

ROBOTICS

E-ASSIGNMENT

TASK CONTENT

The content of the task is to solve a simplified version of *iseAuto* (*roughly meaning selfCar / ownCar / iCar*) control. *IseAuto* moves by observing its surroundings and placing itself on a virtual track to drive along. *IseAuto* does not need separate lines to move. We will solve this task as a line tracker task. Each age group has a progressively more difficult task.

HOW TO COMPLETE THE TASK?

To complete the task, you need to download the configuration file from the link on the Rakett 21 website and insert it into your own simulation, which can be opened at: lab.openroberta.com. Then you have to solve the task and upload the final result, i.e. the code.

EXPLANATORY NOTES

General instruction for everyone:

Download the configuration file from the link on the Rakett 21 page.

Open in the web browser: lab.open-roberta.org.

All tasks are tested with *mBot*. If your team feels more at home with another bot, another bot can be chosen, but we can't say for sure that all tasks can be solved with all bots.

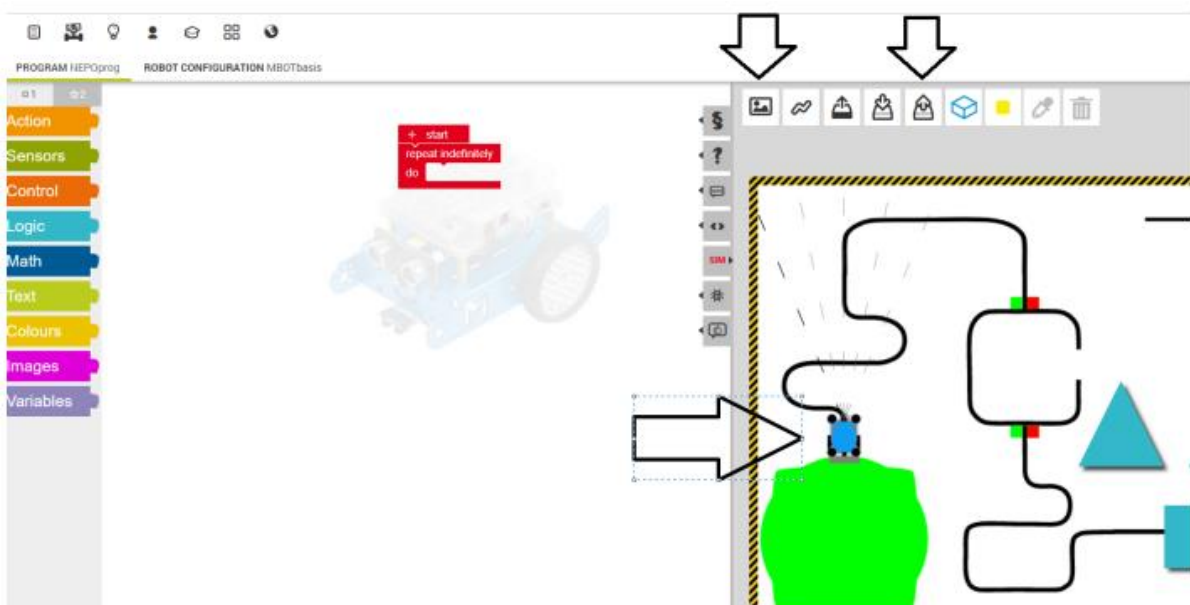
Open the simulator view.



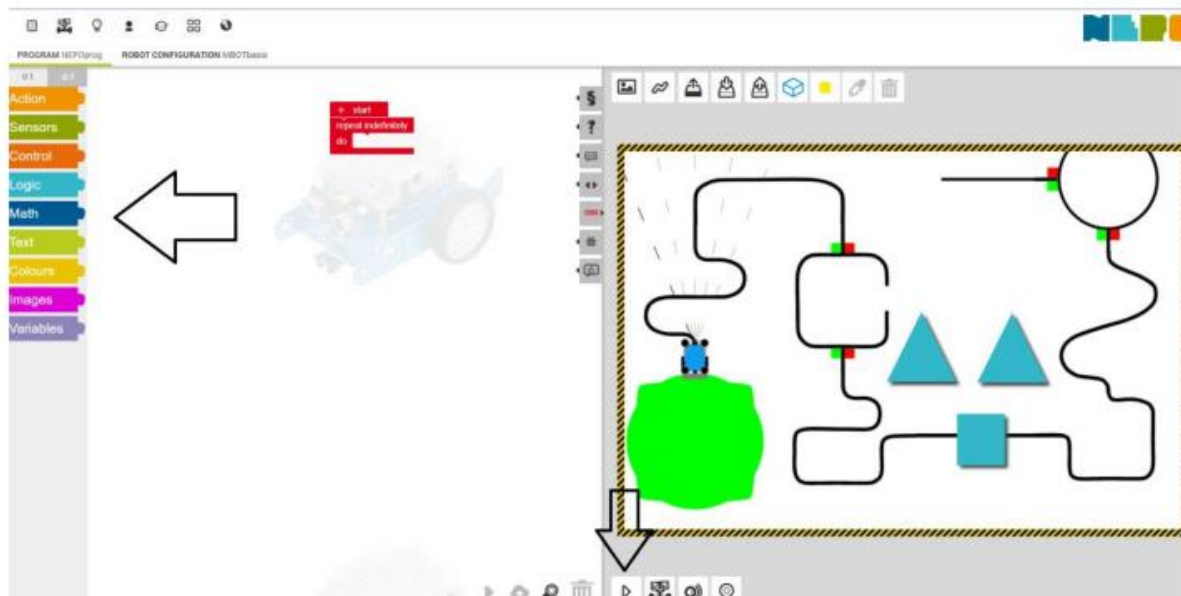
Upload the simulation settings.

After uploading the correct simulation settings, the background image is incorrect. Select the correct wallpaper by pressing the icon below the left arrow.

Place the robot in the right place. You can move the robot with the mouse, turn with the arrows.



Different commands are grouped on the left side - movement commands, sensor commands, logic operations, etc. You can program the robot with these commands. In the bottom center is the start button with which you can start the robot.



11. class: Program a line follower robot. The robot must reach the obstacle with smooth movements and, upon detecting the obstacle, must make a smooth pass without stopping in between. Smooth in this context means avoiding sudden movements. This means that the robot can repeatedly turn left and right while passing as long as it performs these movements smoothly. After passing the obstacle, the robot must return to the track and continue driving normally. After passing the obstacle, the robot must stop smoothly at a point on the freely chosen path. Driving to the end of the track does not earn extra points.

SOLUTION AND EVALUATION

As a solution to the task, the code must be submitted, which can either be downloaded as a NEPOprog.cpp file or copied into a text document and submitted as a text document. To get the code, you have to open the code view and press the download code button to download it. If the task is solved with another robot instead of mbot, write in your answer as comments which robot you used, otherwise it may happen that I enter your code into mbot, the robot does not know what to do with this code and the result is 0 points.



The Scoring System	
Robot follows the line	25 points
Robot turns smoothly	15 points
Robot accelerates, brakes smoothly	15 points
Robot detects an obstacle	15 points
Robot passes the obstacle, but does not make it back on on the line	10 points
Robot passes the obstacle and makes it back on the line	25 points
Robot stops wherever after passing the obstacle	5 points
Robot causes an accident with a wall / obstacle	-30 points