

13. Case 12: Obstacles Avoidance Car

13.1. Introduction

This is an obstacle avoidance car. It detects whether there are obstacles in front of it through the ultrasonic sensor on the front of the car, the car automatically turns when it detects obstacles to avoid collisions.



13.2. Quick Start

Materials Required

Nezha expansion board × 1

micro:bit × 1

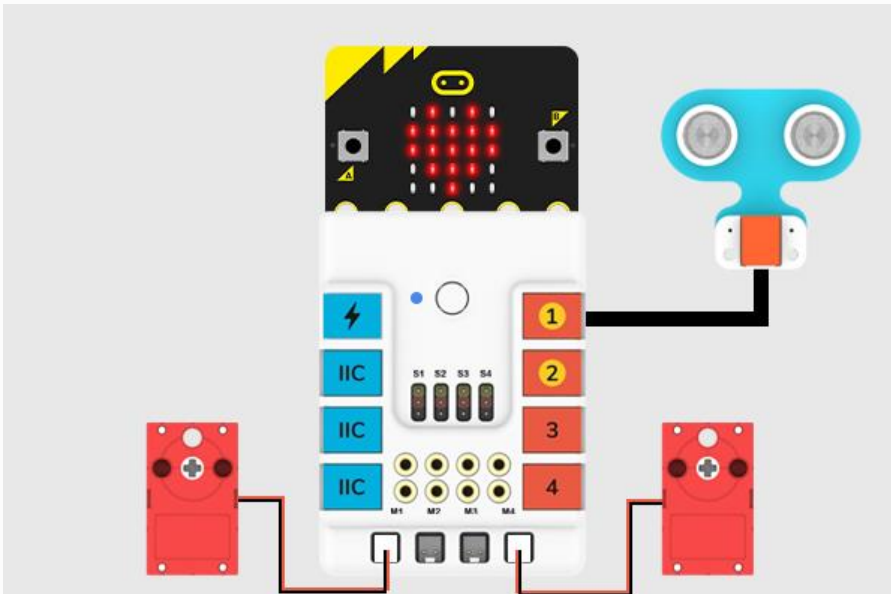
Sonar:bit × 1

Motors × 2

RJ11 wires × 1

Connection Diagram

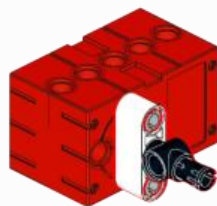
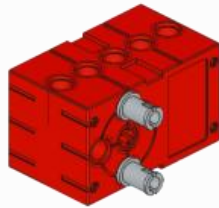
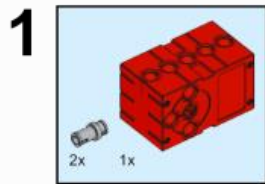
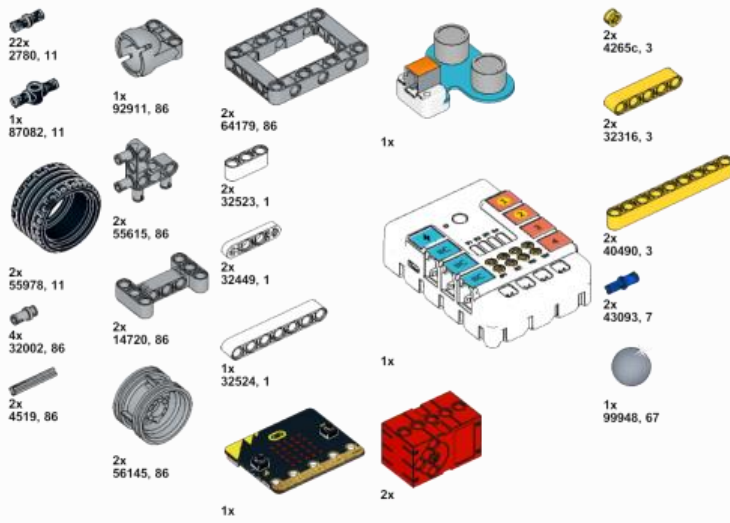
Connect the sonar:bit to J1, the two motors to M1&M4 on the Nezha expansion board as the picture shows.



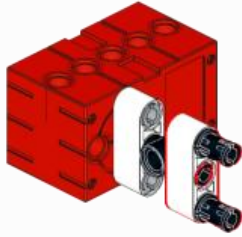
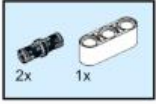
Assembly Video

Video reference: <https://youtu.be/k8eaTQSVsfk>

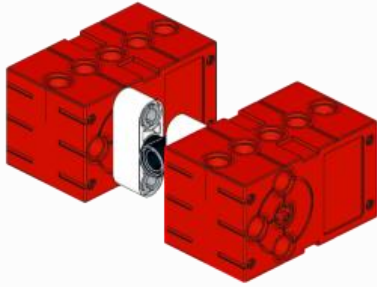
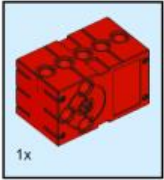
Assembly Steps



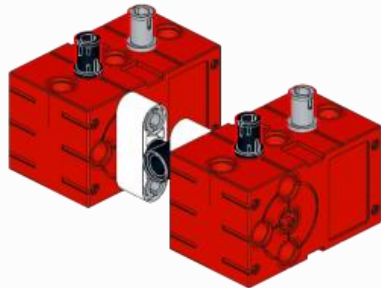
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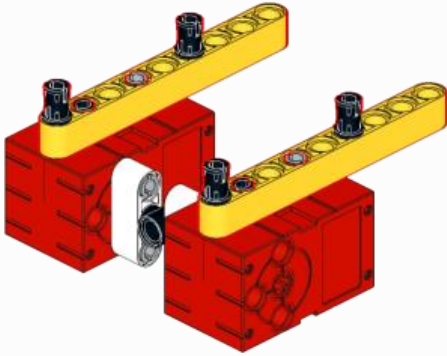
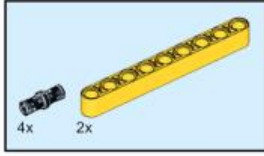
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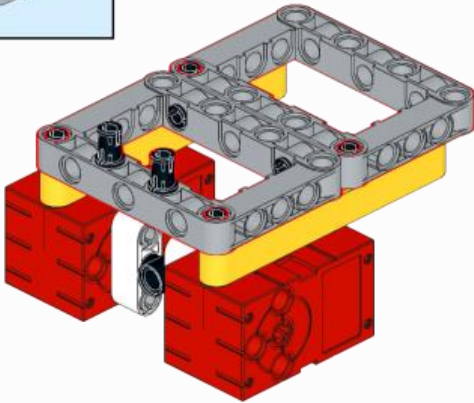
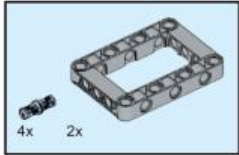
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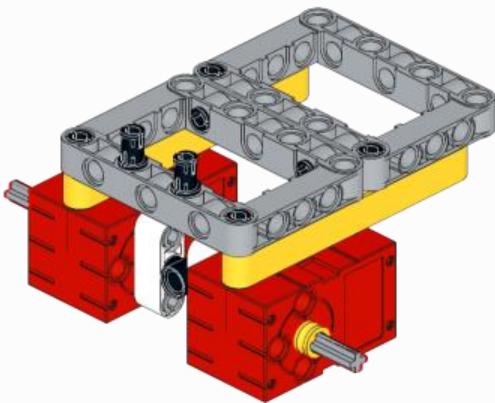
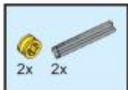
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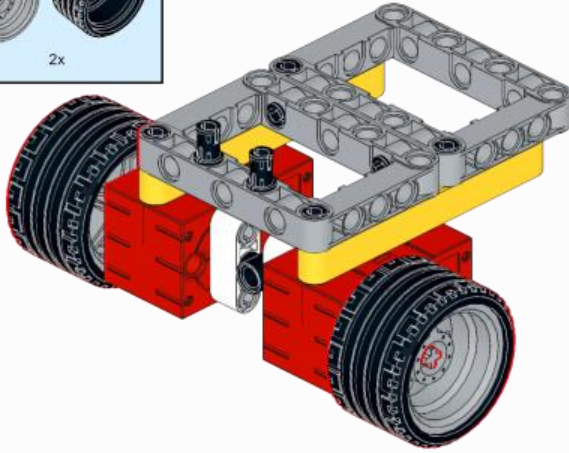
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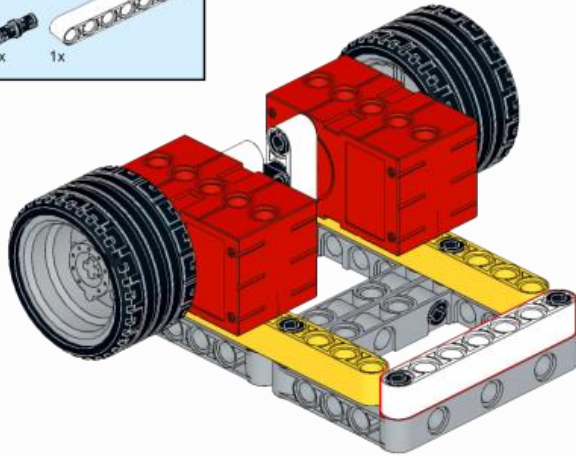
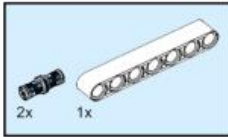
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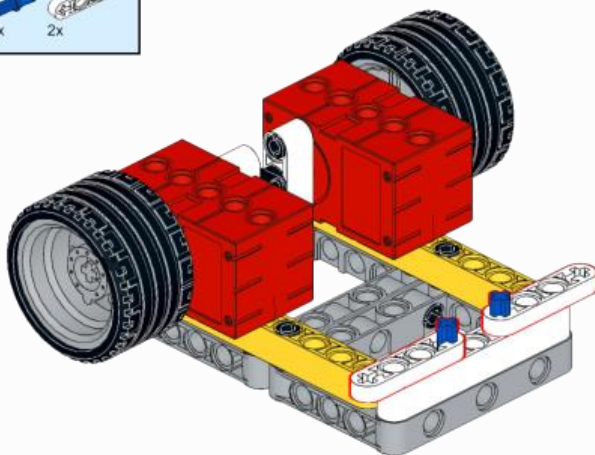
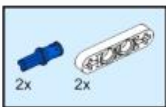
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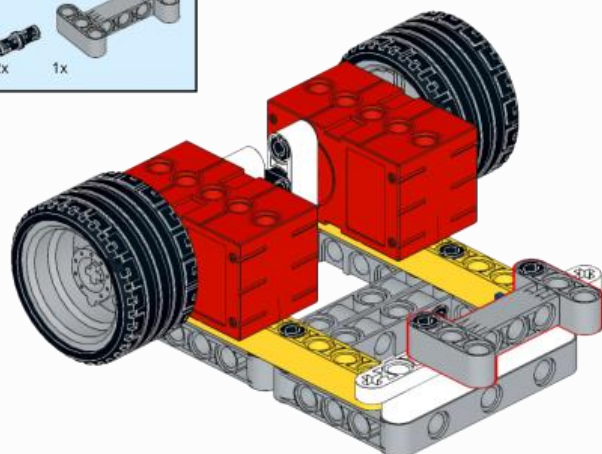
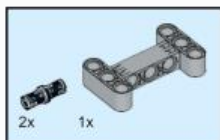
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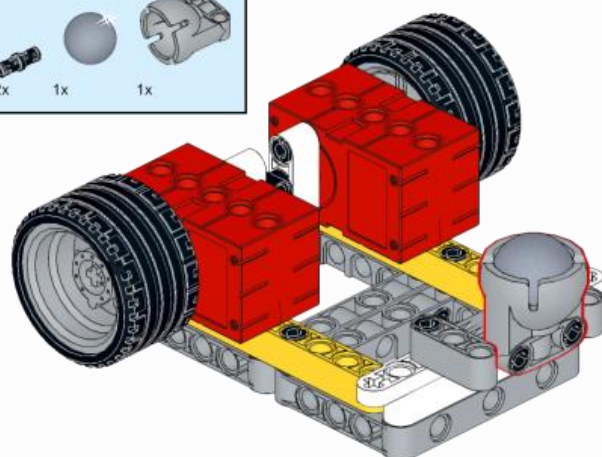
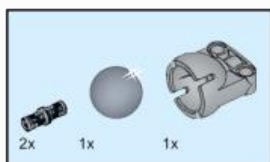
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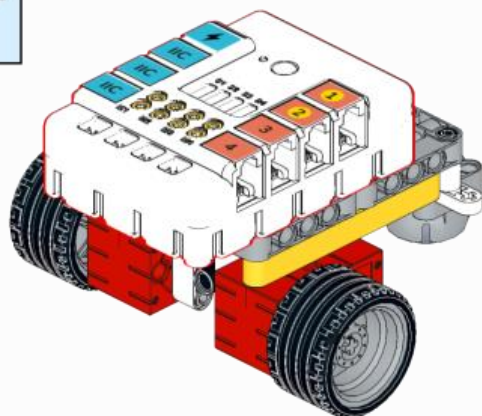
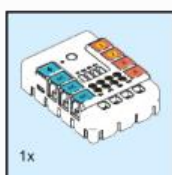
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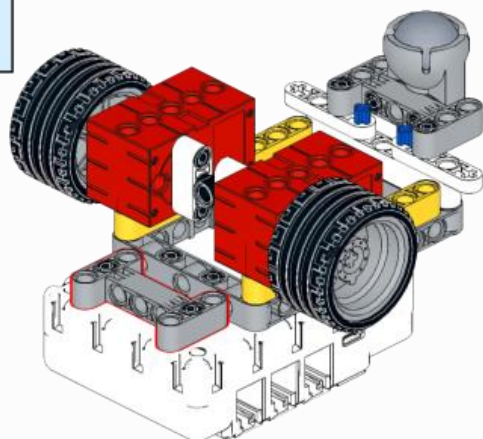
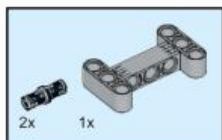
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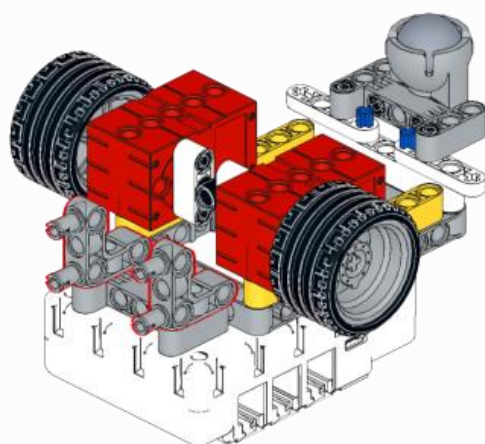
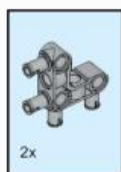
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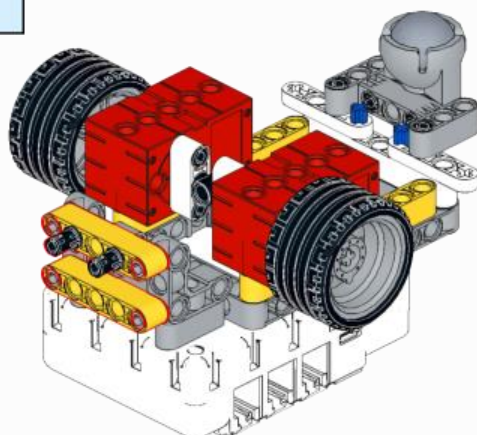
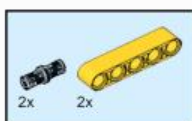
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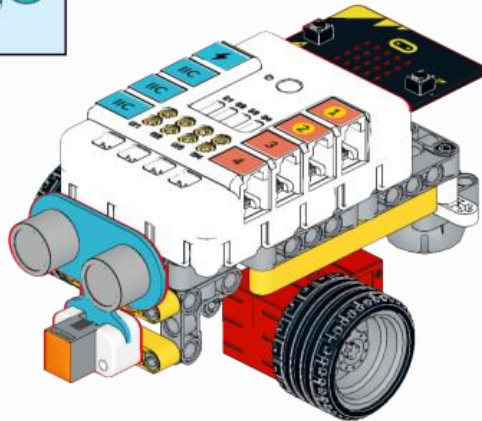
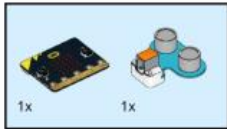
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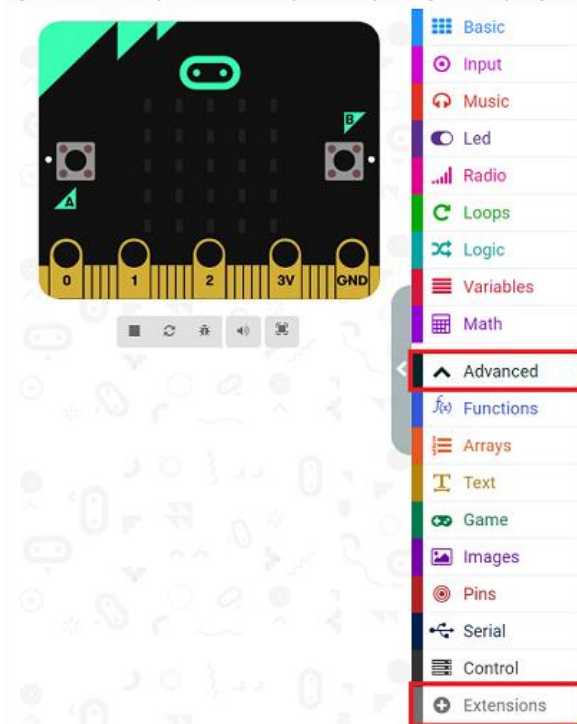


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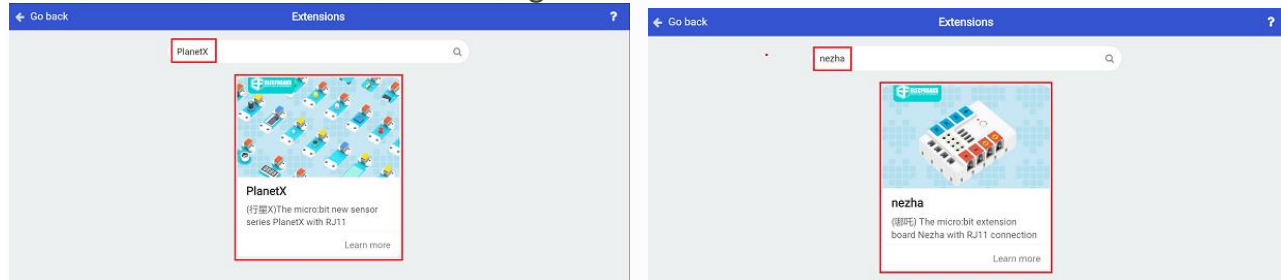


13.3. MakeCode Programming Step 1

Click “Advanced” in the MakeCode to see more choices.



For programming, we need to add a package: click “Extensions” at the bottom of the MakeCode drawer and search with “PlanetX” in the dialogue box to download it.



For programming, we need to add a package: click “Extensions” at the bottom of the MakeCode drawer and search with “nezha” in the dialogue box to download it.

Notice: If you met a tip indicating that some codebases would be deleted due to incompatibility, you may continue as the tips say or create a new project in the menu.

Step 2

Code as below:

```
on start
  show icon [robot]
  Set motor M1 speed to -40 %
  Set motor M4 speed to -40 %

forever
  set i to Ultrasonic sensor J1 distance cm
  if i >= 4 and i <= 20 then
    Set motor M1 speed to 100 %
    Set motor M4 speed to -100 %
    pause (ms) 500
    Set motor M1 speed to -40 %
    Set motor M4 speed to -40 %
```

```
indításkor
  i ikon megjelenítése
  Set motor M1 speed to -40 %
  Set motor M4 speed to -40 %

állandóan
  i legyen Ultrasonic sensor J1 distance cm
  ha i >= 4 és i <= 20 akkor
    Set motor M1 speed to 100 %
    Set motor M4 speed to -100 %
    500 ms szünet
    Set motor M1 speed to -40 %
    Set motor M4 speed to -40 %
```

Reference

Link : <https://makecode.microbit.org/MyUJpP6L9YPo>

You may also download it directly below:

Result

The car drives and avoids the obstacles automatically.

