

ROBOFEST

Arduino Workshop Task

An obstacle avoiding, line following robot

Make an Arduino code that communicates with a motor driver to run two motors for implementing a car. Assuming that 2 LDRs are connected (facing down) to the top left and top right of the car, and the job is to navigate the car such that the LDRs sense high values (the opaque line in the center is the path, so if any of the LDRs start sensing lower values, it would mean that the car is deviating), take input from the LDRs to control the speed of the corresponding motors that would help the car stay on track (using ENA and ENB pins). You can use the 'map' function for this implementation, although this isn't mandatory (you can also make a mathematical expression to control the relation of the motor speed with the LDR). As long as the input from the LDRs are evenly mapped to the output speeds of the motors, it's fine. For the code, you can assume the highest LDR value to be any value, for example 400 or 450.

For the dynamic obstacle avoidance part, in the same code, also include a statement that first checks for obstacles using an ultrasonic sensor. If an obstacle is sensed within a certain distance (can be any distance you want), then the car should stop (ENA and ENB values can be changed to 0 for this). If the object is removed, the car should continue operating as explained above.

Use Pyserial to send the 'forward' command constantly to the Arduino. Pyserial only needs to send a constant forward command since the turning of the car and other relevant actions are controlled by regulating the speeds of the motors that have been incorporated in the Arduino code as mentioned above.

Both the Arduino and the Pyserial codes need to be submitted before 11AM on 29th of October, 2021. Partial submissions will be accepted.

[Submit here!](#)