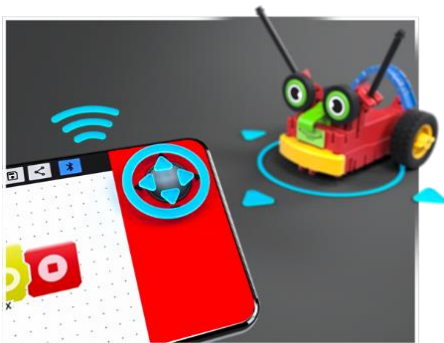


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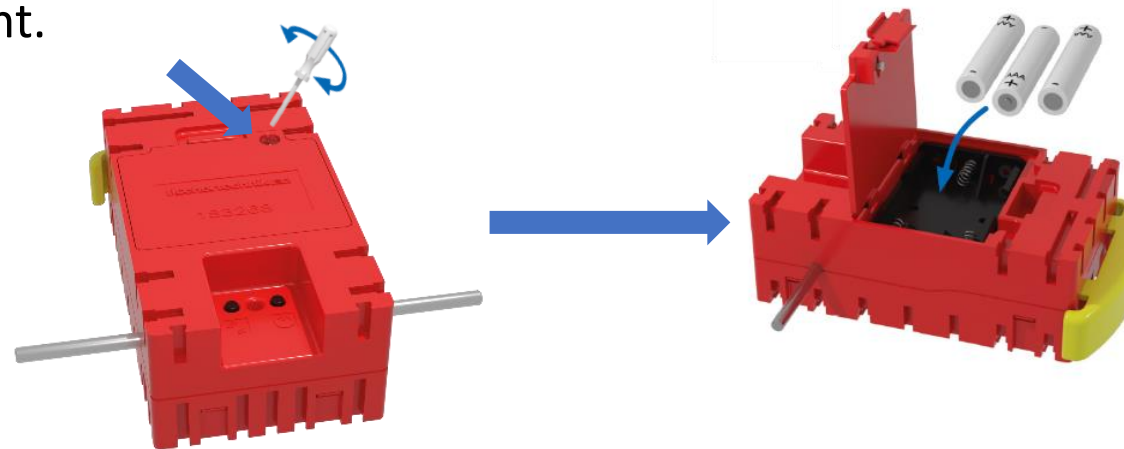
EARLY CODING

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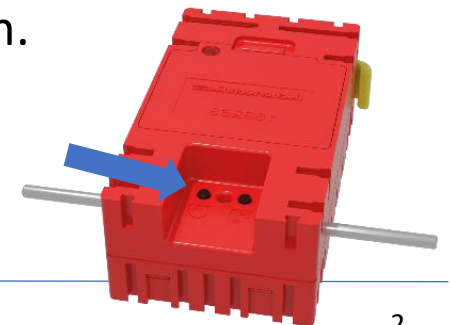
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Downloading the app and preparations

- First, download the “First Coding App” from the Google Play store (Android) or App store (Apple) for your smartphone or tablet.
- Open the battery compartment of the Robby and place batteries in the compartment.



- Switch on your Robby and make sure the LED is illuminated green.



- Now, assemble your Robby. Select one of the three available models and build it using the building instructions.

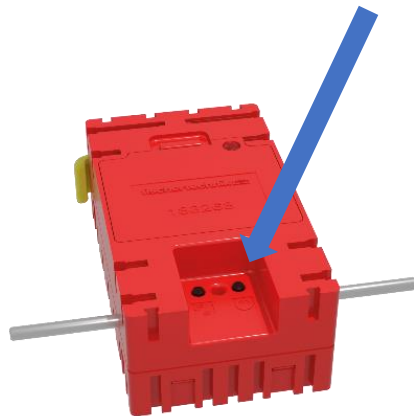


Adventure 1: Connecting to the “First Coding” App / remote control

- Open the app on your smartphone or table.
- After you have opened the app, click the Bluetooth symbol which is highlighted blue.



- Press the left button on the Robby until the LED starts flashing green.



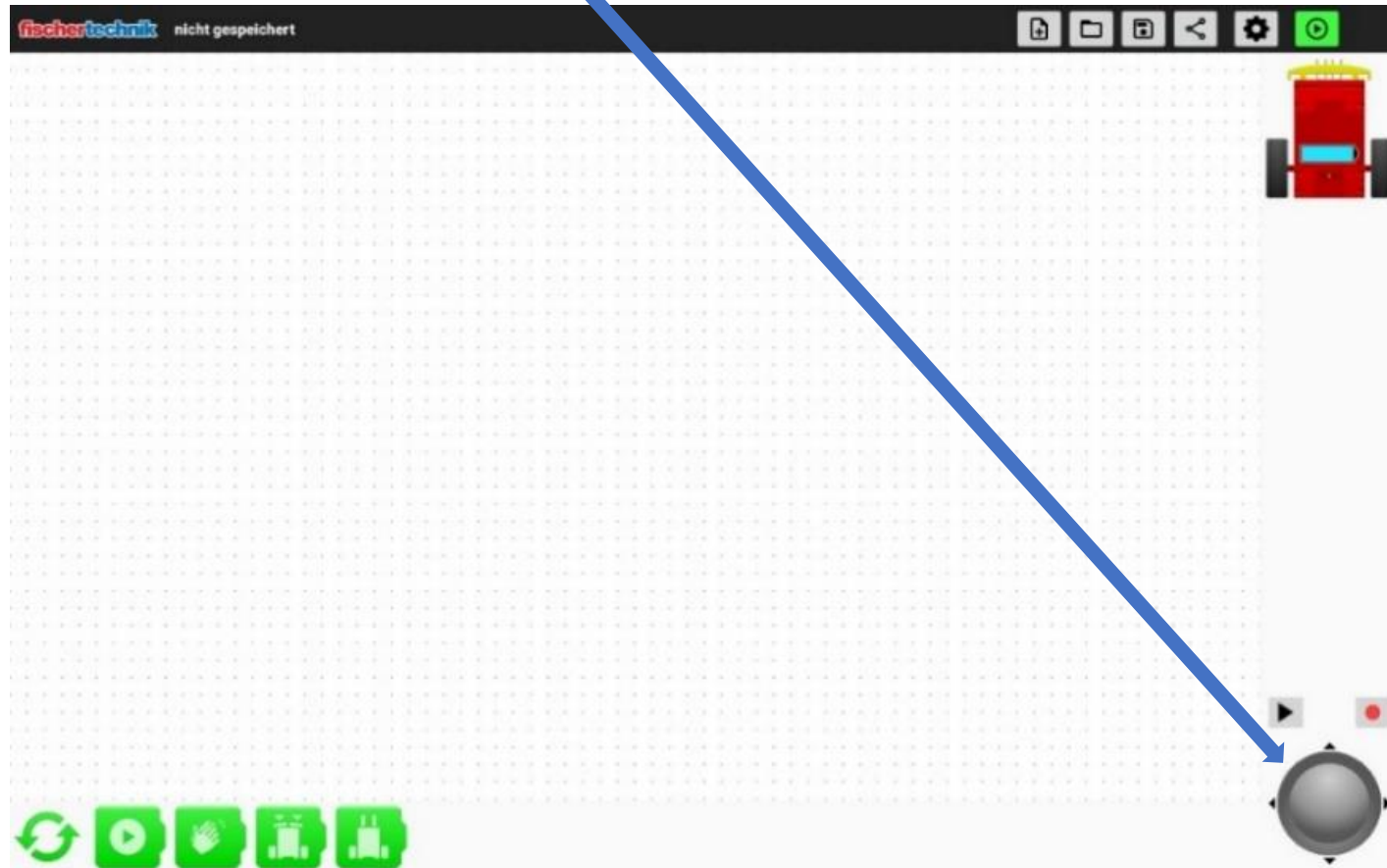
Mit Robby verbinden

Schalte Robby ein, indem du den rechten Knopf kurz drückst. Ein grünes Licht leuchtet auf. Drücke den Knopf links vom grünen Licht und halte ihn für 5 Sekunden gedrückt. Das grüne Licht beginnt zu blinken und Robby taucht in der Liste auf. Tippe auf den Eintrag in der Liste.

Robby [D8:74:F1:46:95:0D]

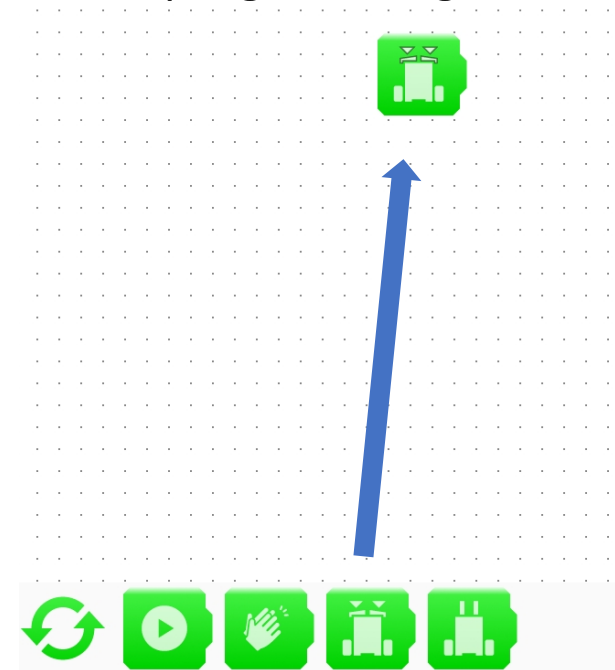
ABBRUCH

- After the connection is completed successfully, your app interface should appear as follows. Use the track ball at the bottom right side of the display to steer your Robby.

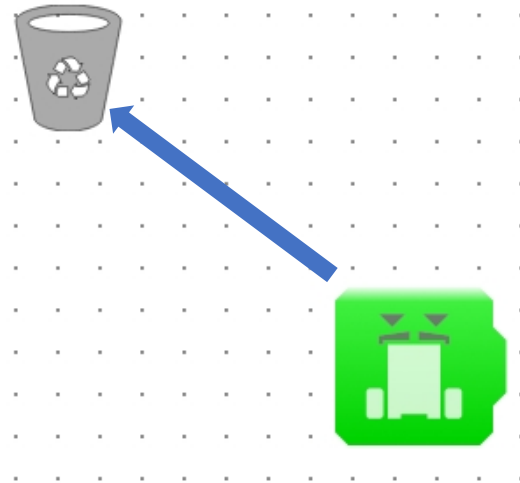


Adventure 2: Getting started programming

- We're going to get started by programming something easy, let's go!
- The goal is for your Robby to play a sound when the bumper is touched.
- We will use the following block to do so - drag it to the programming interface, this is our query for the bumper:



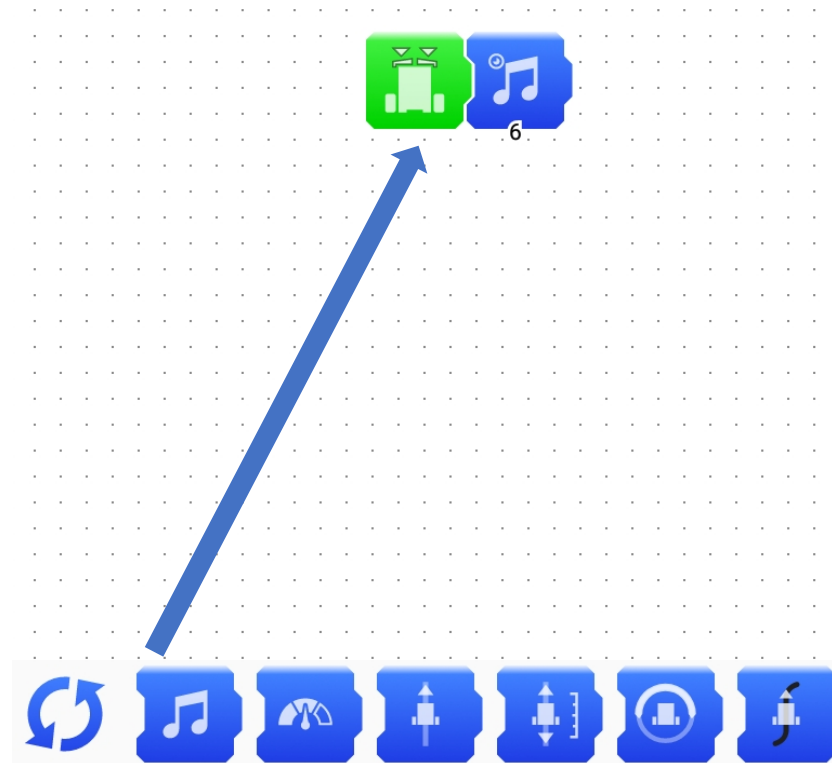
To delete a block, you can simply drag it to the trash can:



- After you have inserted the block for the bumper query, it is time to switch functions. To do so, simply click the circular arrow:
- After you click it, the function of the blocks will change.

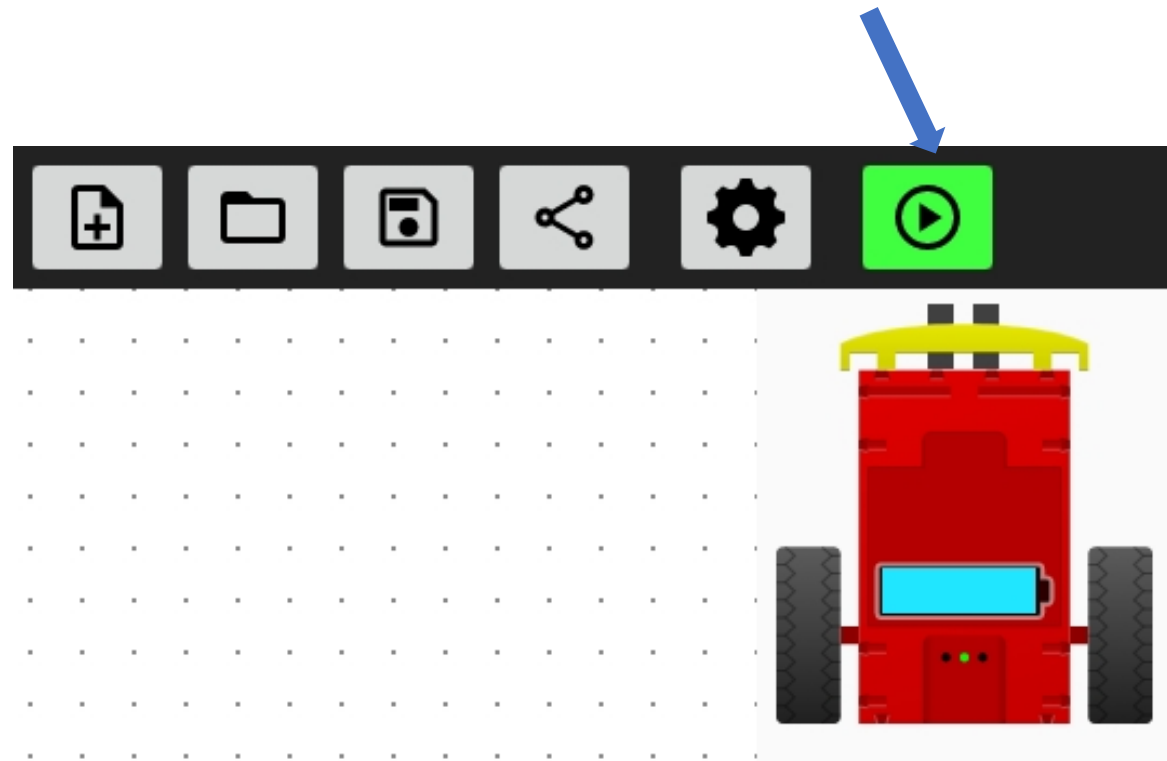


- Now, select the sound block and add it to the programming interface, to the right of your green block:



- Click the block once again to select a certain sound.

- Now, test out your program. To do so, click the “Play” button highlighted in green:

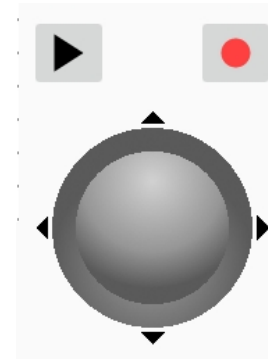


- Try out your program by pressing the bumper on your Robby. This sound will now be played each time an obstacle touches the bumper of your Robby.

Adventure 3: Recording and saving motions

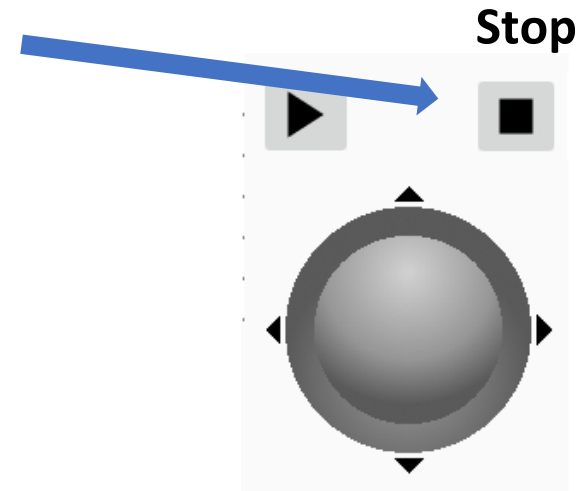
- Make your Robby travel in any pattern you like. You will see that it remembers the pattern, and you can travel the programmed path as often as you like.
- You can find these options using the track ball:

Play



Record

- Use “Record” to start the learning phase. Your Robby will now remember each motion you carry out after you press Record. After you have traveled a specific path, for instance, you can press “Stop.”



- Now, move your Robby back to its initial position and click “Play”:



- The Robby will now copy exactly the movements that you made during the recording. This is a very simple way to program the Robby. In technical language, this is referred to as “teach-in programming.”

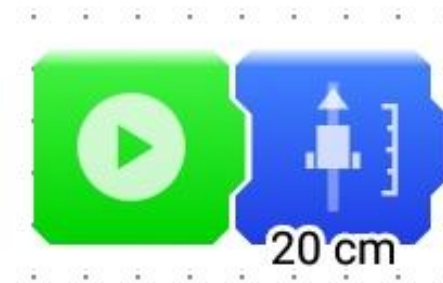
-
- The program will be retained until you either switch off the Robby or end the coding app.
 - If you would like to carry out additional tests, simply make your Robby travel in a square and see how well it can remember the path.

Adventure 4: Programming using programming blocks and traveling along a path

- Next, we will use programming blocks to make the Robby travel along a certain path.
- **Task: Make the Robby travel forward for 20cm**
 - Make the Robby travel forward for 20cm
 - To do so, you only need the following blocks:



- Press the blue block to set the distance:



- **Task: Make the Robby turn around and travel backward for 20cm**

- Now, try it out on your own. If you can't figure out the task, see the next page for the solution



- Solution:

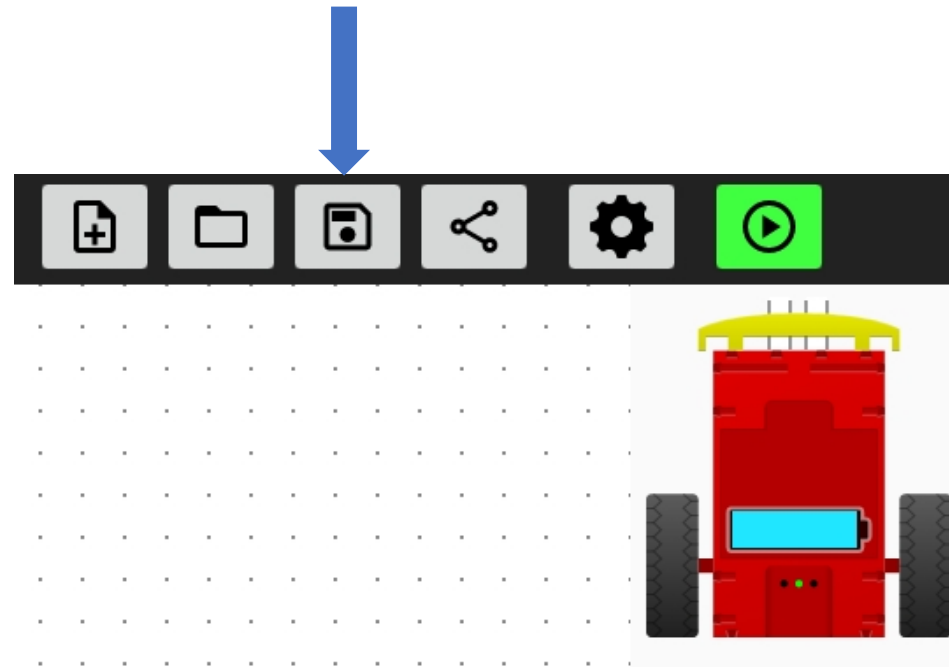


- The grey blocks with a clock on them are delays. In this case, the Robby will wait for 1 second each time before executing the next block



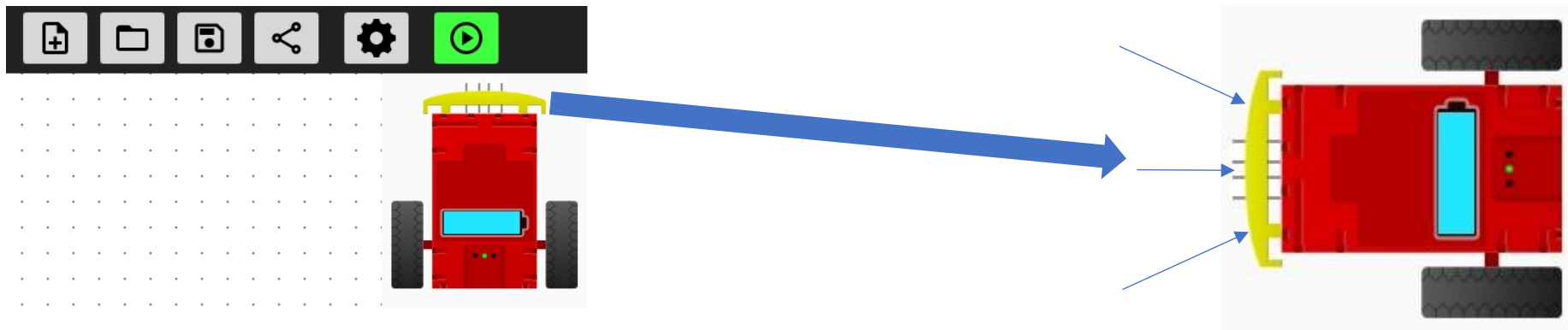
- So far so good, keep it up. You're on the best path to becoming a great programmer.

- You can use the Save symbol at the top right to save the program on your smartphone or tablet and give it a name.



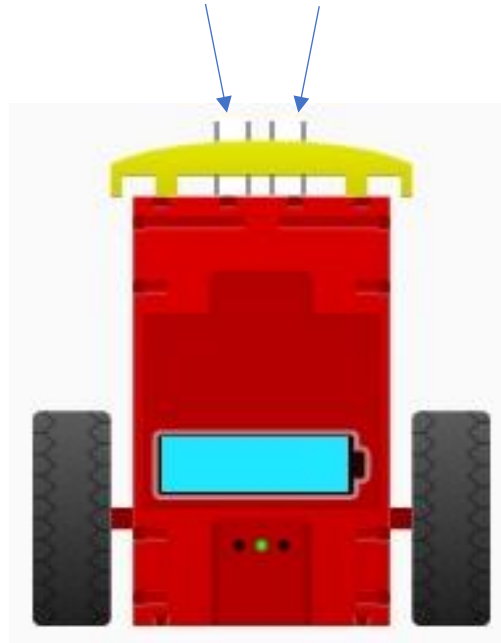
Adventure 5: Trying out sensors

- Sensors are components the Robby uses to perceive its environment. It can use them to see or touch something. You are already familiar with the bumper. When you press it, there are 2 sensors inside the Robby that detect whether the bumper is pressed on the left, right or in the center.
- The image at the top right of the screen shows you the point at which the bumper was pressed. Try it out. What do you observe?



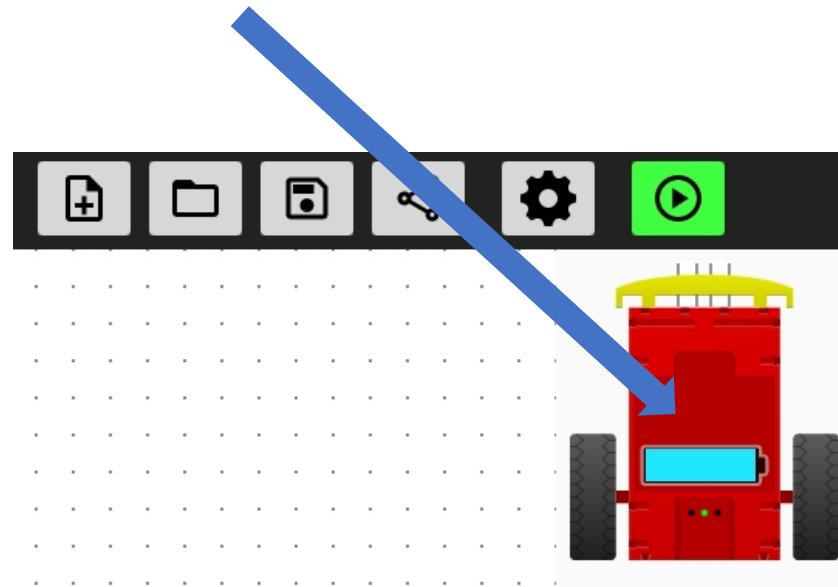
- Your Robby should now detect which side of the bumper was pressed.

- There are also additional sensors on the bottom of the Robby. It can use these to differentiate between light and dark, so they function as its eyes. This allows it to follow a black track, for instance.



- You can also see which track it is following at the top right of your display. Try it out by holding your Robby over the black track included in the building set, and observe what happens.

- The Battery symbol indicates how much power your Robby has left.



Adventure 6: Following a track

- Now that we are familiar with the sensors, it's time to test them out a bit more. This time, we want our Robby to travel along a black track. The track is included in the building set.
- We just need 2 blocks to program the task:



- Drag the two blocks back to your programming interface
- Place your Robby on the track and press the “Play” button
- Pretty simple, right? Then let’s start the next challenge.

Adventure 7: Detecting an obstacle on the track and turning around

- You should start off by trying this out on your own. If you can't figure out the task, see the next page for the solution.
- The task is for the Robby to turn around and travel back along the track if it detects an obstacle.
- Good luck, we'll see you on the next page.

- **Solution:**

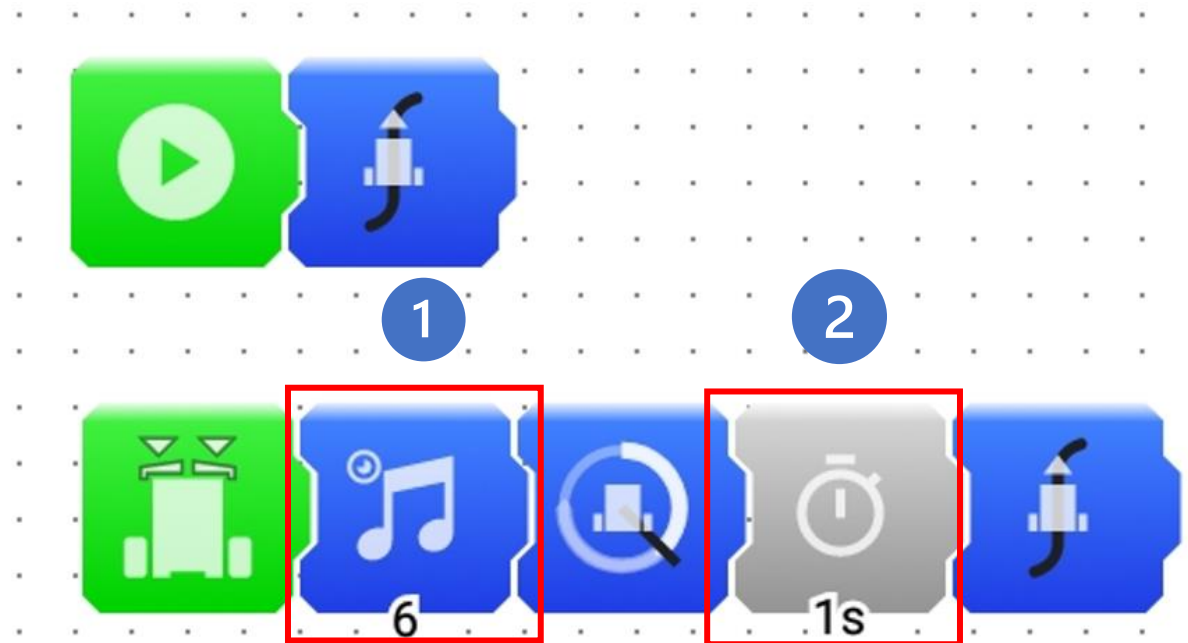


- We are already familiar with the top section (1). The Robby follows the track when the program is launched.
The bottom section (2) is only active when the bumper detects an obstacle. This triggers the other blocks. In this case, this means that the Robby will turn around and continue following the track.

Adventure 8: Following a track – detecting an obstacle – playing a sound

- In this example, the Robby should also play a sound when it detects an obstacle.
- Now it's your turn to try it out. Attempt to program the task. If you can't figure it out, you can find the solution on the next page as always.
- Here is the task once again:
 - Your Robby should follow a track, and play a sound first when it detects an obstacle. Then it should turn around and follow the track back.
- Tip: It's best to look at the previous adventure again.

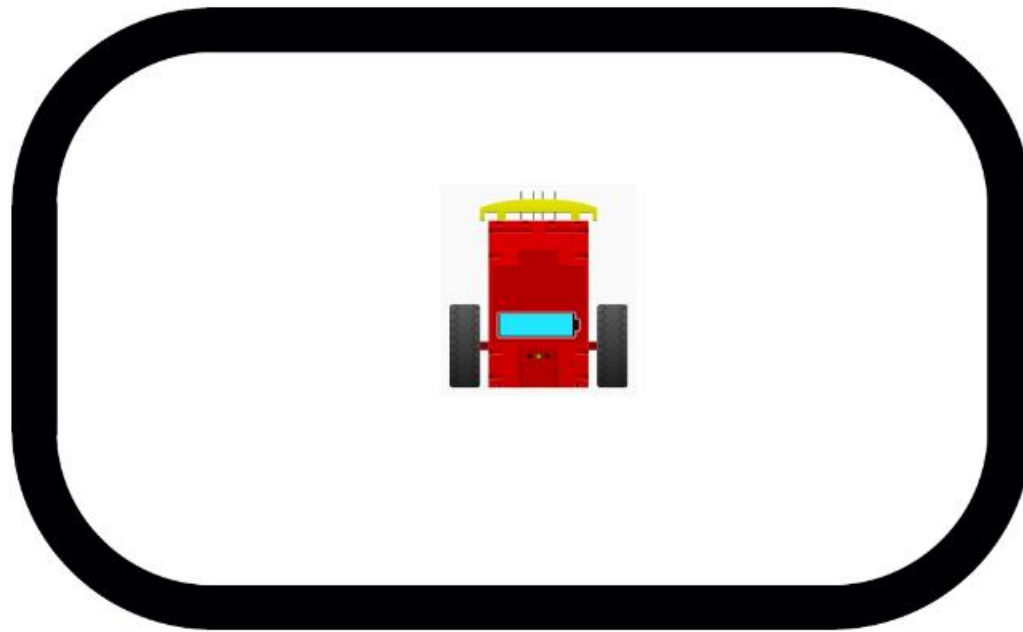
- Solution:



- As you can see, all you need to do is add 2 blocks to the existing program. We have inserted a sound block (1) and a delay (2).

Adventure 9: Robby is trapped

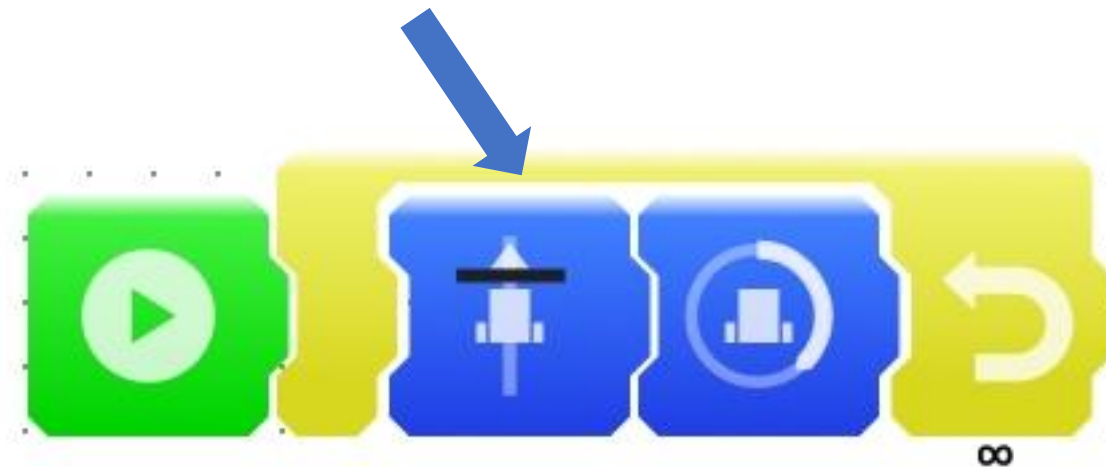
- If you have a pet, like a rabbit, and you want to let it play outdoors, you will need to put up a fence all around it, so it doesn't run away. We're going to do something similar with the Robby. It should be allowed to drive around on the course but should always be good and stay inside the black line.



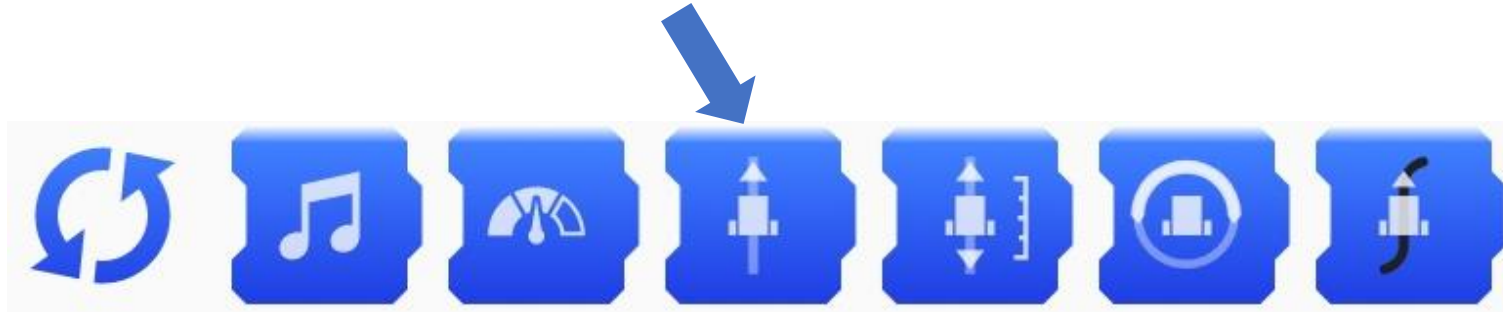
- The overall program should look as follows:



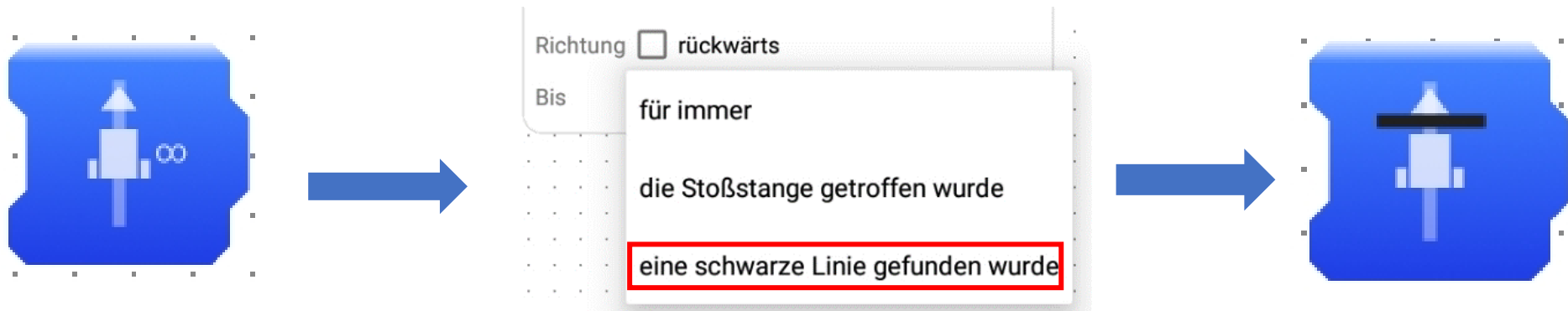
- You may have noticed that this block isn't readily available. But we will show you how you can find and use this block.



- First, select this clock and drag it to your programming interface.



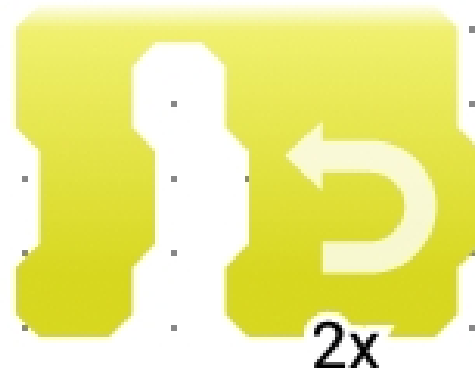
- After you have inserted the block, click on it. You will see a new window open. Select the option “**a black line was found**”.



- Click and hold the circular arrow until you see the color yellow. You can find the yellow blocks here.

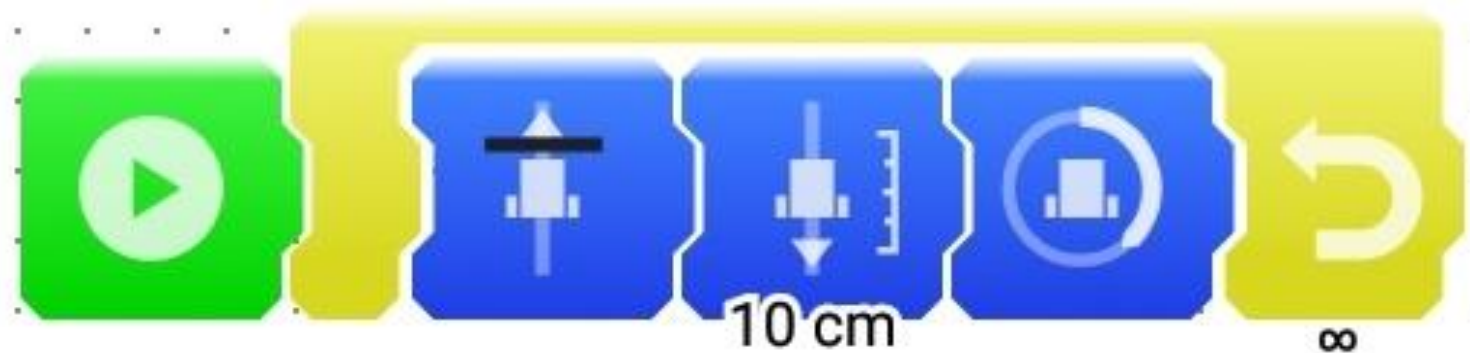


- These blocks are “loops.” These blocks run in a loop, repeating continuously. You can set how many times they should run. To determine how often the repetition is completed, you can simply click the block and define a value (from 1 to 19+).

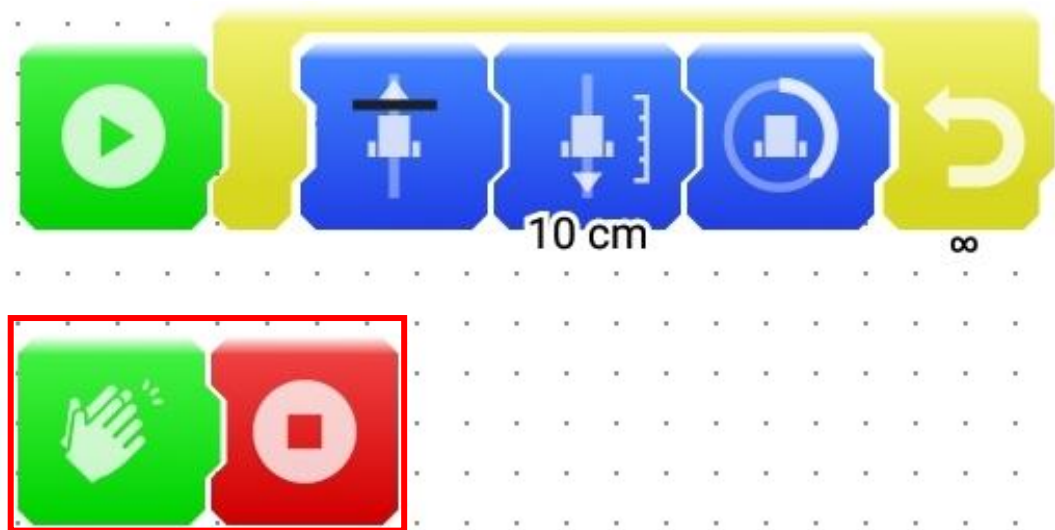


Adventure 10: Noise activation

- Now, let's add a noise activation function to the existing program. To do so, use the program from the last example:




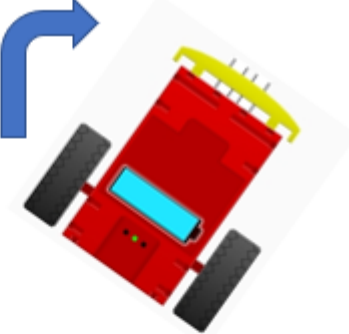

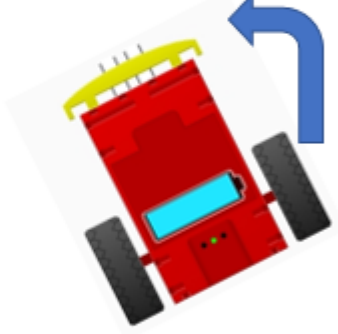

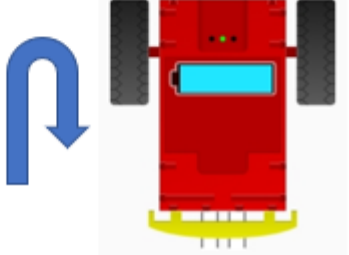
- Click the circular arrow once again until you reach the color red. You will find the block you need for noise activation here. Now, insert the block for clapping.



- The program will then execute the following functions:
The Robby is now restricted by the black line: when it reaches the line, it should first drive backwards a short way, then turn around. It should also go to sleep when you clap your hands. Going to sleep means that the program should end.

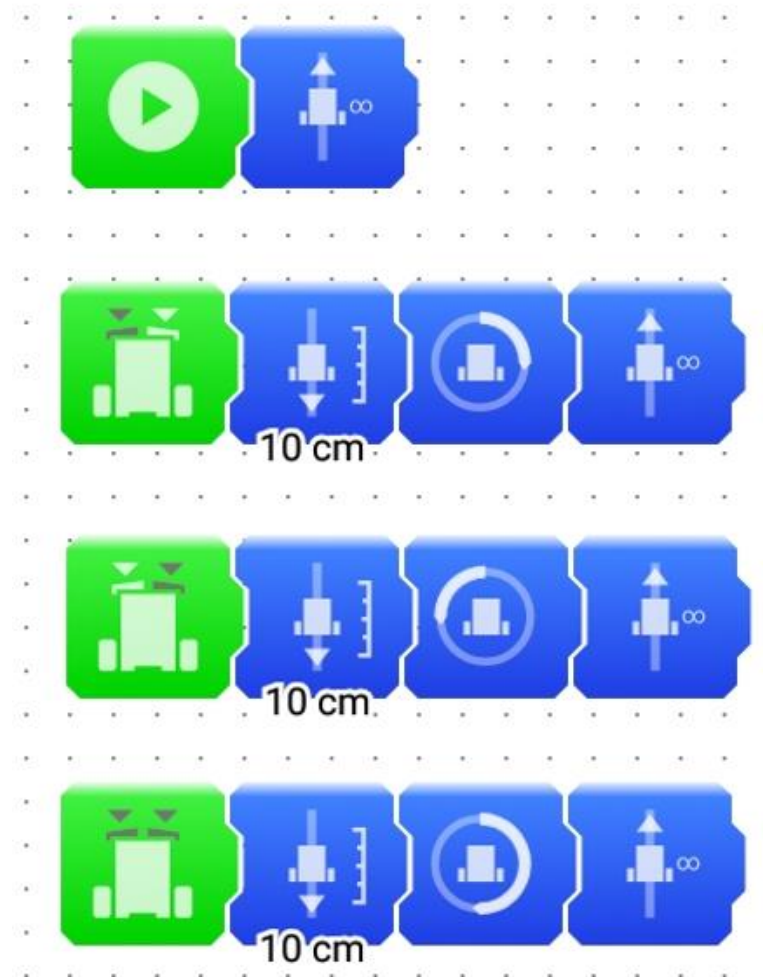
Adventure 11: The wanderer

- Now, your Robby should explore your room. It should start driving. When it comes into contact with an obstacle, it should stop briefly, drive backwards a short distance, turn and then continue driving in another direction. Of course, we don't want to make things quite so easy on ourselves. It should turn in different directions, depending on which side of the bumper the obstacle is located.

What side of the robot hits the obstacle?	How should it react?	
Obstacle on the left		<p data-bbox="1059 387 1283 419">Turn to the right</p> 
Obstacle on the right		<p data-bbox="1059 754 1283 786">Turn to the left</p> 
Obstacle in front		<p data-bbox="1059 1074 1216 1106">Turn around</p> 

-
- This might seem tricky at first, but we are sure you can figure it out. As always, the solution for the task is provided on the next page.
 - You can also certainly check the solutions for the previous challenges.

- Solution:



- Well, this is a pretty complex program. But you can use it to allow your Robby to travel all around your room. You might be surprised where it will go.
- **Tip:** If you set the turn to the left slightly smaller than the turn to the right, then the Robby will be able to get out of any corner.

What's next?

During the 11 adventures you have completed with the three Robbies, you have become familiar with the blocks available in the First Coding App, and you have seen what all you can do with them. But there's much more to discover. For example, you can draw your own track on a piece of paper and make the Robby travel along it. You probably have other ideas for what you can teach your three Robbies to do. Come up with your own ideas, maybe with friends? You'll have great ideas if you work together. We hope you have lots of fun creating new adventures with Bob, Lilly and Gerry.