



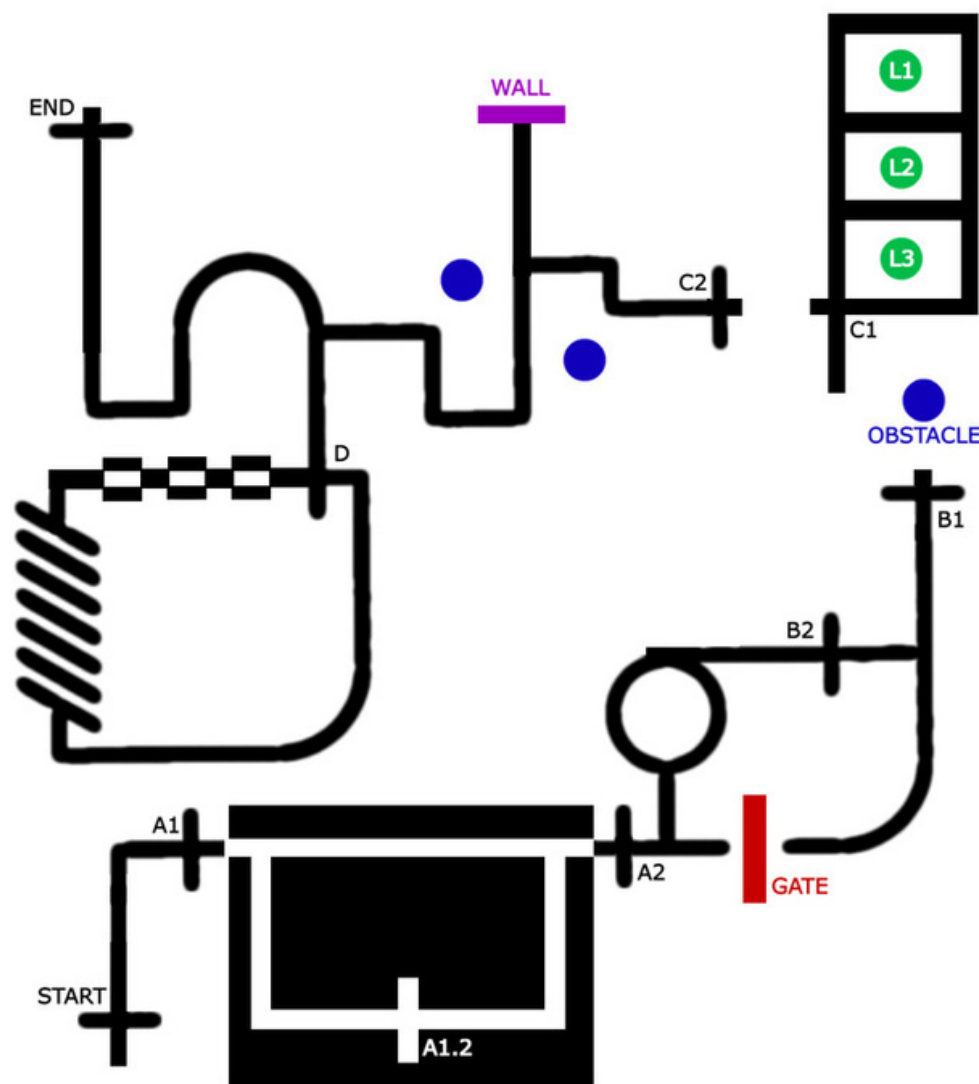
SECJ4423

RTSE ROBOKAR

➤ This assignment is designed as a line following an Robokar race tournament.



16 TEAMS FROM EACH SECTION

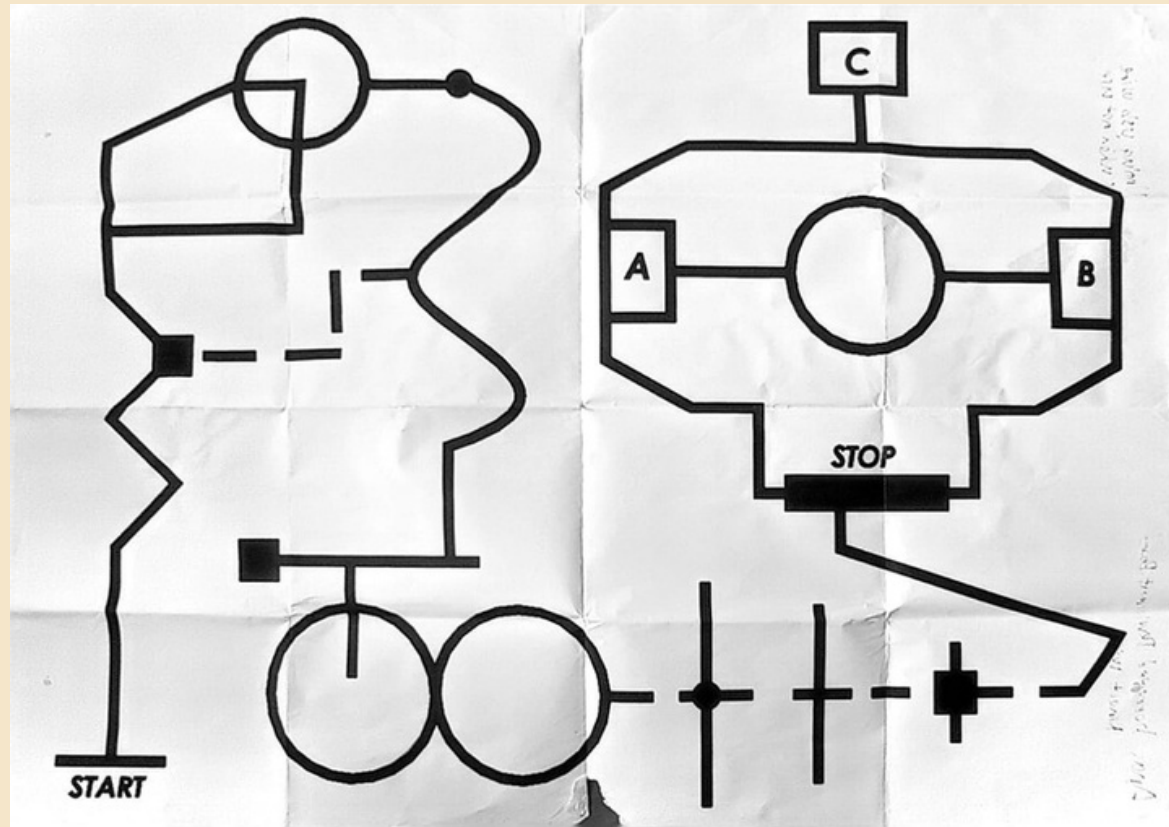


TOURNAMENT

Each team is composed of 2 to 3 members. The teams will be assigned a pre-made Robokar. You have to program while following real time system programming requirement. At the end of the lab work the section will partake in a tournament face to face.



16 TEAMS FROM EACH SECTION



LAB WORK

During early lab work students have access to their assigned Robokar and a Testing gamefield to program and prepare their robot.



RULES

➤ **RULE 01**

Participants will be given 1 minute to set up their Robokar on the field before the game starts. Participants are allowed to test their Robokar within this 1 minute duration.

➤ **RULE 02**

Robokar must be placed at zone "START". The game is 5 minutes long and will end immediately after the time period.

➤ **RULE 03**

The following actions are considered as violations:

- Touching Robokar without judge's permission or without retry
- False start.
- Displaying actions against fair play.
- Any actions deemed as violations by judges



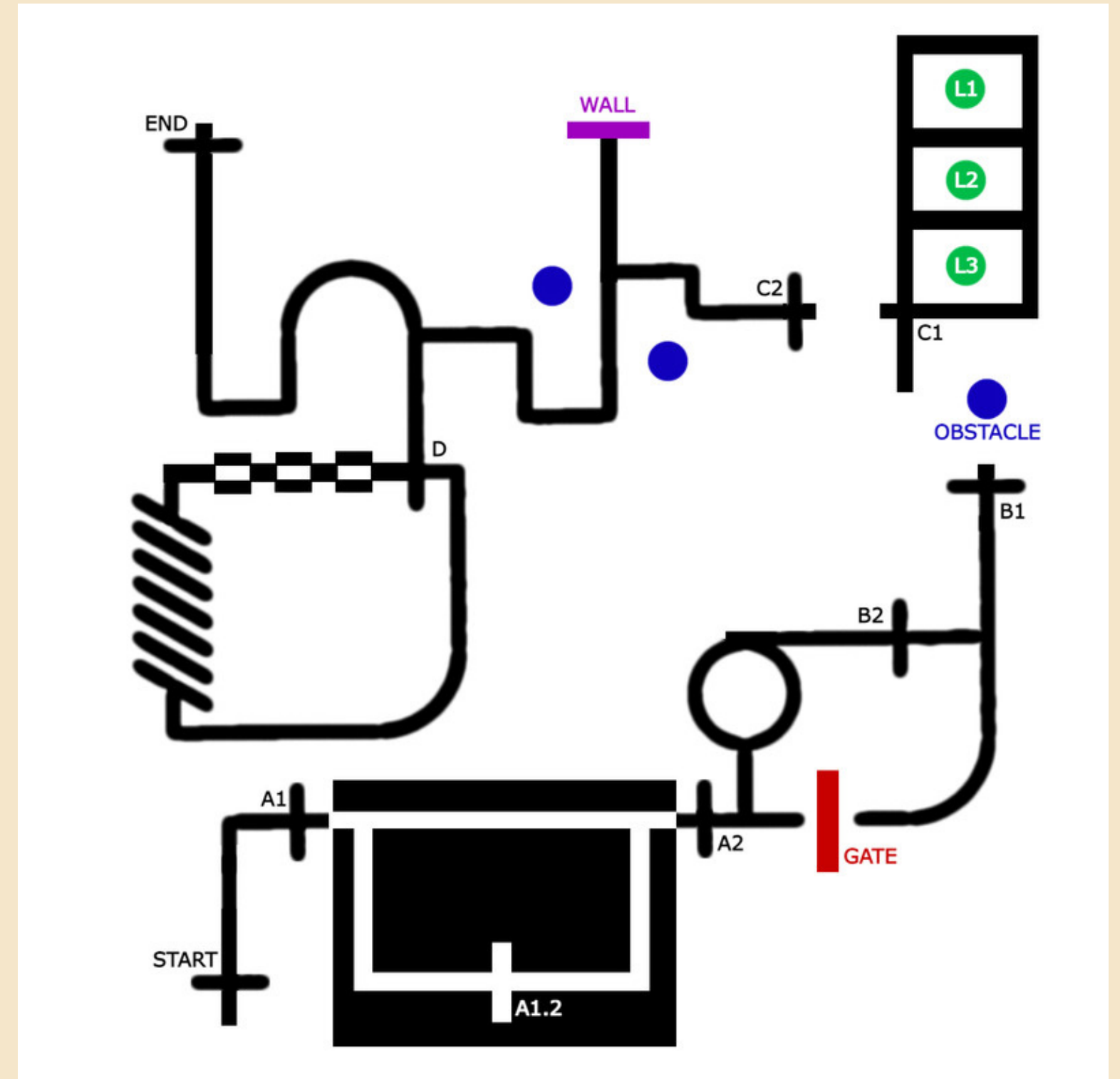
GAME FLOW AND DETAILS

- The game will start after setup time.
 - The Robokar must be placed right behind the line “START” at the start of the game.
 - The Robokar must line-follow from “START” to “END” while going through sections A, B, C and D.
 - A1, A2, C2 and D are the checkpoints. Participants can place their Robokar at these checkpoints during retry only after the Robokar reach them.
- The red “GATE” opens by going through the optional point **A1.2** allowing the **B1** direct path.
 - The blue “Obstacles” are poles restricting the path of the Robokar.
 - The green “L1”, “L2” and “L3” are lights. At the beginning of the game one of the lights will randomly light up to specify the path.
 - The purple “WALL” is an obstacle blocking the path of the Robokar.



HOW TO WIN POINTS ?

- Passing line A1.2, A2, B1 and D gain 10 points each.
- Passing line B2 and END gains 5 points.
- Passing line C2 while taking the correct path gains 10 points.
- Bumping the wall, completing a 180° and restarting to line follow gains 10 points.
- Every completed loop at D section gains 3 points.
- The game represents 3% of the assignment grading. For each 20 points won during the game 1% earned to the grade.



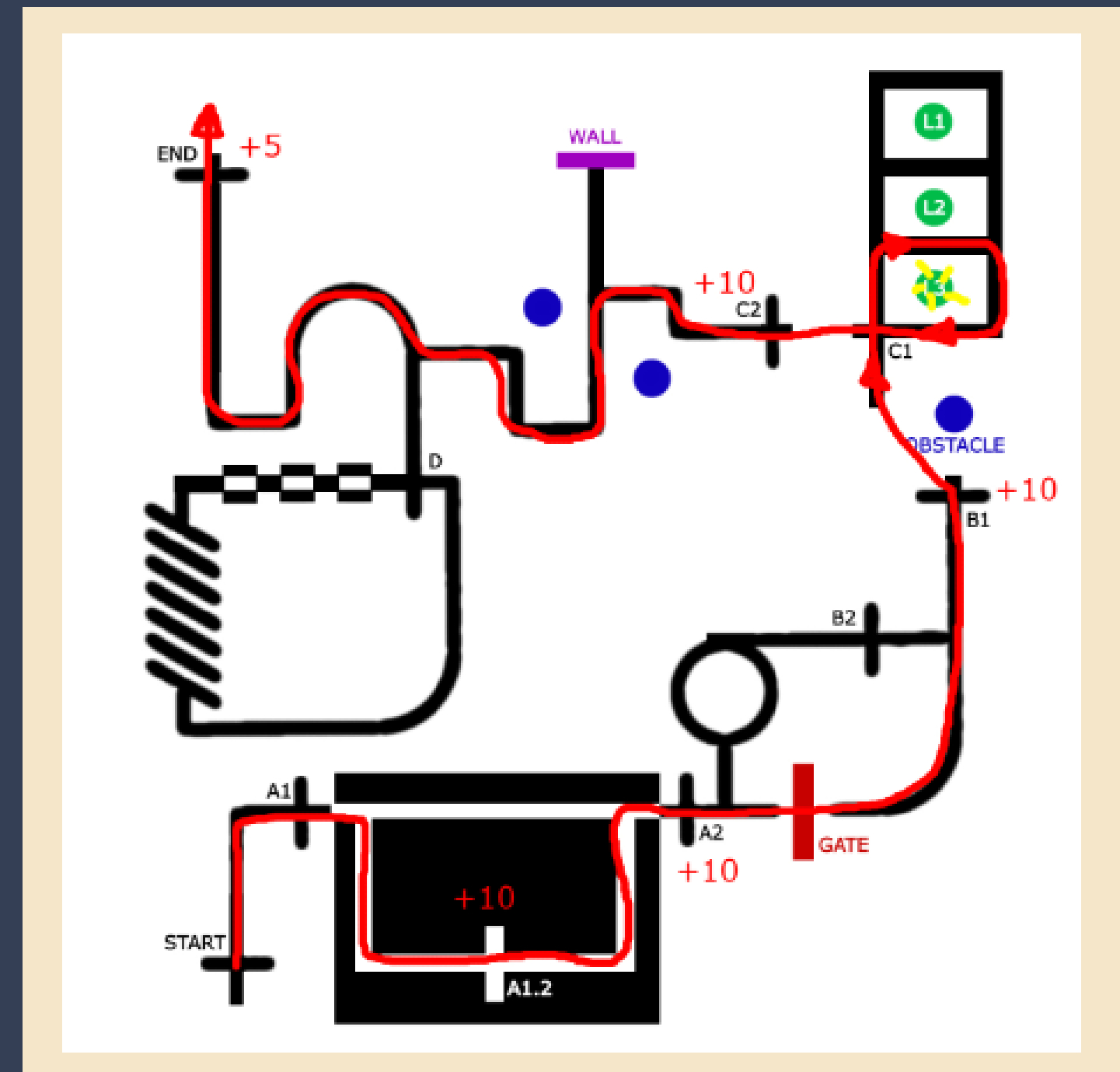
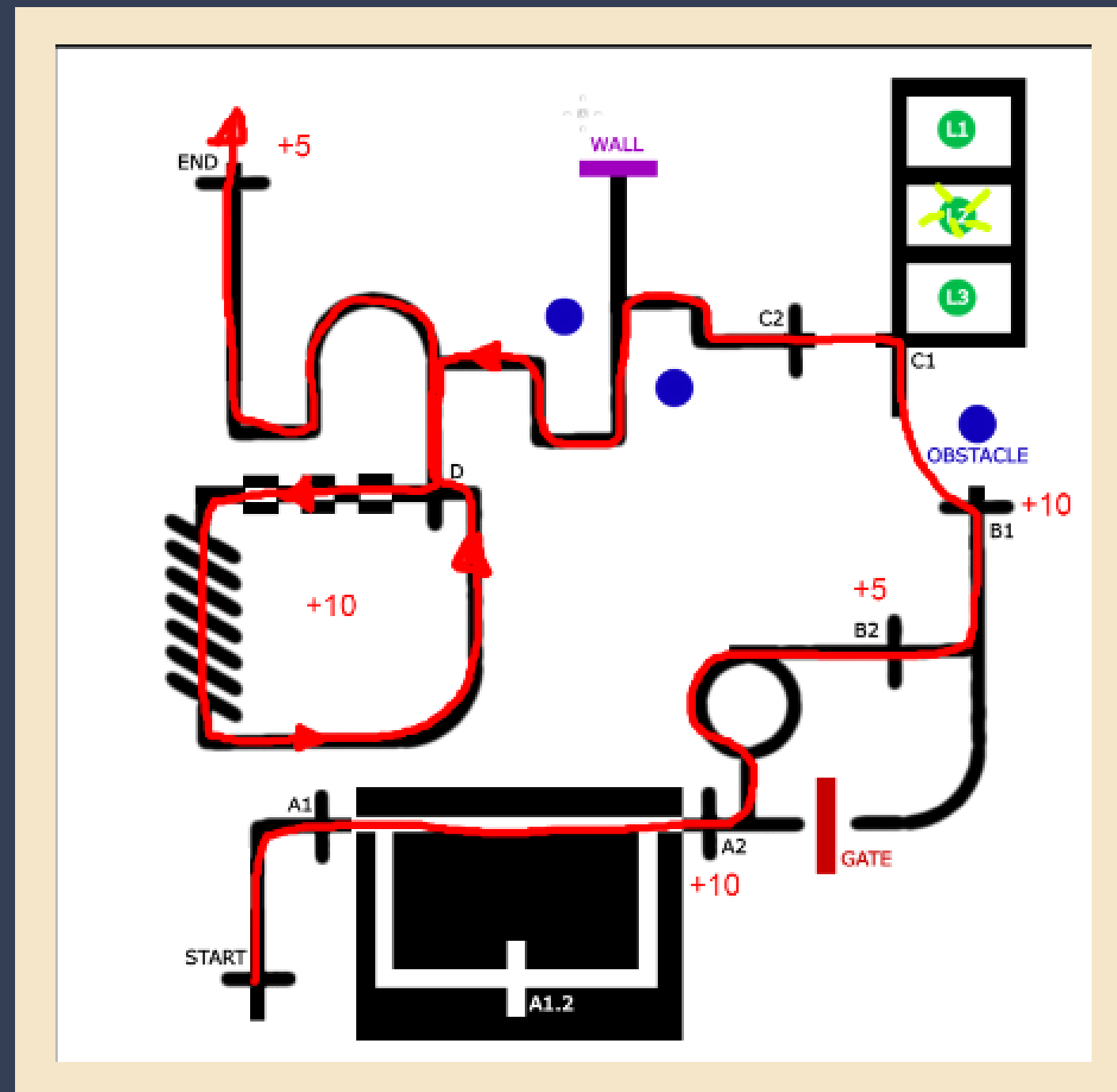


GAMEFLOW EXAMPLE

The Robokar begins behind “**START**” Line and must line-follows towards “**A1**”. After reaching the “**A**” section the participant is allowed to choose between “**A1.2**” to unlock the “**GATE**” or proceed directly and pass through “**B2**”. After reaching “**B1**” the participant has to detect the “**OBSTACLE**” and avoid it while catching back the line-follow at “**C1**”. At this point the Robokar must identify which path to choose by detecting which light “**L1**”, “**L2**” or “**L3**” is **ON**. The correct path is the one after the detected light. After reaching **C2** the participant can either go to the end or complete either of action 5.4 or 5.5 to gain extra points.

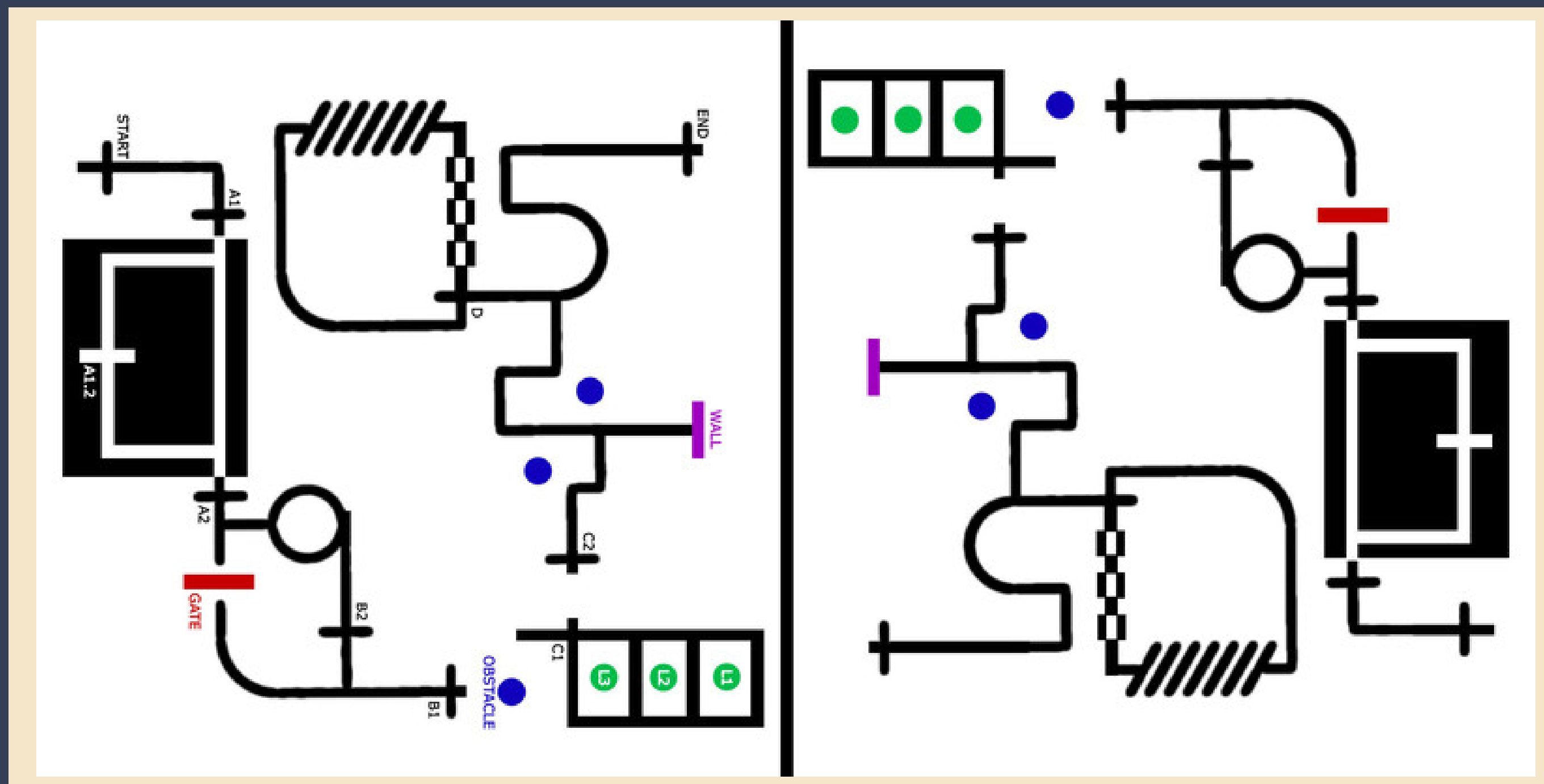


EXAMPLE OF PATHS





FULL GAMEFIELD





VIOLATIONS & DISQUALIFICATIONS

VIOLATIONS

- Touching Robokar without judge's permission or without retry
- False start.
- Displaying actions against fair play.
- Any actions deemed as violations by judges.

DISQUALIFICATIONS

- Destroying the game field.
- Damage opponent Robokar.
- Components detach and fall off Robokar.
- Robokar does not move for more than 1 minute after game starts