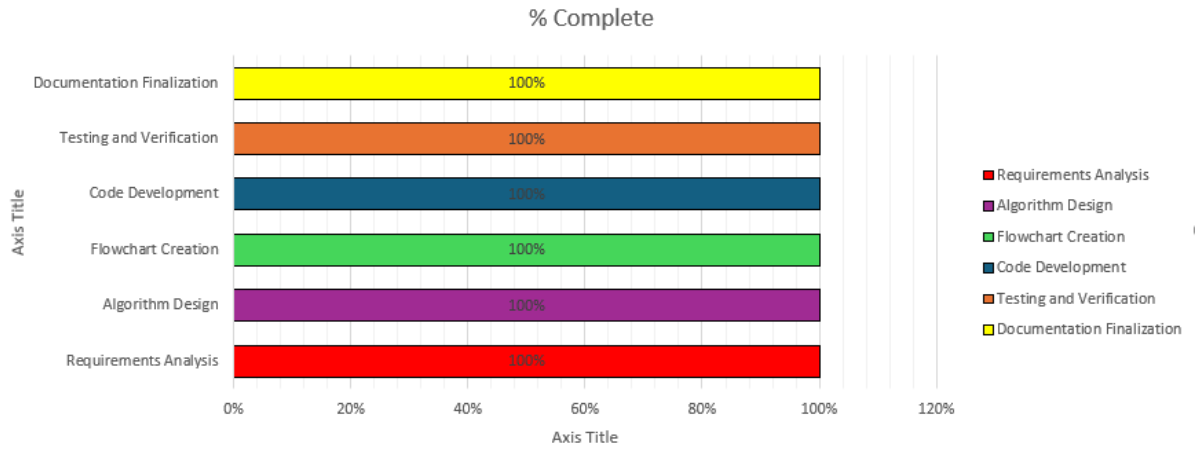
Project: Robotics Triathlon

Sprint: Accuracy

Date: 11/13/2024

Team Members: [Oleksandr, John, Avery]

1. **Gantt Chart:**



2. **Requirements Table:**

Requirement ID	**Description**	**Priority**	**Status**
R-01	Robot starts from the provided square and announces start cue.	High	Completed
R-02	Robot follows a figure-eight path without straying.	High	Completed
R-03	Robot completes five laps in the figure-eight pattern.	High	Completed
R-04	Robot finishes at the starting square and announces completion.	Medium	Completed
R-05	Robot displays multicolored flashing lights for 5 seconds on finish.	Low	Completed

3. **Requirements Signoff Table:**

Requirement ID	Description	Approver Name	Date Approved
R-01	Robot starts from the provided square.	Oleksandr	11/15/2024
R-02	Robot follows a figure-eight path without straying.	John	11/15/2024
R-03	Robot completes five laps in the figure-eight pattern.	Avery	11/15/2024
R-04	Robot finishes at the starting square and announces completion.	John	11/15/2024
R-05	Robot stops with a red light and says “I'm the winner.”	Oleksandr	11/15/2024

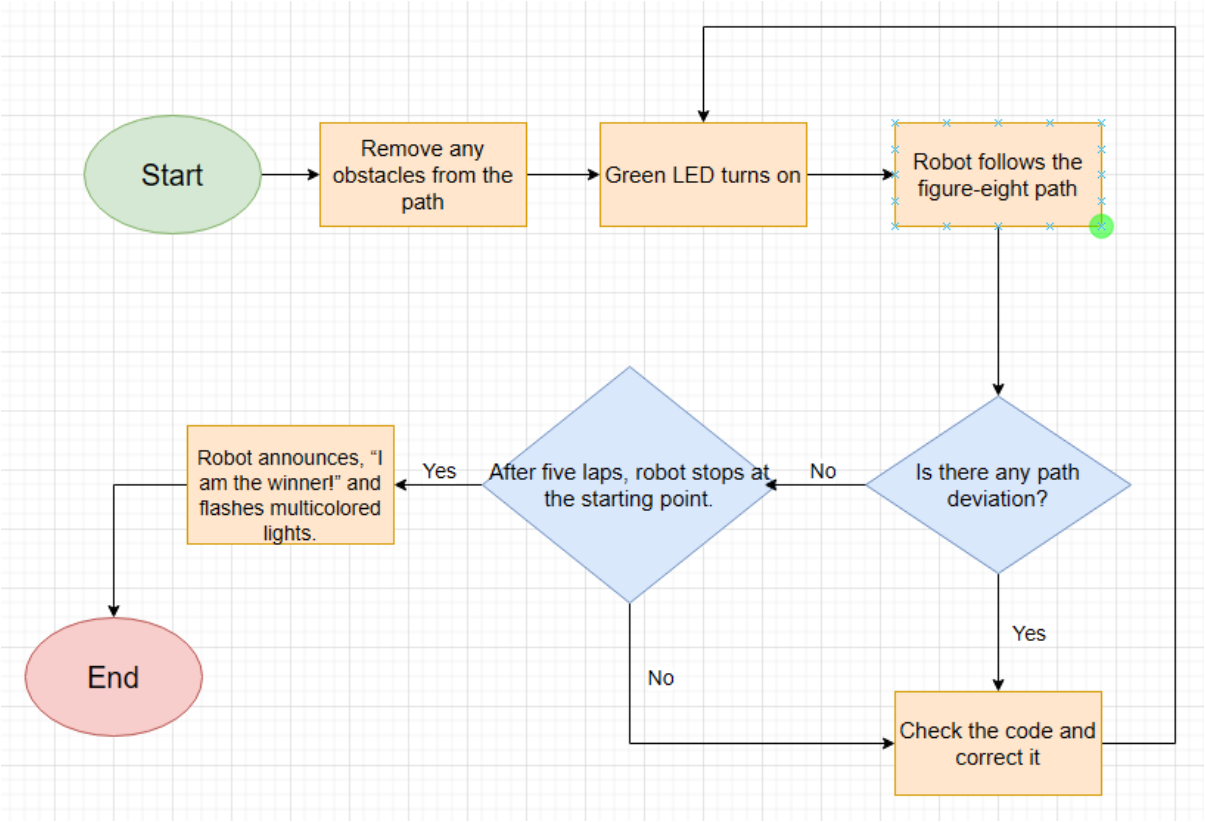
4. **Algorithm:**

1) **Initialize and Start:**
   a) Turn on a green LED light.
   b) Begin moving forward from the starting square.
2) **Figure-Eight Path Navigation:**
   a) **Loop (5 times)**: j
      - Follow the programmed figure-eight path.
      - Continuously monitor the path to ensure the robot stays within its boundaries.
      - Adjust direction as needed to stay aligned with the figure-eight pattern.
3) **If path deviation is detected:**
   a) Stop.
   b) Re-align with the path and resume navigation.
4) **Completion:**
   a) **After completing the fifth lap**:

- Return to the starting square.
- Stop moving.

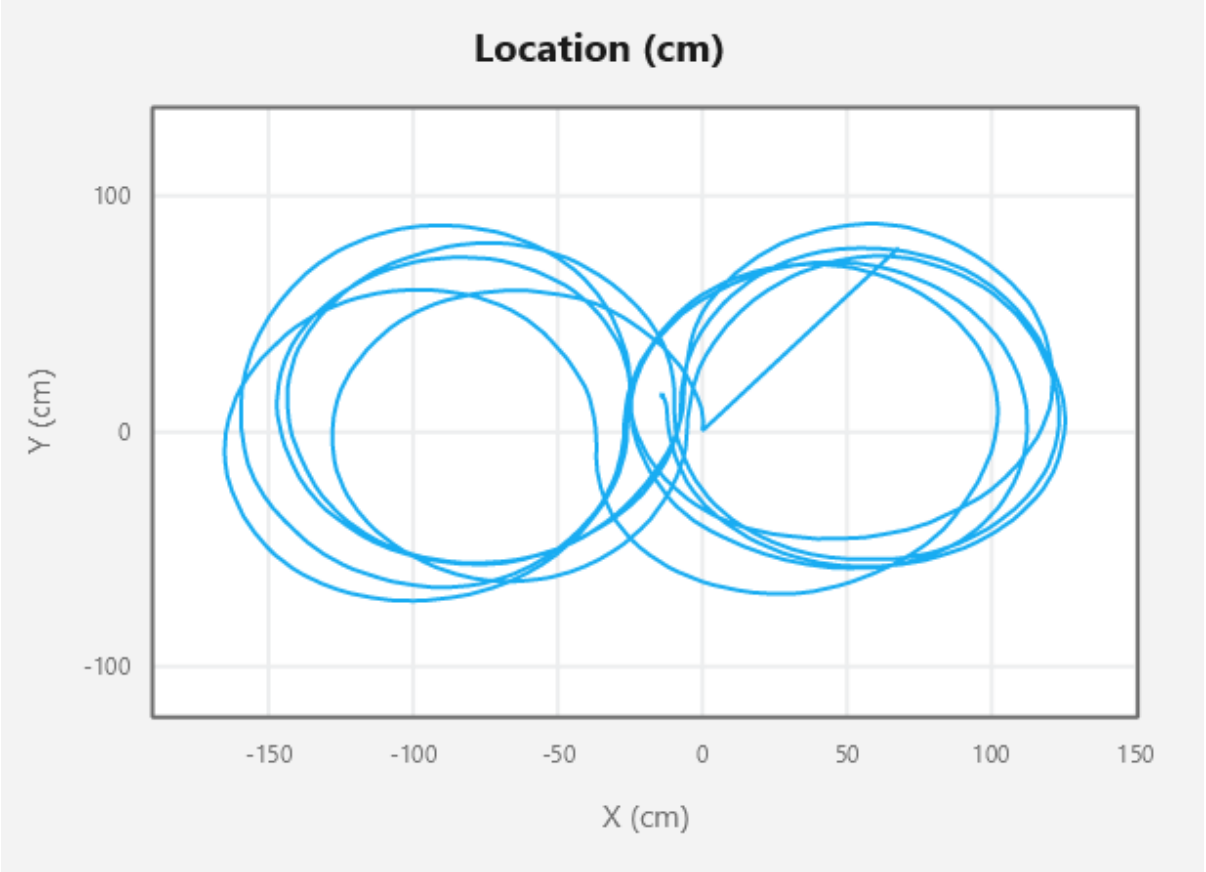
5) **Finish Signal:**
   a) Announce, “I am the winner!”
   b) Flash multicolored lights for 5 seconds.

5. **Flowchart:**



6. **Block code:**

7. **Sensor data diagram:**



8. **Test Table:**

Test Case ID	**Description**	**Expected Result**	**Actual Result**	**Status**
T-01	Robot starts with green LED and start cue.	Robot lights up green.	Robot lights up green.	Tested
T-02	Robot follows figure-eight path without deviation.	Robot stays on the figure-eight path.	Robot stays on the figure-eight path.	Tested
T-03	Robot completes five laps in the figure-eight pattern.	Robot completes five laps without straying from the path.	Robot completes five laps but strays from the path a little bit.	Tested

T-04	Robot finishes in starting square with completion cue.	Robot stops at starting point and announces “I am the winner!”	Robot stops at starting point and announces “I am the winner!”	Tested
T-05	Robot flashes multicolored lights for 5 seconds.	Robot displays multicolored lights for 5 seconds on finish.	Robot displays multicolored lights for 5 seconds on finish.	Tested

9. **Staffing Plan:**

Team Member	**Role**	**Responsibilities**	**Reports To**
John	Project Manager	Manages schedule and oversees Accuracy Sprint.	Team Lead
Oleksandr	Path Algorithm Dev	Develops and adjusts code for figure-eight path navigation.	Project Manager
Avery	Flowchart Designer	Creates flowchart for the Accuracy Sprint algorithm.	Project Manager
Oleksandr	Tester	Runs tests and validates robot behavior against requirements.	Project Manager
John	Documenter	Prepares documentation, including Gantt chart and reports.	Project Manager