Sprint 1 - Endurance Design Document

October XX, 2019

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1. Executive Summary

1.1 Project Overview

This Project was made as a computer sciences project by Jenna Esposito (manager), Therese Racancoj (editor) and Anthony Pastorelli (Chart Maintenance). The purpose of the project is to test the robot and see if it will follow the commands we program into it, which were to follow the blue tape that was placed on the floor in a rectangle.

Describe this project or product and its intended audience, or provide a link or reference to the project charter.

- **Project objectives. In a typical Project Overview Statement, the project objectives are written so that they can be understood by anyone who might have reason to read them.**
- **Assumptions, risks, and obstacles. The Project Overview Statement contains statements of assumptions, risks, and obstacles that will be of interest to senior management.**

1.2 Purpose and Scope of this Specification

In scope

- **Rectangle course**

Out of Scope

- **Other courses**

2. Product/Service Description

2.1 Product Context

This is one of three parts of the Robotics Triathlon

2.2 User Characteristics

- **Team members**

2.3 Assumptions

The class room was assumed to be available when team members needed it

Team members were assumed to have similar schedules

2.4 Constraints

- **The tile in class room 208 is uneven**
- **The tape does not always stay down**
- **Teammates have conflicting schedules**
- **Class room 208 is not always available**

2.5 Dependencies

- **This program must be run in class room 208**
- **Requirements must be finished before the coding process can begin**
- **Must be placed on the blue tape rectangle**

3. Requirements

- **Turn light green: the light on the robot should turn green**
- **Have it say "ready set go": when the program runs it should say ready set go**
- **Roll along all four sides of the tape rectangle: the robot must travel along all four of the sides of the tape to make a rectangle**
- **Stop at all four sides: after the robot travels along one side it should come to a full stop**
- **Turn to the next side: after the robot comes to a full stop it must turn to face the next side**
- **Stop at the end of the last side: the robot must make a full stop at the end of the last side and stay there**
- **Change light color to red: the light on the robot should turn red**
- **Say "I'm done and I need water": when the program runs it should say I'm done and I need water**

  - **Functional Requirements**

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
ENDUR_01	Turn light green		Priority 2	10/26/21	10/28/21
ENDUR_02	Have it say “ready set go”		Priority 2	10/26/21	10/28/21
ENDUR_03	Roll along all four sides of the tape rectangle	The robot must do this to finish the course	Priority 1	10/26/21	10/28/21
ENDUR_04	Stop at all four sides	This will help the robot to stay on course	Priority 2	10/26/21	10/28/21
ENDUR_05	Turn to the next side	The robot must do this to finish the course	Priority 1	10/26/21	10/28/21
ENDUR_06	Stop at the end of the last side		Priority 1	10/26/21	10/28/21
ENDUR_07	Change light color to red		Priority 2	10/26/21	10/28/21
ENDUR_08	Say “I’m done and I need water”		Priority 2	10/26/21	10/28/21

3.1 Security

3.1.1 Protection

NA

3.1.2 Authorization and Authentication

NA

3.2 Portability

- **Testing was limited to class room 208**
- **Recording the video can only be done in class room 208**
- **Code can be done any where**

4. Requirements Confirmation/Stakeholder sign-off

Meeting Date	Attendees (name and role)	Comments
10/28/21	**Anthony Pastorelli (Chart Maintenance), Jenna Esposito (manager), Therese Racancoj (editor)**	**All requirements approved**

5. System Design

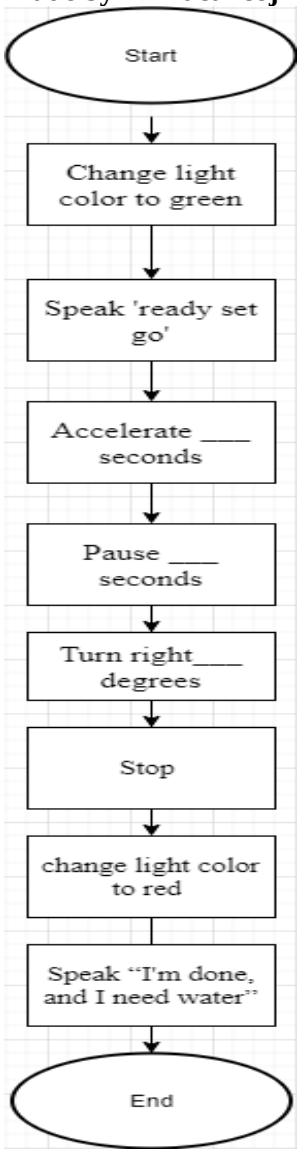
5.1 Algorithm

Sprint: Endurance
made by: Jenna

1. **Change light color to green**
2. **Speak "ready set go"**
3. **Accelerete_seconds**
4. **Pause_seconds**
5. **Turn_degrees**
6. **Repeat steps 3-5 4 times**
7. **Stop**
8. **Change light color to red**
9. **Speak "I'm done and I need water"**

5.2 System Flow/

Made by Ez Racancoj



5.3 Software

sphero.edu app

5.4 Hardware

Phone, computer and robot

5.5 Test Plan

Reason for Test Case	Test Date	Expected Output	Observed Output	Staff Name	Pass/Fail
Testing first 1 line	11/4/21	Stay along tape	Didn't go along blue tape	Anthony	fail
To get the time and measurements	11/4/21	To get the side 1 correct time and speed	Finished side 1	Anthony	pass
Get time and speed correct for side 2	11/4/21	Side 2 correct time and speed	side 2 didn't match	Anthony	fail
Get time and speed correct for side 2	11/4/21	side 2 correct time and speed	didn't match up	Anthony	fail
Get time and speed correct for side 2	11/4/21	Side 2 correct time and speed	Finished side 2	Anthony	pass
Complete the whole rectangle	11/5/21	Finish the whole rectangle	Very close just have to fix the last side time	Anthony	fail
Complete the whole rectangle	11/5/21	Finish the whole rectangle	Very close the last side is off	Anthony	fail
Complete the whole rectangle	11/4/21	Finish the whole rectangle	We fixed the times and complete the rectangle	Anthony	pass

5.6 Task List/Gantt Chart

Select a period to highlight at right. A legend describing the charting follows.

Period Highlight: 1

Plan Duration | **Actual Start** | **% Complete** | **Actual (beyond plan)** | **% Complete (beyond plan)**

ACTIVITY	STAFF MEMBER(S)	PLAN START (Hours)	PLAN DURATION (Hours)	ACTUAL START (Hours)	ACTUAL DURATION (Hours)	PERCENT COMPLETE
Develop a plan (Gantt chart)	Anthony	3	1	3	1	100%
Build requirements table	Ez	1	2	1	1	100%
Sprint 1 - Endurance	all team members	1	2	1	3	100%
flow chart endurace	Ez	4	1	4	1	100%
design doc	all team members	2	2	2	1	100%
algorithum	jenna	5	1	5	1	100%
block code	jenna	6	1	6	1	0%

PERIODS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

5.7 Staffing Plan

Name	Role	Responsibility	Reports To
Jenna Esposito	**Manager**	**Team management, organize staffing plan and deadlines, write algorithm, work with block code, and manage GitHub repository**	**Team**
Ez Racancoj	**editor**	**Editing and finalizing and filling out the doc fill out requirements table, create flowchart, and record robot video during meeting on 10/4**	**Jenna Esposito**
Anthony Pastorelli	**Chart Maintenance**	**Maintain requirements sign-off, test table, and Gantt chart**	**Jenna Esposito**