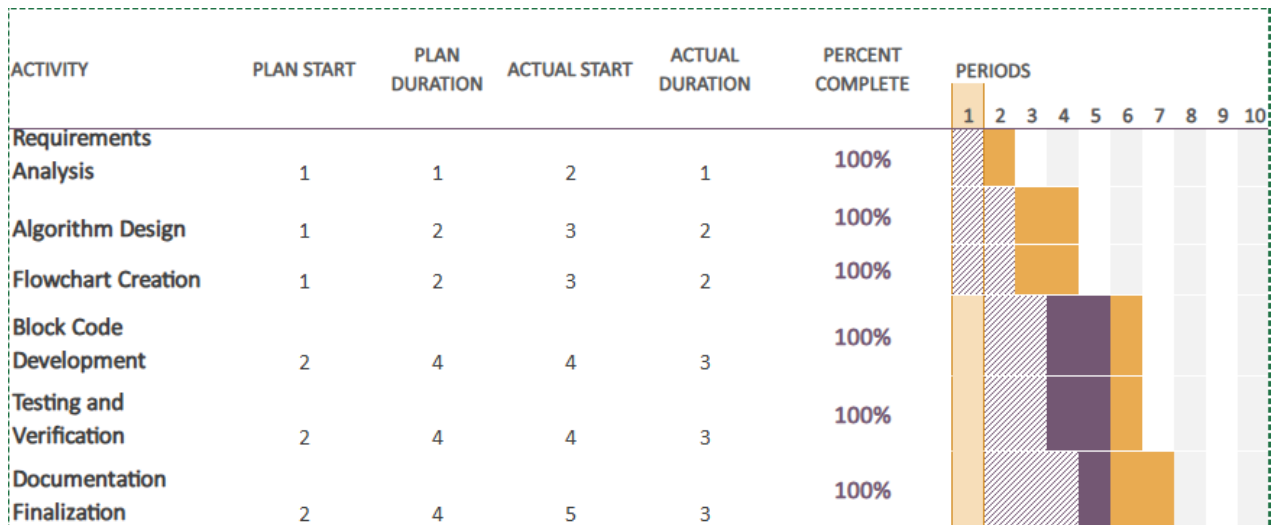**Project**: Robotics Triathlon

Sprint: Agility

Date: 12/07/2024

Team Members: [Oleksandr, John, Avery]

1. **Gantt Chart:**

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Requirements Analysis	1	1	2	1	100%
Algorithm Design	1	2	3	2	100%
Flowchart Creation	1	2	3	2	100%
Block Code Development	2	4	4	3	100%
Testing and Verification	2	4	4	3	100%
Documentation Finalization	2	4	5	3	100%

2. **Requirements Table:**

Requirement ID	Description	Priority	Status
R-01	Robot identifies and avoids obstacles.	High	Completed
R-02	Robot traverses over a ramp successfully.	High	Completed
R-03	Robot knocks down as many pins as possible in the final section.	High	Completed

3. **Requirements Signoff Table:**

Requirement ID	Description	Approver Name	Date Approved
R-01	Robot avoids obstacles.	Oleksandr	12.07.2024
R-02	Robot traverses over a ramp successfully.	John	12.07.2024

R-03	Robot knocks down as many pins as possible in the final section.	Avery	12.07.2024

4. **Algorithm:**

1) **Initialize and Start:**
   a) Begin moving forward from the starting square.
2) **Obstacle Avoidance:**
   a) While moving forward:
      - If robot hits an obstacle:
         1. Adjust the code and start the path over.
      - Else:
         1. Keep monitoring the path;
3) **Ramp crossing:**
   a) Approach the ramp, adjusting speed to ensure stability.
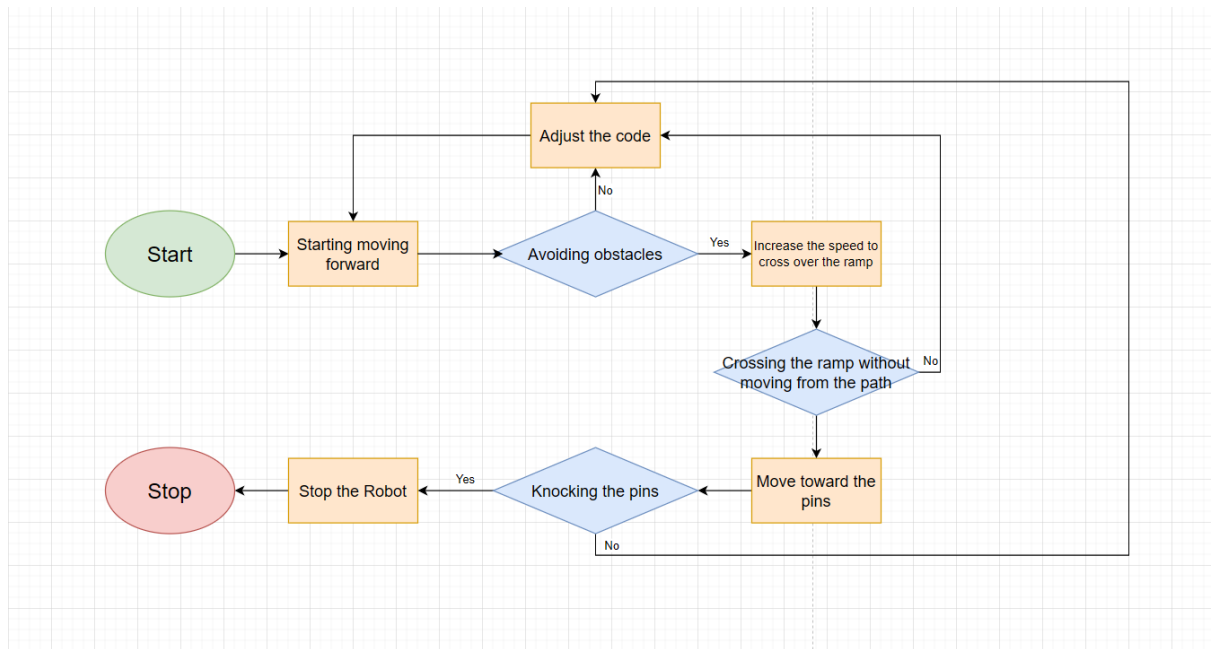   b) Increase power to climb the ramp smoothly without losing control.
4) **Knoking down the pins:**
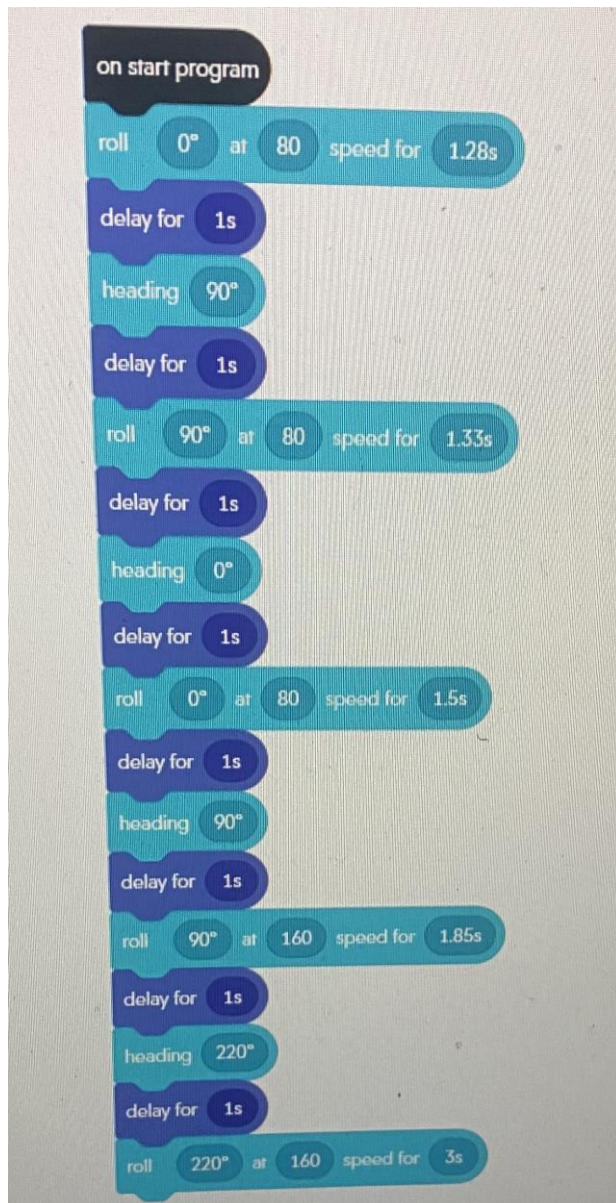   a) Move forward and adjust direction to knock over as many pins as possible.
5) **Completion:**
   a) **After completing the path**:
      - Stop moving.

5. **Flowchart:**

6. **Block code:**

```
on start program
roll      0°   at   80   speed for   1.28s
delay for   1s
heading   90°
delay for   1s
roll      90°  at   80   speed for   1.33s
delay for   1s
heading   0°
delay for   1s
roll      0°   at   80   speed for   1.5s
delay for   1s
heading   90°
delay for   1s
roll      90°  at   160  speed for   1.85s
delay for   1s
heading   220°
delay for   1s
roll      220° at   160  speed for   3s
```

7. **Sensor data diagram:**

8. **Test Table:**

Test Case ID	Description	Expected Result	Actual Result	Status
T-02	Robot avoids obstacles.	Robot successfully avoids obstacles.	Robot avoids obstacles.	Tested
T-03	Robot crosses ramp smoothly.	Robot climbs and descends ramp	Robot crosses ramp.	Tested

		without tipping over.		
T-04	Robot knocks down pins in final section.	Robot knocks over pins in designated pin area.	Robot knocks down pins in final section.	Tested

9. **Staffing Plan:**

Team Member	Role	Responsibilities	Reports To
Avery	Project Manager	Oversees Agility Sprint and manages schedule.	Team Lead
John	Path Algorithm Dev	Develops code for obstacle avoidance, ramp, and pins.	Project Manager
John	Flowchart Designer	Creates flowchart based on algorithm and requirements.	Project Manager
Avery	Tester	Conducts tests and verifies functionality.	Project Manager
Oleksandr	Documenter	Prepares documentation including Gantt chart, flowchart, and reports.	Project Manager