Project ID and Name: 2 – Wall Follower Robot

Description of the Project: In this project, robots try to complete the path by performing appropriate commands according to colors without hitting the walls.

Success Criteria:

- Avoiding from the walls
- Performing appropriate commands according to colors
- Using only one distance sensor (optional)
- Completing the path in the fastest way

Robot Specifications: You must optimize your robot's size according to the track requirements. For this purpose, you can check out the dimensions of the track in page 2.

Track Specifications:

- The track is made by white wallboard.
- The height of the walls is 12.7 cm.
- The distance between the walls is set to 34 cm.
- The turns are only set to 90 degrees.
- The beginning of the colored areas on the track is 12 cm far from the wall that is located at frontside of the robot.
- The width and length of the colored areas on the track is set to 10.5 cm and 14.5 cm respectively.
    - When the robot meets the green area, the robot will turn left regardless of the distance. The robot will continue on its way through the green area at second times.
    - When the robot meets the blue area, the robot will turn back regardless of the distance.
    - When the robot meets the red area, the robot will stop.
- There are two finish points in the track. If your robot perform the commands according to colors correctly, your robot will stop at Shortest Path Finish. Otherwise, your robot will stop at the Longest Path Finish.
- The details about the track is given in Page 2. Dimensionless version of the track and pictures from the track are given in Page 3 and Page 4 respectively.
- The maximum margin of error on the path is 5%.
- There may be updates in the future. Students will be notified in case of an update.

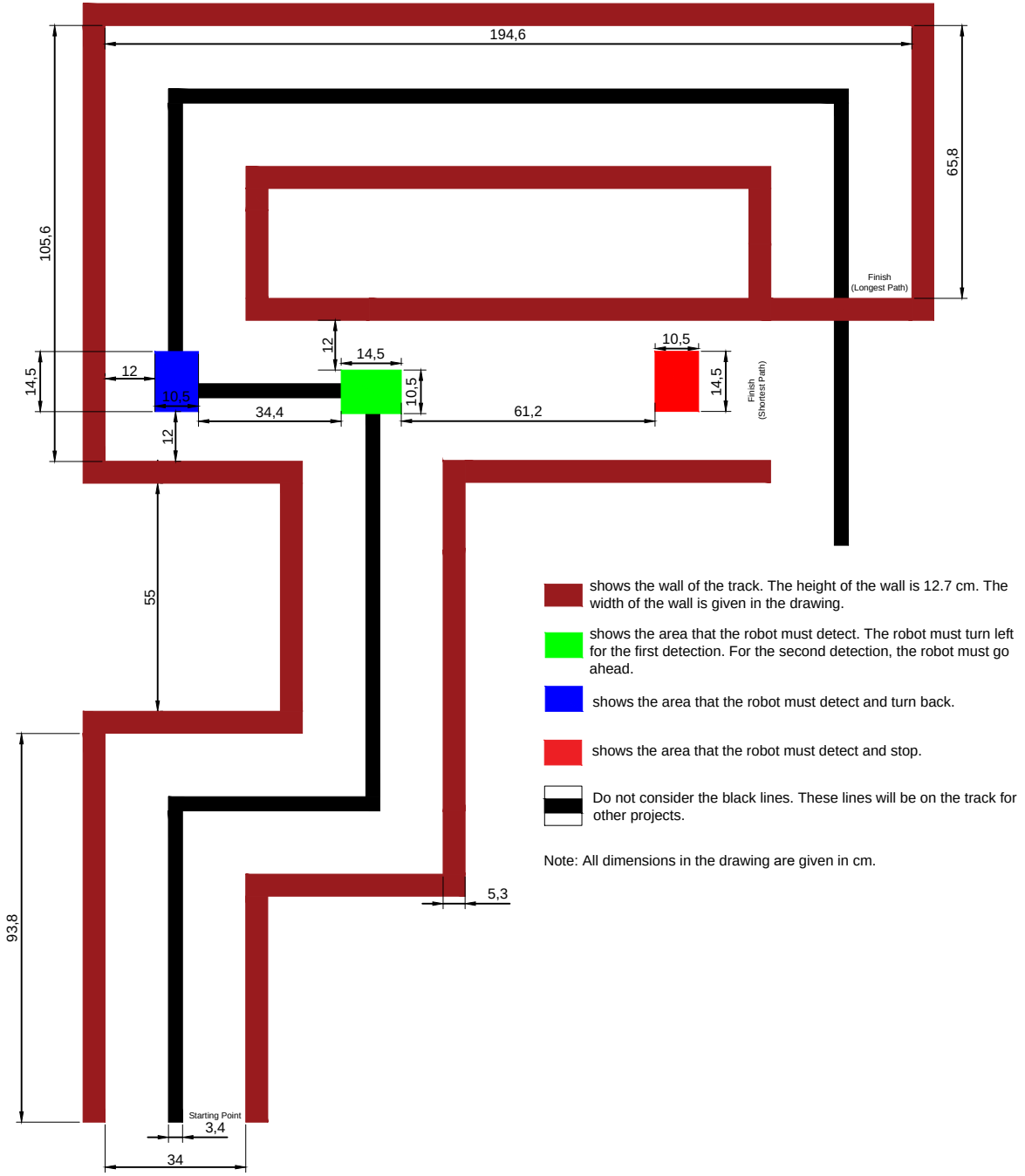
Competition Rules:

- The elapsed time from the starting point to finishing point will be recorded.
- If the robot hits the walls, it gets a penalty point.
- If the robot implements the color function incorrectly, it gets a penalty point.
- When the robot arrives any of finishing point, the contest will be completed.
- The robot that has the highest score wins the contest.

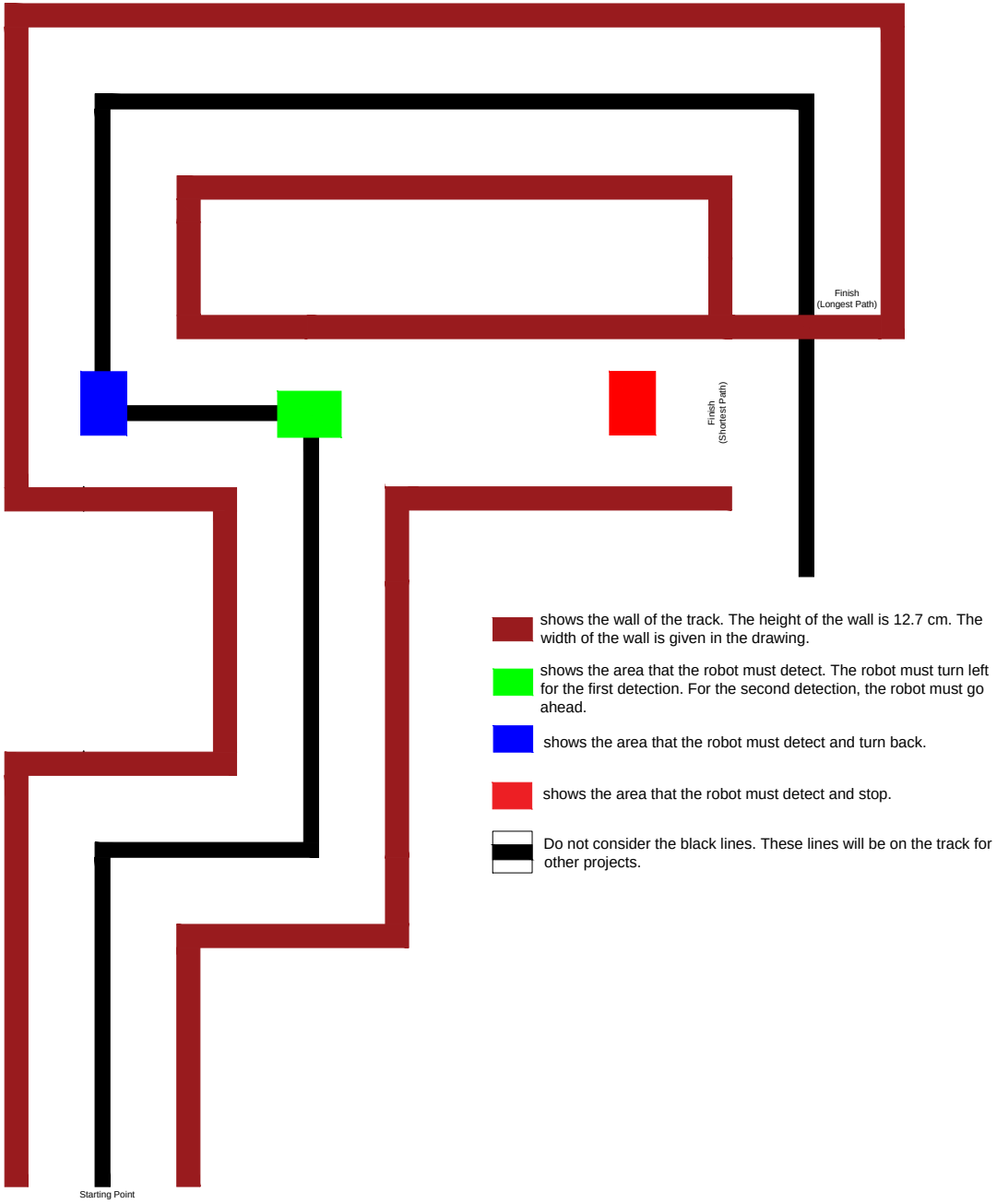
Grading: Three different scoring criteria will be followed.

- **Basic Expectations (BE):**
    - Following the design rules
    - Navigating without hitting walls
    - Performing appropriate commands according to colors
    - Finishing the path
- **Advanced Expectations (AE):**
    - Using only one distance sensor
    - Novelty
- **Performance Expectations (PE):**
    - Time
    - No penalty points
- **Total =** 0.6*BE + 0.3*AE + 0.1*PE

WALL FOLLOWER TRACK WITH DIMENSIONS



WALL FOLLOWER TRACK WITHOUT DIMENSIONS



SAMPLE PICTURES FROM THE TRACK