* 1. **Project Overview**

This project was done to put our skills up to the test and be able to go through all the process.

**1.2 Purpose and Scope of this Specification**

The intended audience is my teacher and classmates.

**2.1 Product Context**

?

**2.2 User Characteristics**

Brady Barry

Experience: Beginner

Technical Expertise: Computer Science

**2.3 Assumptions**

All equipment should be able to be gathered with no problem. User will be using Sphero in order to conduct the robots path.

**2.4 Constraints**

Should be no constraints

**2.5 Dependencies**

Student will need to understand how to come up with an algorithm and put it to correct use

**3.1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Req #** | **Requirments** | **Comments** | **Priority** | **Date Rvwd** | **SME Reviewed Approved** |
| AGIL\_01 | Follow the tape | Following the tape might end up being a little tricky if you don’t have a completely flat surface but you must get the robot to completely follow along the blue tape | High | 6/30/2021 | TBD |
| AGIL\_02 | Don’t hit the obstacles | Hitting the obstacles should be the biggest problem as long as your code is correct | High | 7/1/2021 | TBD |
| AGIL\_03 | Jump the ramp | Jumping the ramp should be simple just make sure you speed up the robot when going over it | High | 7/2/2021 | TBD |
| AGIL\_04 | Hit over the markers | Make sure you hit as many markers as possible down | High | 7/3/2021 | TBD |
| AGIL\_05 | Write a successful algorithm | This is one of the most important things because without having a successful algorithm none of this would work. | High | 7/4/2021 | TBD |
| AGIL\_06 | Write a flow chart | Make sure you are able to successfully write out the flow chart with all the different shapes. | High | 7/5/2021 | TBD |
| AGIL\_07 | Make robot turn correct degrees | This is one of the most tricky parts but if you measure out the angle to get it to correctly follow the tape it should work | High | 7/6/2021 | TBD |
|  |  |  |  | 7/7/2021 | TBD |

**4**

|  |  |  |
| --- | --- | --- |
| **Meeting Date** | **Attendees** | **Comments** |
| **7/2** | **Brady Barry** | **Wrote out the algorithm for the problem** |
| **7/6** | **Brady Barry** | **Tested algorithm at worked** |
|  |  |  |

**5.1 Algorithm**

**The algorithm that was used was a lot more tricky than the last one I had to follow the amount of seconds that the robot would more and tell the robot to move 90 degrees to the left or right. I even had to have to robot turn a certain degrees to make it follow the last line**

**5.2 System Flow**

**Diagram

Description automatically generated**

**5.3 Software**

The language that we have been learning and using to far in this class is python.

**5.4 Hardware**

The hardware platforms that we have been using to test the robot’s path is Sphero.

**5.5 Test Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reason For test Case** | **Test Date** | **Expected Output** | **Observed Output** | **Staff Name** | **Pass fail** |
| **Create algorithm for the robot to follow** | **7/1** | **After few attempts be able to make the robot follow the line** | **After many tries I was able to Make the robot correctly follow the lines** | **Brady Barry** | **pass** |
| **Avoid the obstacles** | **7/1** | **To be able to avoid all obstacles** | **Was very simple to not hit the abstacles** | **Brady Barry** | **pass** |
| **Be able to jump the ramp** | **7/1** | **I thought it would be tough for the robot to be able to follow the path and follow the tape at the same time** | **Was very simple to do both just had to speed up the robot** | **Brady Barry** | **Pass** |

**5.6 Gantt Chart**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACTIVITY** | **STAFF  MEMBER(S)** | **PLAN START (Hours)** | **PLAN DURATION (Hours)** | **ACTUAL START (Hours)** | **ACTUAL DURATION (Hours)** | **PERCENT COMPLETE** | **PERIODS** | | |  |  |
|  | **1** | **2** | **3** | **4** | **5** |
| **Develop a plan (Gantt chart)** | **Brady Barry** | 2 | 1 | 2 | 1 | **0%** |  |  |  |  |  |
| **Build requirements table** | **Brady Barry** | 3 | 2 | 3 | 1 | **0%** |  |  |  |  |  |
| **Agility** | **Brady Barry** | 1 | 2 | 1 | 2 | **0%** |  |  |  |  |  |
| **Flow Chart** | **Brady Barry** | 4 | 0.5 | 4 | 0.5 | **0%** |  |  |  |  |  |
| **Algorithm** | **Brady Barry** | 5 | 1 | 5 | 1 | **0%** |  |  |  |  |  |

**5.7 Staffing Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Role | Responsibility | Reports to |
| Brady Barry | Everything | Everything | Professor Eckert |
|  |  |  |  |
|  |  |  |  |