

Introduction Simulation

Deadline: 25.4.2021

Points: 10

Material requirements: PC or Laptop (no Tablet) mit Browser (no Safari)



Topic description

Welcome to the first simulation task of ECER 2021.

To make you fit for future tasks in the simulation environment, we want to give you an insight into the basic operation and functions of the online IDE with this task.

We will also provide an introduction in video form for this task, so that everyone has an easy start to our simulation tasks. The video will be available a few days after the release of this task.

We wish you a lot of fun with this and the following tasks!

Your PRIA-ECER Team

PS: If you have questions or problems, please use the forum in the eLearning environment (Moodle), there you can support each other and we can answer questions that are relevant for all easier. If you have questions or problems that are not intended for the public, write to us at ecer@pria.at and we will help you as soon as possible.

Task description

First Steps

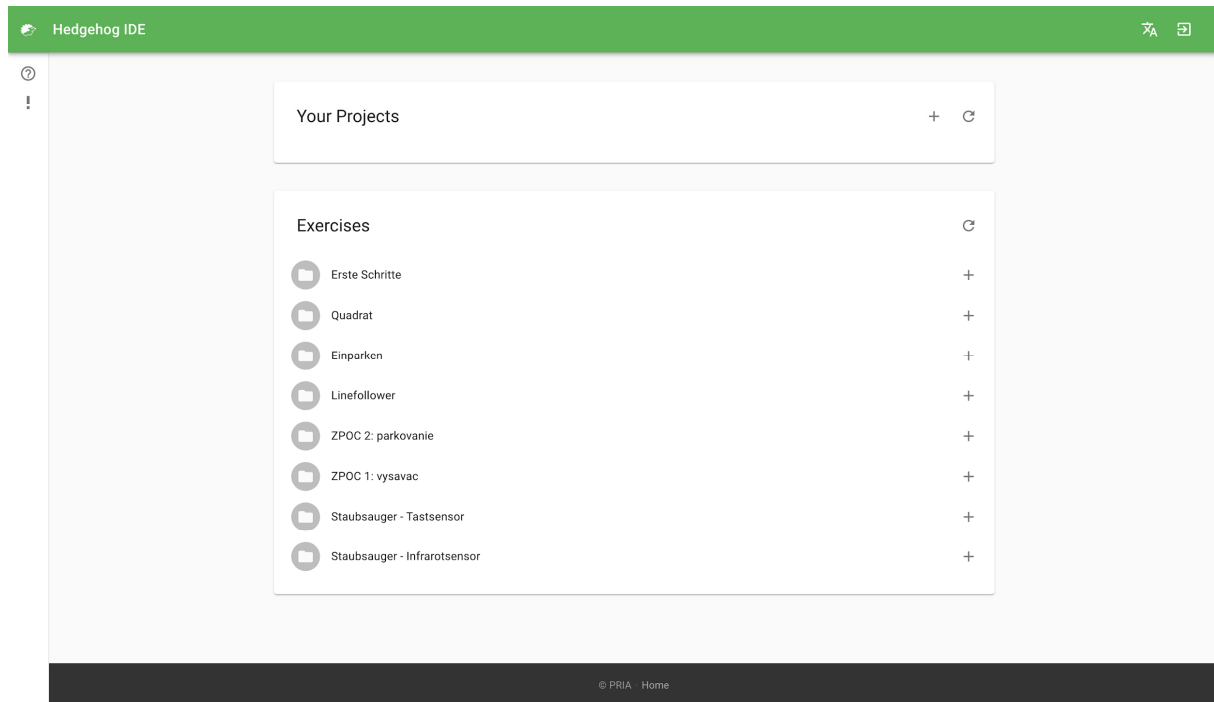
All our simulation tasks will be performed in our online simulation environment the Hedgehog Cloud. Now open a browser of your choice (Safari browser is not compatible) and visit the website ide.pria.at (please do not put www. in front of it!). If you see a page like the following, you have done everything right.

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In the upper area your existing projects are displayed, this is of course currently still empty, as you have just opened the page for the first time. Further down you can see all the tasks we provide.

Our environment is available in German and English and partly Slovak, you can change the language in the upper right corner.

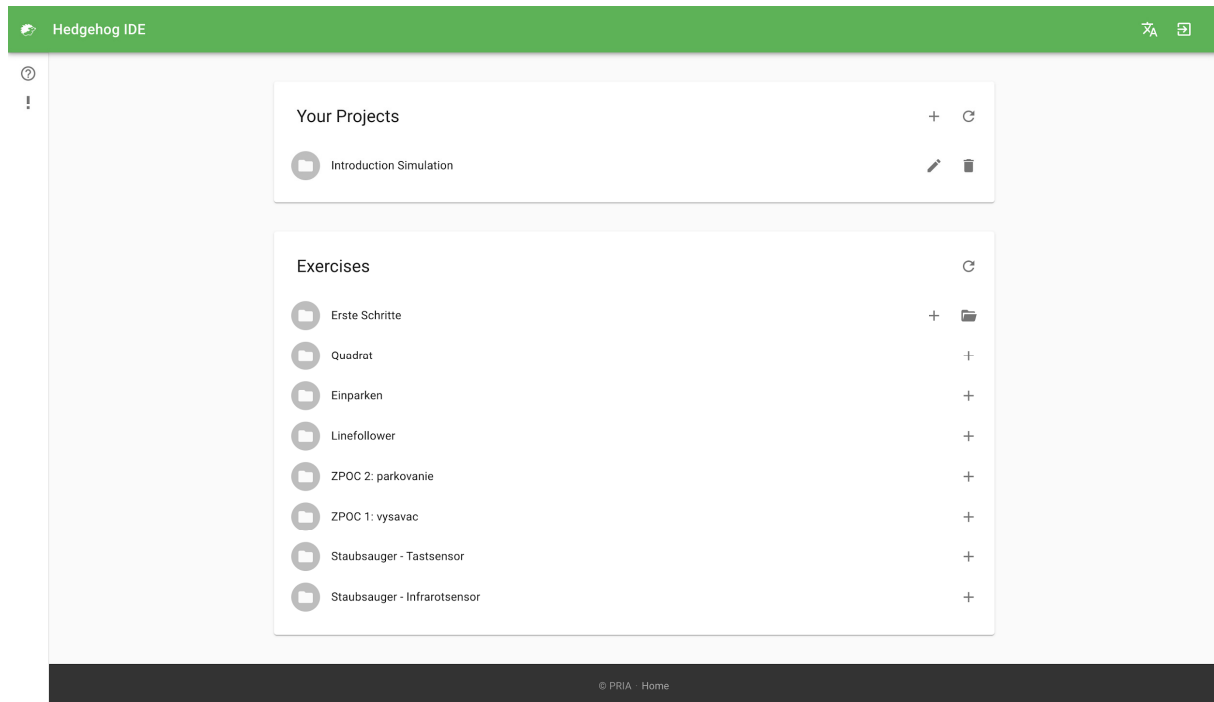
So now we want to create your first project with the task "Erste Schritte". Click on the plus (+) symbol next to the task "Erste Schritte". Now you will be asked to give your new project a name. Choose an appropriate name like "Introduction Simulation", you can also choose another one you like. Now confirm the creation of the project by pressing "Ok". Now the new project should be displayed in your project overview, like in the following picture.

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Now click on the project you just created to open it.

Overview of the IDE

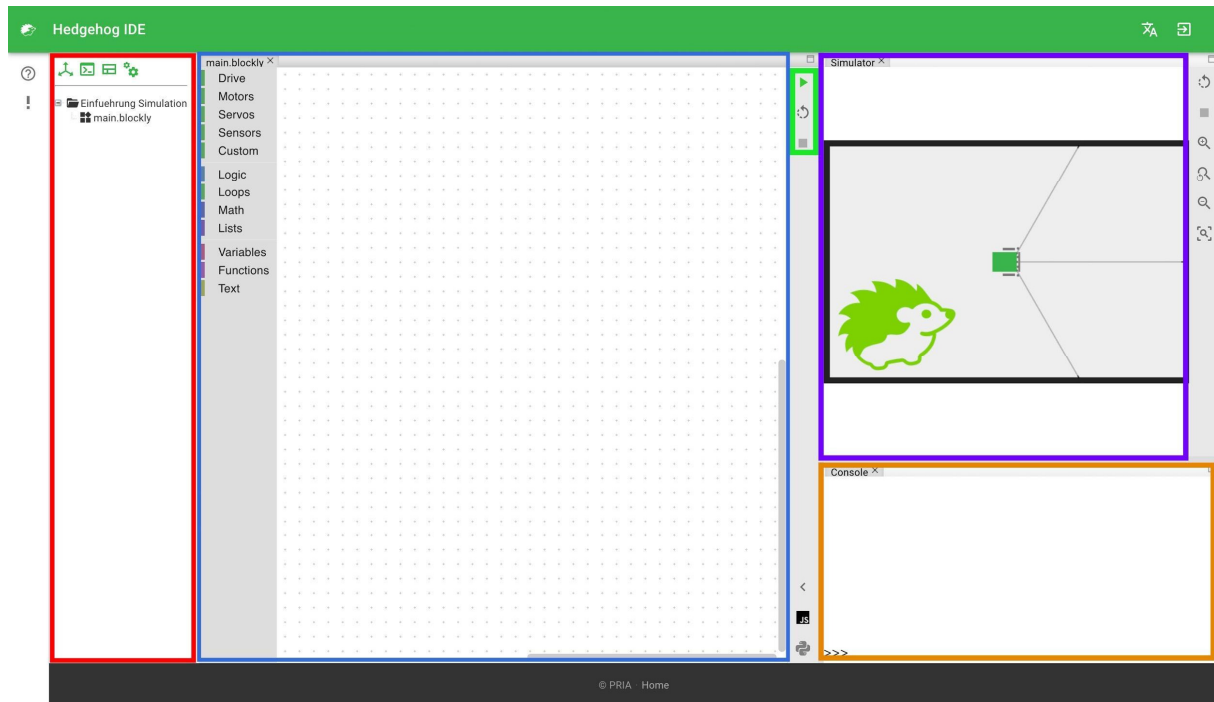
Now you see for the first time the typical view of the Hedgehog simulation environment, it looks something like this.

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A brief explanation of the color-coded areas:

- **red Area:** This is the file overview, on the small plus (+) symbol next to the name of your project you can expand the folder and view your files. You should already find a file named "main.blockly" in this task. To create new files, right click on the project folder and select "New Blockly File", now you can name the file and create it. Normally, our tasks have all the necessary files already created and often already open.

Right-click on each file to download it for saving or sharing with team members, and right-click on the project folder to upload it again later. Please note that your projects are only saved locally on your computer. If you change computers or clear your browser cache, your projects will no longer be available. So please download the files as described before and save them in a safe place to avoid losing anything.

- **blue Area:** This area is the program editor, here you can create your program that controls the robot. We will deal with this window in more detail in this task in a moment.
- **purple Area:** This is our robot simulation, depending on the task you choose you will find the robot in different environments. In this first task the robot is in an empty room, don't worry this will change in later tasks and your robot will get more objects to interact with.
- **orange Area:** Here you will find the so-called console, here you will find messages of the simulation in later tasks, which progress you have already made in the respective task. You can also write your own text here with special program blocks.
- **green Area:** With these buttons you can start, reset or stop your program.


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Most of the displayed windows can be moved, enlarged, reduced and also closed. If you get confused and don't know where to find which window, you can use this button  in the red area to reset all windows to the default settings.

The first program

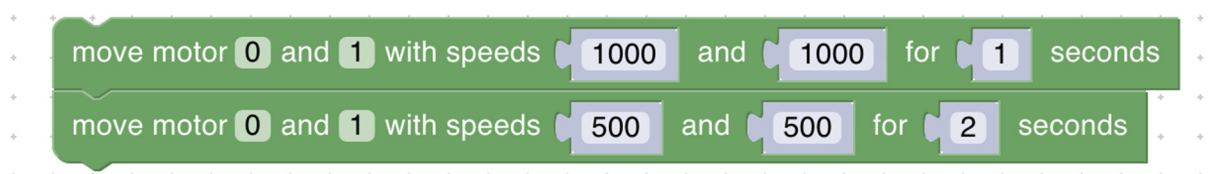
Now we want to write the first program for our robot, in the program editor (blue area) open the category "Drive" and drag the following program block into the editor



This block allows you to make the robot move. You can configure a lot of things, motor 0 and 1 indicate which motors you want to control, in this case motor 0 (which is the left motor in our robot) and motor 1 (for the right motor). The motor numbers will be the same for all tasks and therefore never need to be changed. Next, you can set the speed of the left and right motor. The range of the speed is from -1000 to 1000 where 0 stands for stop. The effect of negative numbers for the speed, i.e. from -1000 to 0, you will find out quickly yourself. You can also set how long the robot should run before it stops again.

Try the program now, click on this button  in the green area, the robot should now start and stop after the set time.

You can arrange several program blocks one after the other and the robot will run one after the other. A program that first drives straight for 1 second at full speed and then continues for 2 seconds at half speed could look like this.



Your task

After this first introduction now it is your time for the first task. Write a program that first makes the robot move forward, then the robot should move backwards (without turning around) and finally the robot should make a short turn.

Introduction Simulation

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For some extra points, find the block that can output text in the console (**orange area**) and write "Start" in the console before the robot starts moving and "Done" after it has completed the turn.

Record a screen video of your robot and submit it together with your program (download the Blockly file as described above).



Evaluation criteria

- Robot drove forward
- Robot drove backwards
- Robot made a turn at the end
- Before the movement of the robot the text "Start" should be printed in the console
- After the movement of the robot the text "Done" should be printed in the console
- Screen video and Blockly program submitted
- Jury evaluation: The jury evaluates the quality and creativity of the submission.