

Activity

Follow Me Robot

Programming



In this activity, you will program the two wheel drive robot to detect where the object is in front of the robot and move forward, left and right according to the sensor reading.

COMPONENTS

Assembled Robot with 2 IR Sensors connected.

STEP-BY-STEP

1. Start an new PictoBlox program and select evive as the board.
2. Make four blocks to do the following functions:
 - a. **Go Straight:** Both motors will run forward with the speed of 100%.
 - b. **Turn Left:** Motor 1 will run backward and motor 2 will run forward with speed of 100%.
 - c. **Turn Right:** Motor 1 will run forward and motor 2 will run backward with speed of 100%;
 - d. **Brake:** Both motors will stop by locking the motor.

The image shows four defined function blocks in PictoBlox:

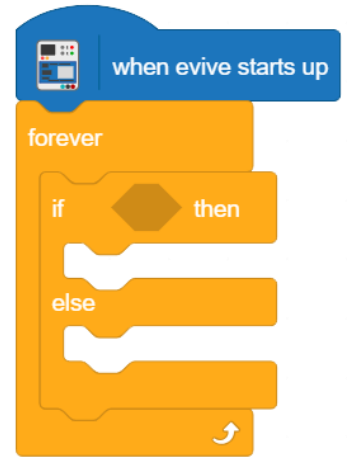
- define Go Straight:** Two 'run motor' blocks. Motor 1 is set to 'forward' with speed 100%. Motor 2 is set to 'forward' with speed 100%.
- define Turn Left:** Two 'run motor' blocks. Motor 1 is set to 'reverse' with speed 100%. Motor 2 is set to 'forward' with speed 100%.
- define Turn Right:** Two 'run motor' blocks. Motor 1 is set to 'forward' with speed 100%. Motor 2 is set to 'reverse' with speed 100%.
- define Brake:** Two 'lock' blocks. Motor 1 is locked, and Motor 2 is locked.

3. According to the logic, the robot should have the following behaviour:
 - a. If both the IR sensors detect the object, then the robot should move forward.
 - b. Else, if only the left sensor detects the object, then the robot should turn left.
 - c. Else, if only the right sensor detects the object, then the robot should turn right.
 - d. Else the robot should stop moving.

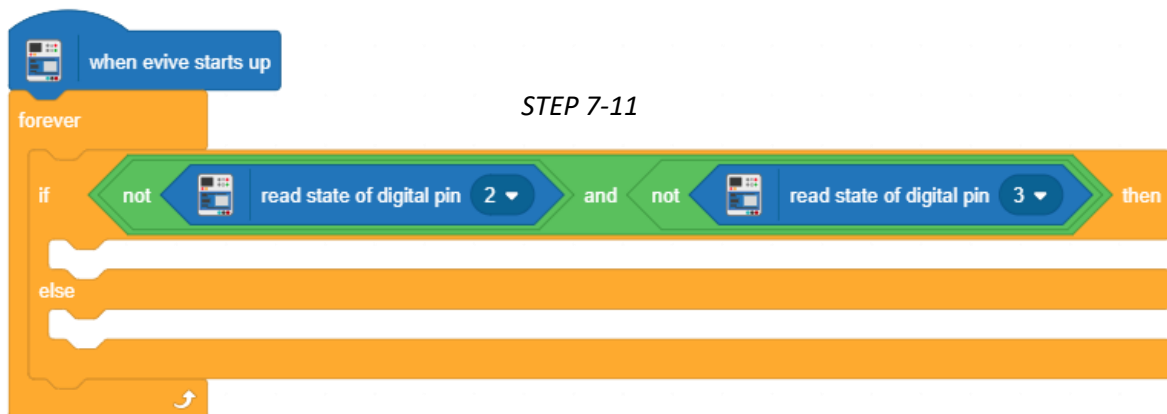
One thing you should remember, that when the object is detected, the reading on the digital pin will be 0 and when no object is detected, the reading will be 1. We will program the robot accordingly.



4. Drag and drop when evive starts up block from evive extension.
5. Snap **forever** block from **control** palette below **when evive starts up** block.
6. Snap **if then** block from **control** palette inside the **forever** block.
7. To check the states of the sensors, we'll use the **and**, and **not** blocks.
8. For the *first* case, where **both** sensors are active, drag and drop the **() and ()** block from the Operators palette in the space in the **if** arm of the **if-else** block.
9. Next, take two **not ()** block and drop them into the two spaces of the **() and ()** block.
10. In the *first not ()* block drag and drop the **read state of digital pin ()** block from the *evive* extension and set the digital pin as **2**.
11. Repeat the process for the *second not ()* block; this time, set the digital pin as **3**.

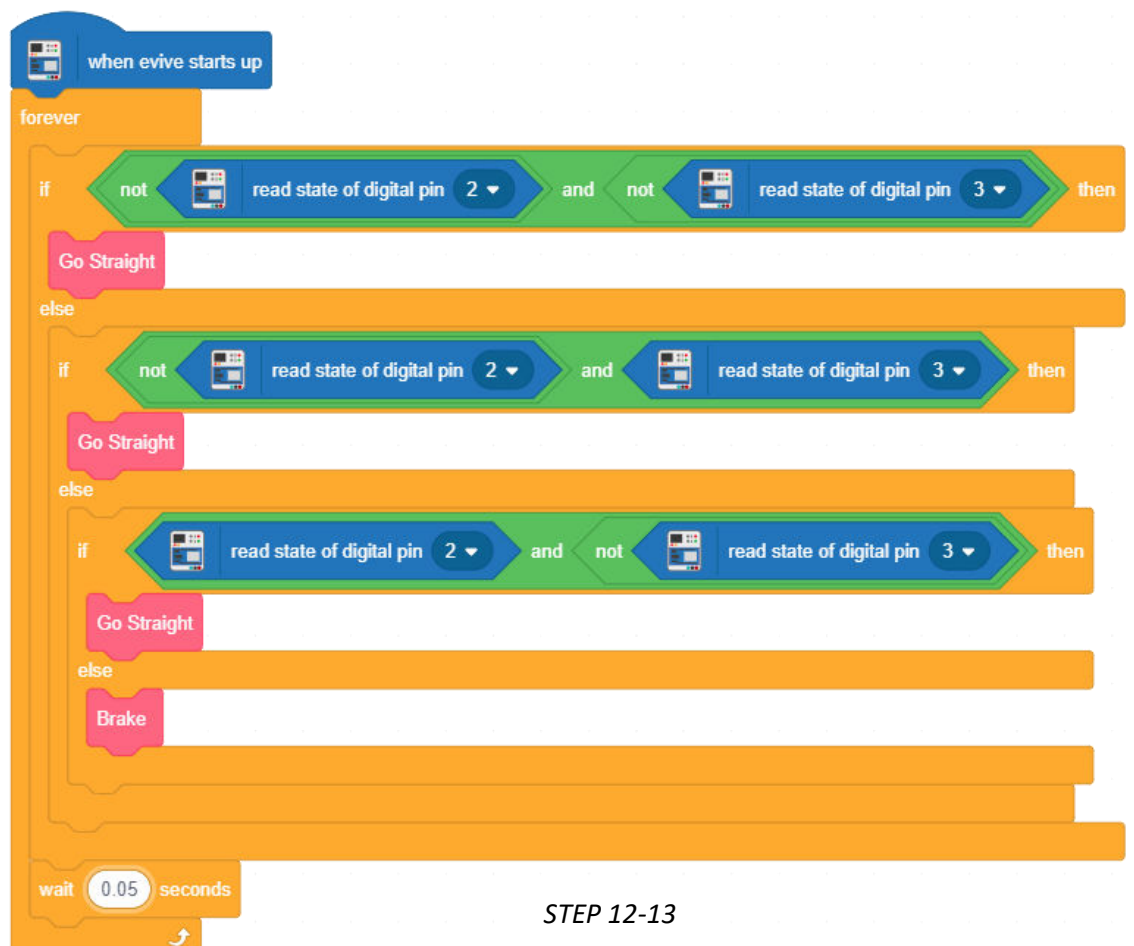


STEP 4-6



STEP 7-11

12. Drag and drop the **Go Straight** block below **if** arm as shown in the main script. Below the **else** arm of the **if-else** block, drag and drop another **if-else** block.
13. Do this for other two cases as well.
14. Switch to **Upload Mode** and upload the code on evive.
15. Play with the robot.



STEP 12-13