

# Project 2

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## 1. Requirements

1. Implement a PID controller to have the robot respond to the line position and autonomously drive following the line. All three coefficients in PID must be non-zero.
2. Handle edge cases, e.g.:
  - If the robot drives off the line, but not completely off the course, it uses previous line positions to return to the line
  - During a sharp turn, the robot halts one of the motors to not drive off the course
3. Calibrate the PID controller to achieve a smooth response.
4. Implement all functions declared in the project template. Add own functions or change signatures if necessary.

## 2. Defence

1. The robot must complete at least one uninterrupted lap on the line course near B/01 in the basement of building B.
2. If the robot goes off-course or is adjusted by a person, the lap restarts.
3. You have an unlimited number of attempts.
4. The speed of the robot is directly proportional to the grade for the defence.

## 3. External resources and citations

If you want to copy your code from an external resource (official docs, stackoverflow, blogs, etc), you must provide a citation in a form of a code comment with a direct link. No additional explanation is necessary.

Example citation:

```
1 int numbers[] = {1,2,3};  
2  
3 // https://stackoverflow.com/questions/394767/pointer-arithmetic  
4 int *third = numbers + 2;  
5 printf("The third number is %d.\n", *third);
```

You do not need to cite:

- Your own code
- Code copied from the teacher's github repository

During the defence, if your code is not cited properly, you may receive point deductions.

A citation does not relieve you from having to understand the code you defend.

Citations containing links to LLM services count as missing citations.