notifications for events (medication, quiet time, bedtime)
- Paired parental device
- Data collection opt-in (dependent on parental side + programmability)
- Screen that is not distracting
- Adapts based on use, learns from settings/customization (AI-like adaptive learning)
- Rechargeable battery

**Non-Functional:****Must Haves:**

- Quick reaction response time to alert/notify (200ms)
- Minimal false positives (V1: 20% error rate, Production ready: 3% error rate)
- Comply with any disability requirements (Canada and US)
  - look at website/page a11y requirements for inspiration in research
  - AODA Ontario regulation around a11y (mobile and web interactions, good starting point)
  - Design ethically <https://www.designethically.com/>
- Has to pass the Ick Factor
- Quick-charging
- 12-14 hour battery life
- Boot time: TBD
- Storage size: TBD

**Nice to Haves:**

- Protect Data (contingent on app)

### 3.3 REQUIREMENTS TRACEABILITY

**Defining the Requirements:**

The Project Sponsor and Team Members define the requirements for WRISTY . The Project Guide will act like a middleman between the Team Members and the Project Sponsor to make sure the requirements are realistic based on the technical specifications. Any of the requirements may change at any point in the life cycle of WRISTY, and will be reviewed before it is applied.

**Identifying New/Old/Updated Requirements:**

Every requirement defined will be tracked and recorded through the Team Members and the Project Sponsor, which will be accessible by those that are affected.

**Documenting Requirements Process:**

Any work done related to a requirement will be documented by the Team Members. Some work may be for multiple requirements. If a requirement has moved from development to testing, it will also be recorded until it is complete.

**Communicating:**

Project Team Members will communicate twice a week to update the requirement tracking with new information.

The Project Sponsor and the Project Guide will be updated weekly, every Monday and Wednesday at 3:30pm MST, for a recap of the week and to discuss the status of the requirements. This will be done over video conference.

Whenever a requirement is complete, this information will be communicated to the Project Sponsor and the Project Guide.

### **3.4 WORKFLOWS AND ACTIVITIES**

### **3.5 CHANGE MANAGEMENT**

All changes of the project's schedule and constraints must be approved by the Team Members and the Project Sponsor. Any new suggestions or modifications will be discussed as a whole with the project team members to approve. Negotiations for the project's funding from sponsorships and overall budget management will be achieved through the Project's Sponsor, Elliot.

The Change Control Board (CCB) will be led by the Team Members and will consist of the Project Sponsor and the Project Guide. In order to propose a change to the software project, the notion must be presented to the entirety of the CCB and must be agreed upon. Once the notion change has passed and the requirements are Baselined with the agreed upon change, the Project Team must be alerted.

**Requirements Management Plan Approval**

The undersigned acknowledge they have reviewed the ESP **Requirements Management Plan** and agree with the approach it presents. Changes to this Requirements Management Plan will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	_____	Date:	_____
Print Name:	Elliot Polk		
Title:	Project Sponsor		
Role:	_____		

Signature:	_____	Date:	_____
Print Name:	Shawn McCarthy		
Title:	Project Guide		
Role:	_____		

Signature:	Tammy Husnetdinova	Date:	09/01/2021
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Print Name: Tammy Husnetdinova

Title: Team Member

Role:

Signature:

Date:

Print Name: Alex Verkest

Title: Team Member

Role:

## Appendix A: Key Terms

The following table provides definitions for terms relevant to this document.

Term	Definition
Objective	An objective is a concrete statement that describes what the project is trying to achieve.
Deliverable	A deliverable is any tangible outcome that is produced by the project.
Milestone	A milestone is a scheduling event that signifies the completion of a major deliverable or a set of related deliverables.
Project	A temporary structure to organize and manage work and ultimately to build a specific defined deliverable or set of deliverables.
Project Phase	A phase is a major logical grouping of work on a project.
Project Team	The project team consists of the full-time and part-time resources assigned to work on the deliverables of the project

Requirements	Requirements are descriptions of how a product or service should act, appear, or perform.
Scope	Scope is the way you describe the boundaries of the project. It defines what the project will deliver and what it will not deliver.
Sponsor	The sponsor is the person who has ultimate authority over the project. The executive sponsor provides project funding, resolves issues and scope changes, approves major deliverables, and provides high-level direction.

**Sources:**

- <https://ez.analog.com/audio/f/q-a/4262/mems-microphones-vs-electret-microphones-ecm>
- <https://www.cuidevices.com/blog/comparing-mems-and-electret-condenser-microphones>
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