Jonathan Peralta, Lyah Morales

Sprint 1

1.1 Project Overview

We are going to be using Sphero to create sprints where the robot seems to be testing its endurance and other factors such as an actual being in a triathlon. In the first sprint, the robot must follow the markings of HH208 in a square. It should start off with a green light and end with red. It must also say “ready, set, go” before going and “I’m done and I need water” after it has traveled. Points will be deducted if it does not change colors, speak, or collies with an object while doing the sprint.

1.2 Purpose and Scope of this Specification

The purpose of this project is to teach new programmers how to program/code a robot to do certain tasks

2.Product/Service Description

Some factors within this project include the sphero being a spherical robot having to run the corners of a classroom. The robot is controlled by an interface either on a computer, laptop, or mobile device.

2.1 Product Context

In order to perform tasks, the robot must be programmed with commands. The same is done for other products.

2.2 User Characteristics

Due to its simple way of coding (Drag & Drop) it can be used by individuals at the beginner’s level

2.3 Assumptions

A person cannot test their code if they do not have access to a robot

2.4 Constraints

- Robot may not always travel straight after being aimed
- It may be difficult to control at times
- The protective cover might hinder mobility

2.5 Dependencies

- Sphero app account (Can be accessed in phone, computer, tablet, etc)
- Robot

3. Requirements

Req#	**Requirement**	**Comments**	**Priority**	**Date Rvwd**	**SME Reviewed / Approved**
ENDUR-01	The robot should go straight and not stray away from the marked path		2	10/24/19	Jonathan Peralta Lyah Morales
ENDUR-02	The robot has to travel around the room in a square, and start/end in the same spot		1	10/24/19	Jonathan Peralta Lyah Morales
ENDUR-03	The robot should speak “ready, set, go” before starting the sprint, and “I’m done and I need water” after finishing it	.	3	10/27/19	Jonathan Peralta Lyah Morales
ENDUR-04	The robot should start with a green light and end with a red light		3	10/27/19	Jonathan Peralta Lyah Morales

3.2 Security

3.2.1 Protection

- Creating a firewall

3.2.2 Authorization and Authentication

Authentication verifies who you are, while Authorization decides whether a user is allowed to use the system

3.3 Portability

The code can easily be accessed on any device containing the sphero app. Within the app, anyone can use any code as long as it is public

4.Requirements Confirmation/Stakeholder sign-off

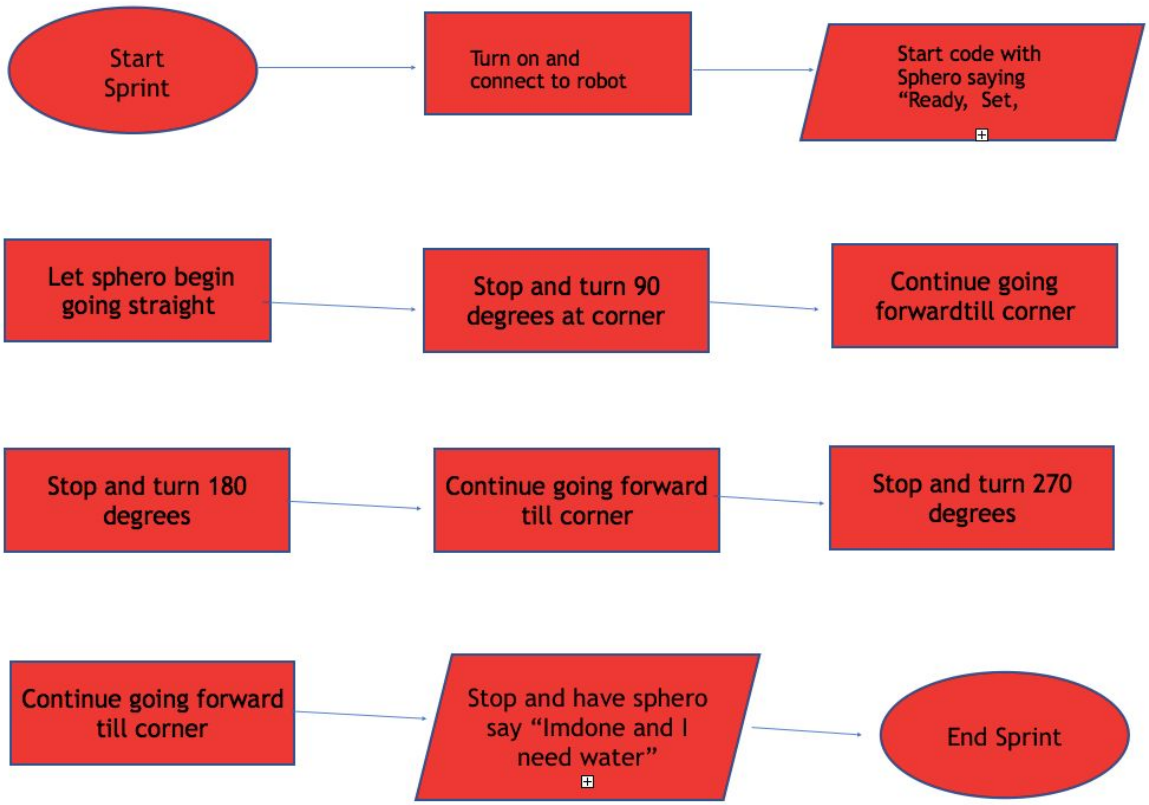
Meeting Date	**Attendees (name and role)**	**Comments**
10/24/19	Jonathan Peralta Lyah Morales	
10/27/19	Jonathan Peralta Lyah Morales	

5. System Design

5.1 Algorithm

1. Connect robot to sphero application via bluetooth (Laptop, Phone, Tablet, etc.)
2. Place robot at starting point
3. Aim robot
4. Sphero speaks “Ready, set, go” with a green light
5. Sphero moves forward at 0°
6. Sphero stops in first corner
7. Sphero turns 90° and moves forward
8. Sphero stops at 2nd corner
9. Sphero turns 180° and moves forward
10. Sphero stops at 3rd corner
11. Sphero turns 270° and moves forward
12. Sphero stops at starting point
13. Sphero says “I’m done and I need water” with a red light

5.2 System Flow



5.3 Software

The program was developed using the sphero application, which uses block-code and Javascript

5.4 Hardware

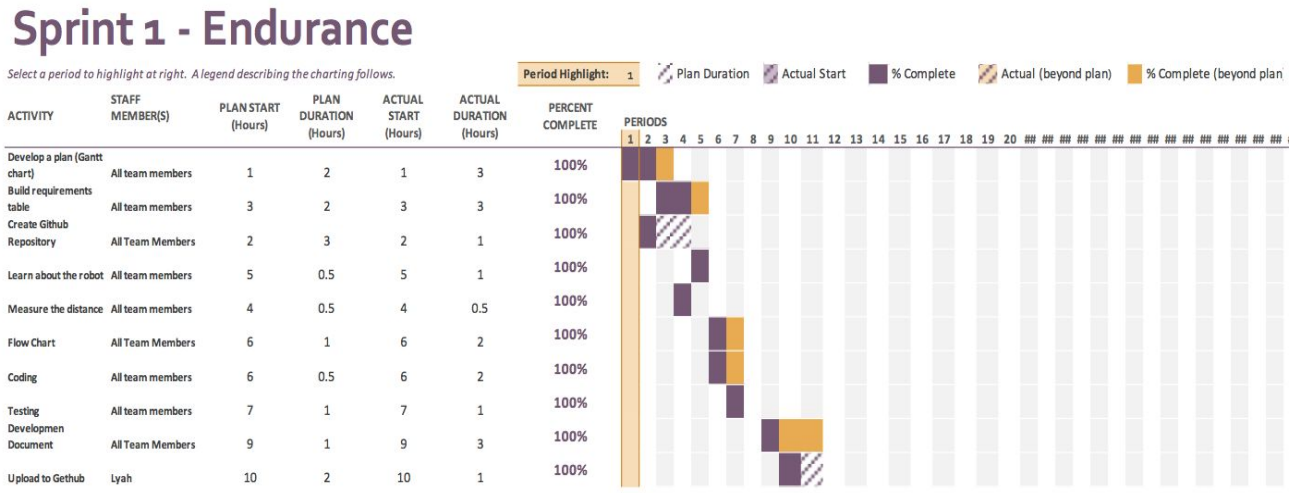
The hardware platforms used were the robot, and laptop (with sphero app) connected via Bluetooth

5.5 Test Plan

Reason for Test Case	Test Date	Expected Output	Observed Output	Staff Name	Pass/Fail
Find speed and time needed for the robot to get to the first corner	10/24	Sphero rolls straight to the first corner, without straying off path	Sphero strayed off the path a few times	Jonathan Lyah	Fail
Find speed and time needed for the robot to get to the first corner. Aim was adjusted	10/24	Sphero rolls straight to the first corner without straying off path	Sphero traveled to the first corner successfully	Jonathan Lyah	Pass
Change amount of degrees the robot should turn (90°). Find speed and time needed to get to the second corner	10/24	Sphero rolls straight to the second corner without straying off path	Sphero strayed off the path a few times but eventually reached corner successfully	Jonathan Lyah	Pass
Change amount of degrees the robot should turn (180°). Find speed and time needed to get to the third corner	10/24	Sphero rolls straight to the third corner without straying off path	Sphero traveled to the third corner successfully	Jonathan Lyah	Pass

Change amount of degrees the robot should turn (270°). Find speed and time needed to get to the fourth corner	10/24	Sphero rolls straight to the fourth corner without straying off path	Sphero strayed off the path a few times but eventually reached corner successfully	Jonathan Lyah	Pass
Make Sphero talk before starting the sprint	10/27	Sphero should say “Ready, set, go” before starting the sprint	Sphero said “Ready, set, go”	Jonathan Lyah	Pass
Make Sphero talk after finishing the sprint	10/27	Sphero should say “I’m done and I need water” after finishing the sprint	Sphero said “I’m done and I need water”	Jonathan Lyah	Pass
Make Sphero change colors at the beginning and end of the sprint	10/27	Sphero should start with a green light and end with a red light	Sphero started with a green light and ended with a red light	Jonathan Lyah	Pass

5.6 Task List/Gantt Chart



5.7 Staffing Plan

Name	Role	Responsibility	Reports To
Jonathan	-Gantt Chart -Flow Chart -Testing	-Creating a flowchart based on the algorithm -Completing Gantt Chart -Testing program	Lyah
Lyah	-Programming -Design Document -Testing	-Creating code -Completing Design Document -Testing Program	Jonathan