

**UTM ROBOKAR  
2025**

# RTSE

## ROBOKAR COMPETITION

### INTRODUCTION

The assignment will consist of 2 phases. Initially you will be involved in lab work in order to apply RTSE technical knowledge into programming a line following robot which you will use to compete in a face to face tournament.

### TOURNAMENT

Each team is composed of 3 to 4 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 lab work you will go through qualifiers rounds which will lead into a top 8 tournament.

### THE GAME

The game consist of a line following track where you will have to progress through checkpoints to secure points. The Robokar must use IR sensors to navigate through the track. 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. RoboKar must be placed at point "START". The game is 5 minutes long and will end immediately after the time period or by reaching the end of the track.

### LAB WORK

During Lab students will have access to an assigned RoboKar and a Testing gamefield to program and prepare their robot.

### GRADE

During this lab, you will be assessed for 5% of your grade :

1 - Lab Attendance : 1% must attend minimum 2 lab sessions.

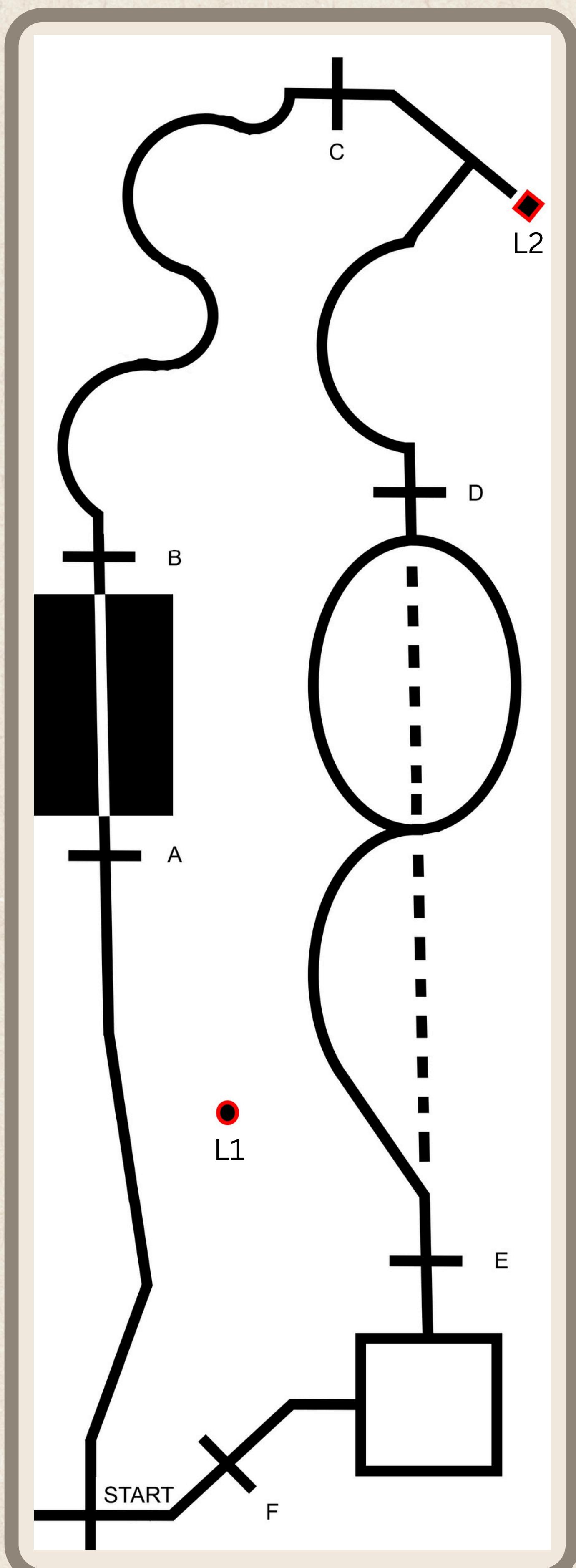
2 - Game Attendance : 1%

3 - Lab Assessments :

3.1. Demo video : 2% (by group)

3.2. Lab demonstration : 1% (individually at the end of your lab, you will be assessed on your code knowledge.)

# THE TRACK



The game flow is as follow :

- 1 - The Robokar must line follow through the track.
- 2 - A, B, C, D, E and F are **checkpoints**. Participants are allowed to restart from the checkpoint after they have already reached it. They must request from the judge a “**Retry**” and receive permission before picking your robot and **restarting** from the **checkpoint**.
- 3 - The robot must be placed at the “start” at the beginning of the game. You have to program a start button to start the line following.
- 4 - Reaching **A** without detecting the light **L1** earns you **5 points**.  
**4.1 - L1 TASK = detect light → Honk and start blinking LED at 50hz until end of game ! (you earn 10 pts)**
- 5 - Reaching **B** earns your team 5 points.
- 6 - Reaching **C** earns your team 5 points.
- 7 - Reaching **D** without performing **L2 Task** earns your team 5 points.  
**7.1 - L2 TASK = detect obstacle → Honk then reverse to continue C to D segment (you earn 10 pts)**
- 8 - Reaching **E** earns your team **5 points**.
- 9 - Reaching **F** earns your team **5 points**.
- 10 - Reaching the **end** earns your team **5 points**.