**Sprint 1 - Endurance Design Document**

**October XX, 2019**

**Use this Requirements Specification template to document the requirements for your product or service, including priority and approval (Must do).**

**This document will also serve as a System Design Document (How to) and will include sections detailing system flow, algorithms, staffing plan, software/hardware, and Test Plan**

**This document contains instructions and examples which are for the benefit of the person writing the document and should be removed before the document is finalized.**

**To regenerate the TOC, select all (CTL-A) and press F9.**

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# **Executive Summary**

## **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.**

## **Purpose and Scope of this Specification**

**In scope**

* **Rectangle course**

**Out of Scope**

* **Other courses**

# **Product/Service Description**

## **Product Context**

**This is one of three parts of the Robotics Triathlon**

## **User Characteristics**

* **Team members**

## **Assumptions**

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

**Team members were assumed to have similar schedules**

## **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**

## **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**

# **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** |

## **Security**

### **Protection**

### **NA**

### **Authorization and Authentication**

### **NA**

## **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**

# **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** |

# **System Design**

## **Algorithm**

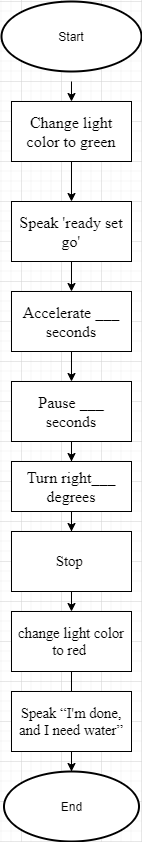
**Sprint: Endurance**

**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”**

## **System Flow/**

**Made by Ez Racancoj**



## **Software**

**sphero.edu app**

## **Hardware**

**Phone, computer and robot**

## **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** |

## **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** | **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** | **34** | **35** | **36** |
|  | **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** | **Ez** | **4** | **1** | **4** | **1** | **100%** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **endurace 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%** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **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** |