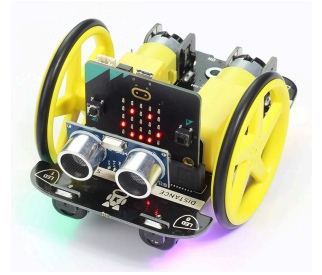
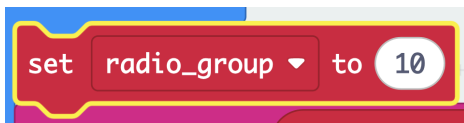


You're going to programme a micro:bit to be a remote controller for one of our yellow robot buggies! You will move the controller micro:bit and it will send messages over the radio to the micro:bit on the buggy. You will need 2 micro:bits for this activity, 1 for the buggy, 1 for the controller. Working in pairs with 2 laptops will be very helpful!



Download the code for the buggy

- In a web browser, go to sbcd.cc/robotr
- Look for the blue bar near the top, and click 'Edit'.
- The Dojo team might give you a radio channel number to use, if not, you'll need to pick a unique number that other people aren't using, otherwise lots of people will be sending signals to the same robot!
- Look for the **set radio_group to (10)** block, and type your radio channel number in the white circle.



- Plug the first micro:bit into your computer and download the code.
- Carefully slot the micro:bit into the robot.

Download the code for the controller

- In a web browser go to sbcd.cc/robotc
- Look for the blue bar near the top, and click 'Edit'.
- Look for the **set radio_group to (10)** block, and type the same radio channel number you used before into the white circle.
- Look at the **on tilt left** block, you're going to build the **on tilt right** block in the same way.
- Find the three grey blocks that say:
 - **radio send string "turn_right"**
 - **show string "R"**
 - **pause (ms) 100**
- Join the three blocks together in this order and put them **inside** the **on tilt right** block.

- Well done! 🎉👏 Now you need to do the same with **on logo up** blocks.
- Take a look at the **on logo down** block.
- Find the last three grey blocks and join them together in the same way.
- Put these blocks inside the **on logo up** block.
- Now plug in your micro:bit to the computer and click download!
- Plug in the battery pack to your micro:bit.
- Flick the switch at the back of the robot to on.
- Hold the micro:bit controller flat in your hand first.
- Check the Robot and your controller are showing the same number.
- Now try pointing the micro:bit down to the floor and pause for a second, the robot should move forward.
- Place the controller flat again.
- Now try pointing the micro:bit upwards and pause for a second, the robot should move backward.
- Each time you move, place the controller flat again before your next move.
- Now try turning left then right, and see what happens!

Well done, you've successfully programmed a remote control for our yellow robot buggies! Can you see how it works?

- The first programme you loaded is listening out for messages, we call these strings.
- When the micro:bit receives any message, we use an if statement. The if statement checks what the message says.
- If the message matches an instruction we've given it, like `all_stop`, it will follow any of the instructions we give it in the if statement.
- If the message is `go_forward`, it's programmed to start moving forward at 50% speed, then the programme pauses while the robot moves, then we tell it to stop (if we didn't tell it to stop it would just keep going!)
- Look at the second programme, do you see how you sent the string, or message?
- Now can you edit the programme? Try changing what happens when the robot receives a message, or can you add completely new messages in? Remember you will need to download the different bits of code to the 2 different micro:bits to test it.

Have fun with it, show us what you can do robot masters!!