Jonathan Peralta, Lyah Morales

Sprint 2 - Speed

1.1 Project Overview

In the second sprint, the robot must travel in a figure eight (8) five times. The robot must stay within the path without straying off. Once it is done with the sprint, it must say "I am the winner," while flashing multicolored lights for five seconds. Points will be deducted if the robot does not follow the path, does not do it five times, or doesn't finish at the starting point

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
SPEED-01	The robot must travel in a figure eight, five times and end at starting point		1	11/8/19	Jonathan Peralta Lyah Morales
SPEED-02	The robot must stay within the path without straying off		2	11/11/19	Jonathan Peralta Lyah Morales
SPEED-03	The robot should say “I am the winner” and flash multicolored lights after finishing the sprint		3	11/11/19	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

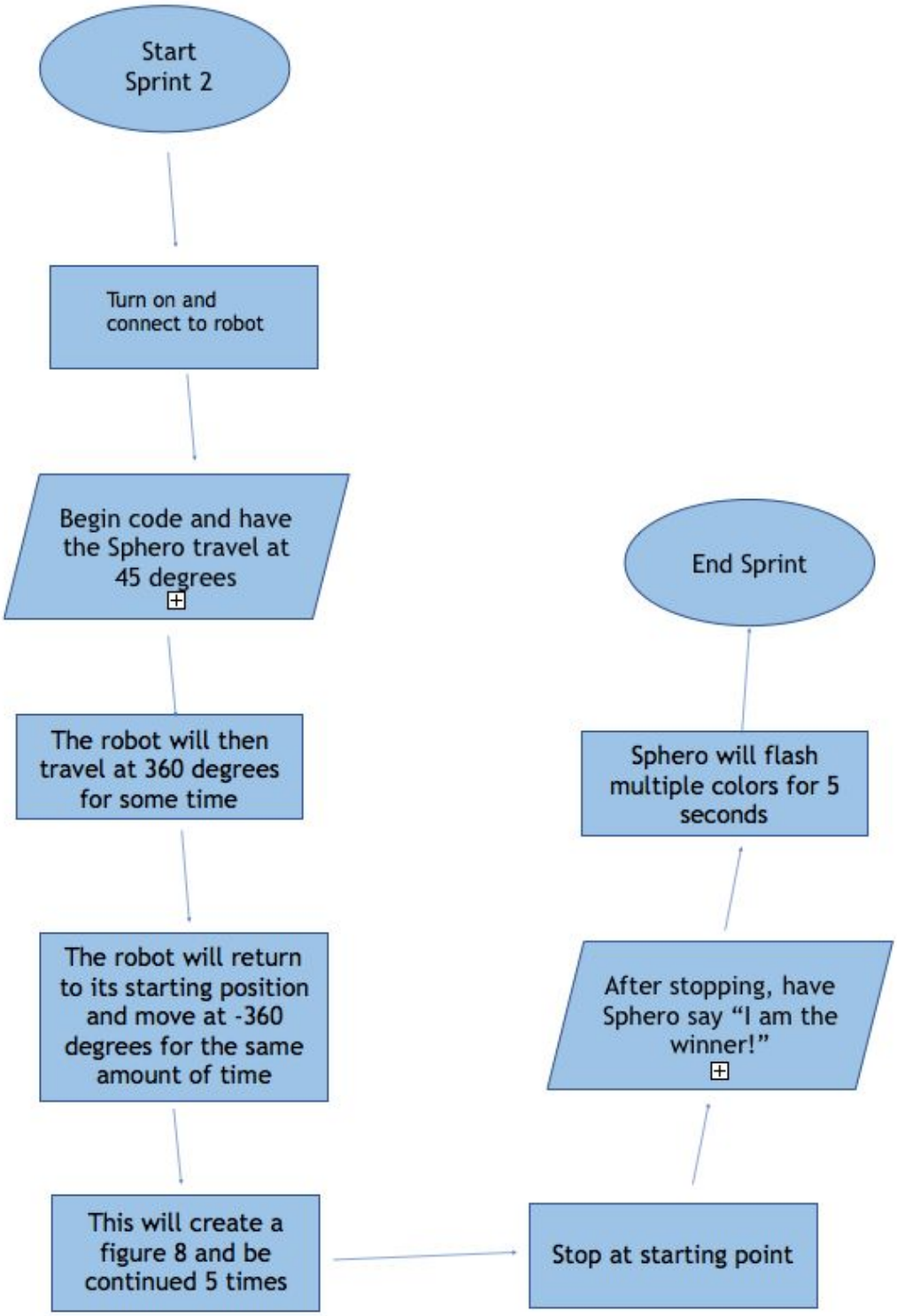
Meeting Date	**Attendees (name and role)**	**Comments**
11/8/19	Jonathan Peralta Lyah Morales	
11/11/19	Jonathan Peralta Lyah Morales	

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 begins to travel 45°
5. Sphero spins 360°
6. Sphero spins -360°
7. It should make a figure eight, five times around the marked path
8. Sphero stops at starting point
9. Sphero says “I am the winner”
10. Sphero flashes multicolored lights for five seconds

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
Robot should travel 45° at the beginning of the sprint	11/8	Sphero travels 45° without straying off path	Sphero traveled 45°	Jonathan Lyah	Pass
Change amount of degrees the robot should spin (360°).	11/8	Sphero spins 360° without straying off path	Sphero traveled 360°	Jonathan Lyah	Pass
Sphero spins -360° without straying off path	11/8	Sphero spins -360° without straying off path	Sphero traveled -360°	Jonathan Lyah	Pass
Find speed and time needed for the robot to do a figure eight	11/8	Sphero travels in a figure eight around the given path	Sphero did a figure eight, but not proportionate to marked path	Jonathan Lyah	Fail
Find speed and time needed for the robot to do a figure eight. Adjusted to	11/11	Sphero travels in a figure eight around the given path successfully	Sphero traveled in a figure eight around the given path	Jonathan Lyah	Pass

travel around measurements					
Make Sphero talk after finishing the sprint	11/11	Sphero should say "I am the winner" after finishing the sprint	Sphero said "I am the winner"	Jonathan Lyah	Pass
Make Sphero flash colors for five seconds after finishing the sprint	11/11	Sphero should flash multicolored lights for five seconds	Sphero flashed lights for five seconds	Jonathan Lyah	Pass

5.6 Task List/Gantt Chart

5.7 Staffing Plan

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

		-Measure distance	
Lyah	-Repository -Design Document -Testing	-Creating repository -Completing Design Document -Testing Program	Jonathan