Since release 3.8.0 in January 2020, the Open Roberta Lab supports text-based programming. Now you can not only view your source code but also change it on your own. This is the next step if you feel that a block-based programming environment has become too slow for you or if you want to take a first step towards text-based programming.

With the new source code editor we want to make the transition from a block-based to a text-based programming language as easy as possible. Before you could view the source code of your program by pressing the button "Show Source Code". From now on you can not only view the source code but also change it yourself. This gives you the opportunity to create your first text-based programs without having to start from scratch. A first step would be for example to create the rough structure of your program with blocks and if you need mathematical operations, add them into the source code. This way, you don’t have to start with a blank sheet of paper, just add the steps you want.

When you have become more familiar with text-based programming, you can try to use the logic of your program, e.g. loops or "if ... " queries in text form and thus become more familiar with the programming language.

After some time you will notice that some things go much faster when you program text-based compared to block-based programming. For example, almost all mathematical operations like addition and multiplication are faster written in text form than using blocks.

If you are now interested in text-based programming, you can simply visit the Open Roberta Lab and try out the source code editor yourself.

Starting the source code editor

To get to the new source code editor, press the »Edit« button in the upper left corner and then »open source code editor«.

Depending on which program you have already created, you will be able to see and edit the source code here. This will look like this:
Working with the source code editor

If you open the source code editor as described above, you will see the code that the Open Roberta Lab has created from your previous blocks. In the source code editor you are no longer limited by the blocks available in the Lab and you can change the source code as you like.

In addition, the source code editor contains the following buttons:

Run on the robot

To load your program onto a robot, simply press “Start on robot”. If you press this button, your program will be built first and then the finished machine code will be transferred to your robot. If an error occurs during the building process, the Open Roberta Lab will give you an error message.
**Build the source code**

Edit and build the source code. When you are finished, click on the wrench icon to build the code. This process translates your source code into machine language that your robot can understand. With this item you can check if there are any errors in your source code without transferring the code directly to your robot.

Make sure that you enter everything correctly, otherwise you will get an error message from the Open Roberta Lab.

**Download the source code**

Programs can also be downloaded to your PC and saved so that you can edit them later.
Upload the source code

With this button you can reload your programs that you have downloaded before into the source code editor to either edit them further or load them onto your robot.

Import current NEPO program

With this button you can update the current program if you have made changes to the blocks of your program in the meantime or if you want to reset the source code to the state of your blocks.

Limitations of the source code editor

The source code editor currently has a few limitations which may be changed in the next releases. As soon as something changes, you can read about it here. At the moment there are the following restrictions:

- No automatic completion. The source code editor will not suggest functions or variables if you have written only parts of the name.
- No retransformation. If you have already added blocks in Nepo, they are automatically transferred to the source code editor. However, this does not work the other way around, so no blocks are created for your written code.