

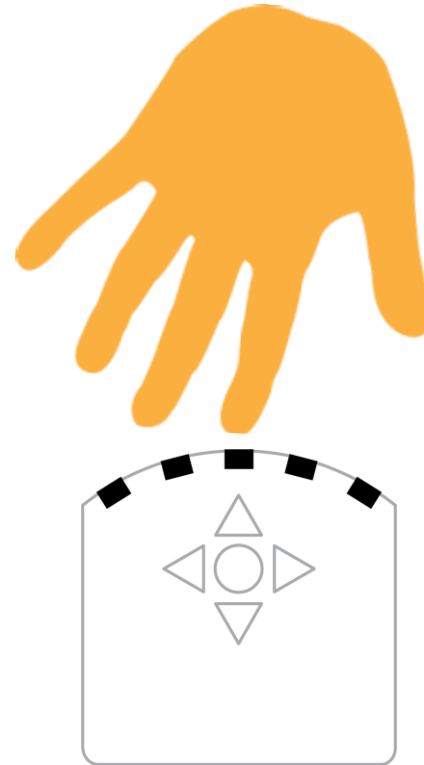
# How to program horizontal proximity sensors



# Horizontal proximity sensors

Put your finger in front of one of the Thymio sensors and look at the sensor.

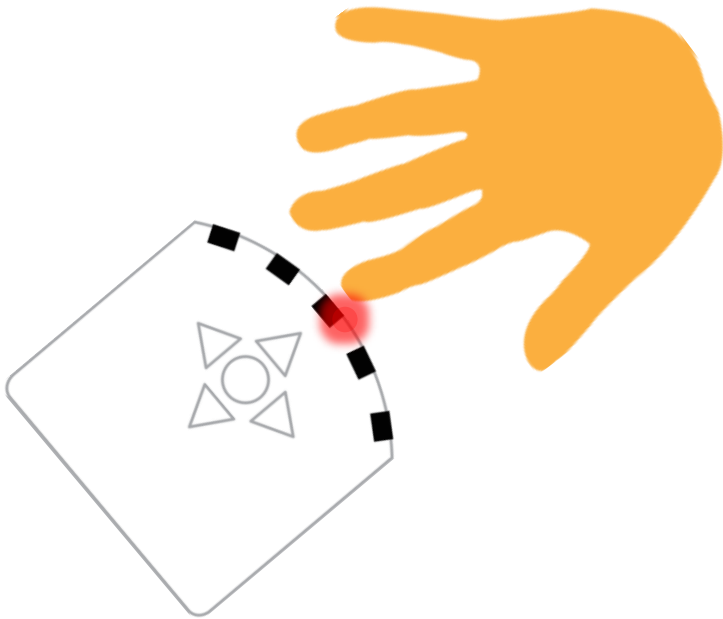
What do you see?



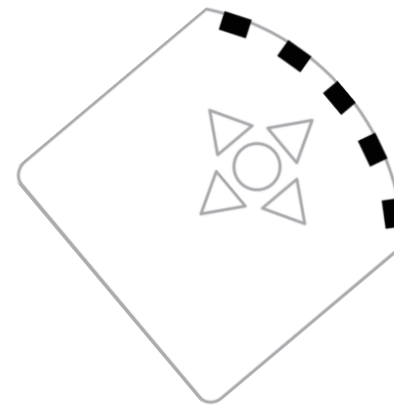
# Horizontal proximity sensors

If there is an obstacle in front of a sensor, the sensor **detects** it.

Thymio shows you this event by lighting up a **red LED** near the sensor that detects this obstacle.

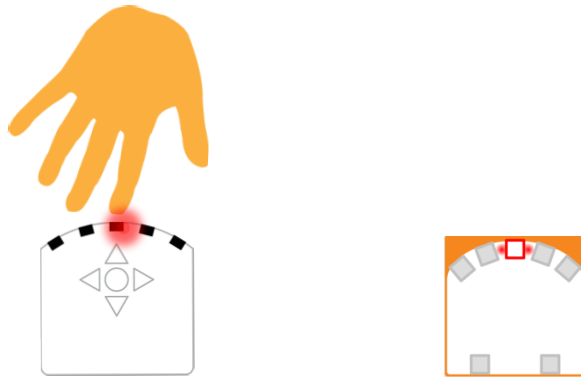


If the sensor detects **nothing**, it remains **black**.



# Events of horizontal proximity sensors in VPL

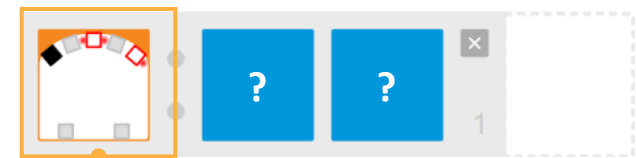
Thymio **detects something** with its middle front sensor.



Thymio **detects nothing** with its middle front sensor.

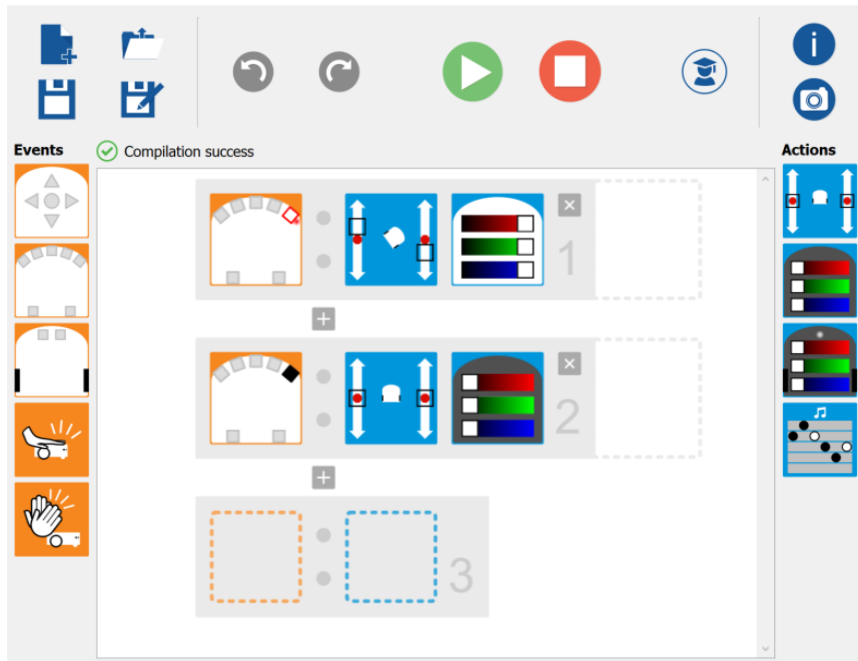


! Grey sensor on the VPL icon: no matter what the sensor detects, the actions will be launched.



! For example, this icon means that **the actions will be launched only when the middle AND right sensors detect something AND the left sensor detects nothing**. What happens with the other sensors is not important.

# Programming horizontal proximity sensors in VPL



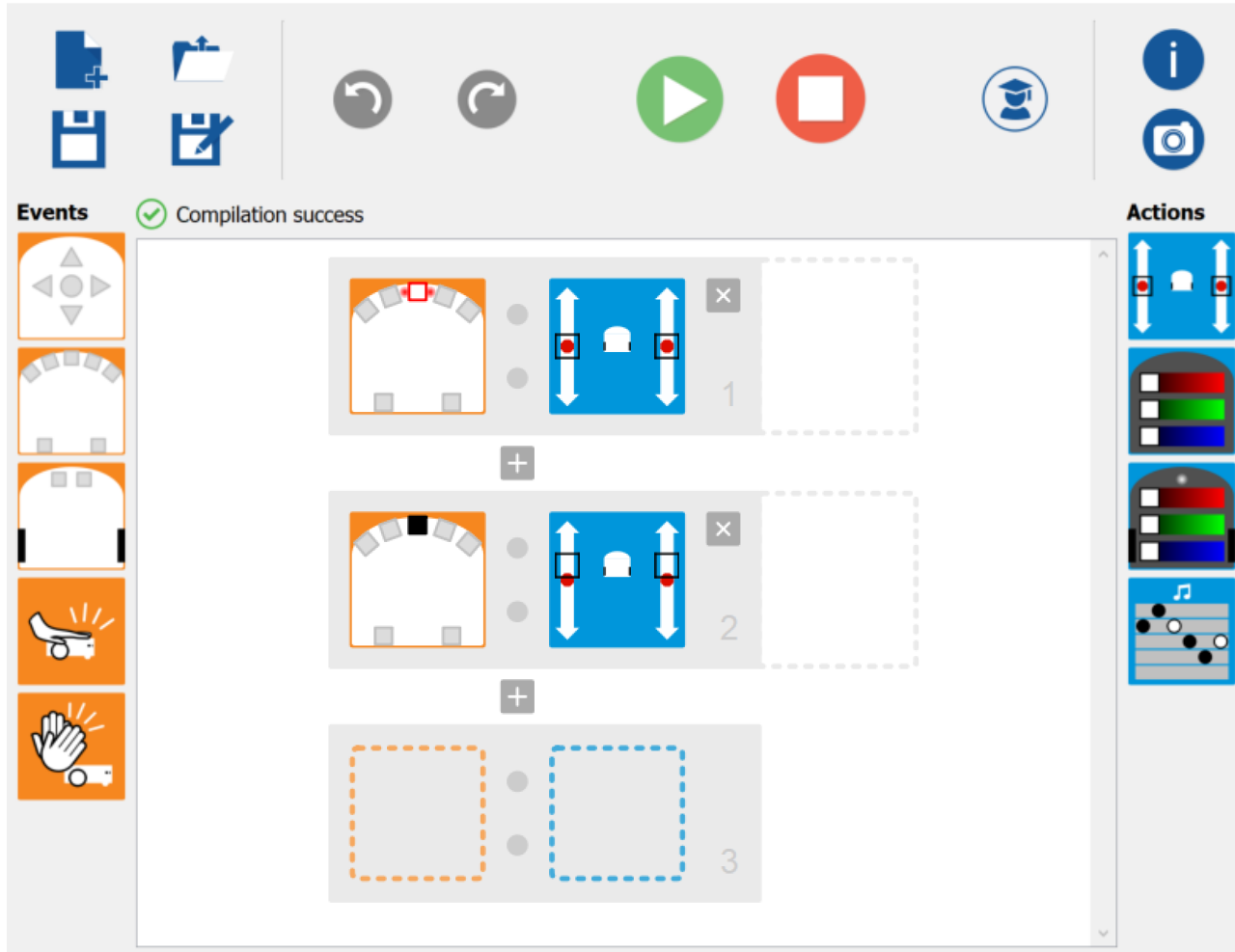
1. Create the program shown in the picture.
2. Try to explain what this program does.
3. Run and execute this program on the robot.
4. Test the program! Thymio is waiting for your event to happen!

# Challenge

Program Thymio to go straight ahead if there is nothing in front of it, and stop if there is something in front of it.

You can find the correct answer on the next page

# Answer to the challenge



The screenshot displays a visual programming interface for a robot simulation. At the top, a toolbar contains icons for file operations (save, copy, paste), navigation (undo, redo), execution (play, stop), and user profile. Below the toolbar, a status bar shows a green checkmark and the text "Compilation success".

The main workspace is divided into three sections:

- Events:** A vertical sidebar on the left contains five event icons: a directional pad, a semi-circular sensor, a rectangular sensor, a hand with a lightbulb, and a hand with a lightbulb.
- Actions:** A vertical sidebar on the right contains four action icons: a blue box with two vertical arrows and a red dot, a stack of colored blocks (red, green, blue), a stack of colored blocks with a red dot, and a musical staff with notes.
- Script:** The central workspace contains a sequence of three event-action pairs, numbered 1, 2, and 3. Each pair is connected by a plus sign (+).
  - Event 1:** A semi-circular sensor with a red dot on its top edge.
  - Action 1:** A blue box with two vertical arrows and a red dot in the center.
  - Event 2:** A semi-circular sensor with a black dot on its top edge.
  - Action 2:** A blue box with two vertical arrows and a red dot in the center.
  - Event 3:** A dashed orange rectangular sensor.
  - Action 3:** A dashed blue rectangular action.