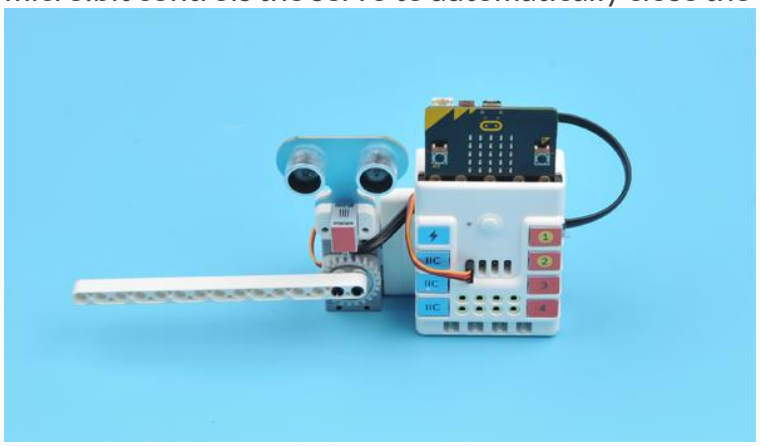
4. Case 03: Automatic Gate

4.1. Introduction

A simple automatic sensor door. When the ultrasonic sensor detects that a person is approaching, the micro:bit controls the servo to automatically open the door. When no person is approaching, the micro:bit controls the servo to automatically close the door.



4.2. Quick Start

Materials Required

Nezha expansion board × 1

micro:bit × 1

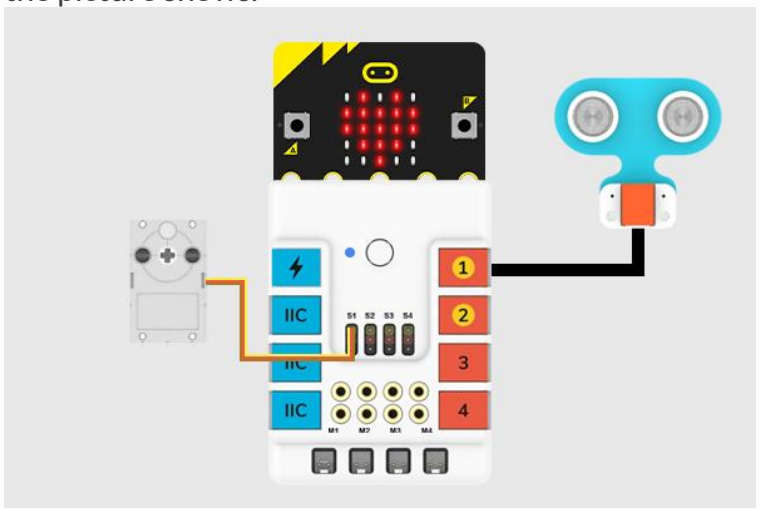
360° servo × 1

Sonar:bit × 1

RJ11 wire × 1

Connection Diagram

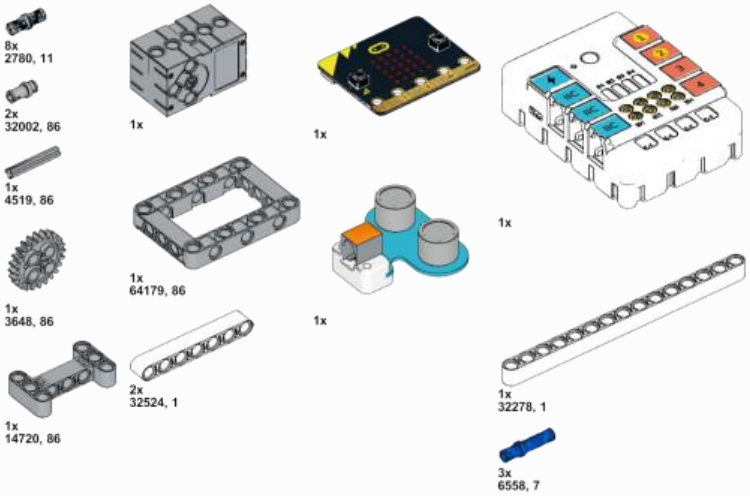
Connect the 360° servo to S1 and the ultrasonic sound sensor to J1 on the Nezha expansion board as the picture shows.



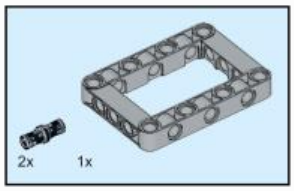
Assembly Video

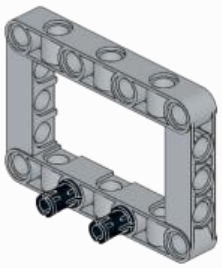
Video reference: https://youtu.be/nOh7YCmcotA

Assembly Steps

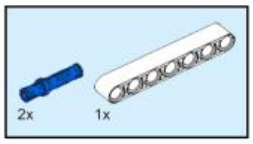

8x
2780, 11
2x
32002, 86
1x
4519, 86
1x
3648, 86
1x
14720, 86
1x
1x
64179, 86
2x
32524, 1
1x
1x
1x
32278, 1
3x
6558, 7

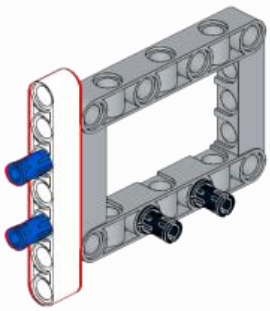
1


2x
1x

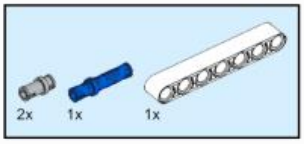


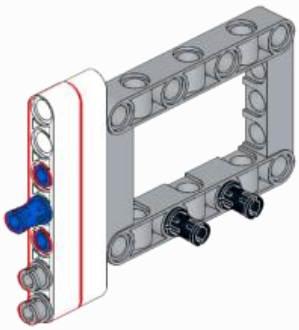
2


2x
1x

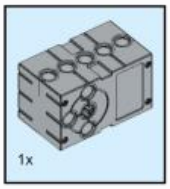


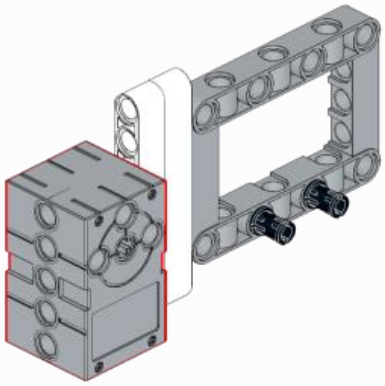
3



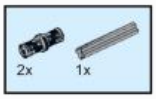


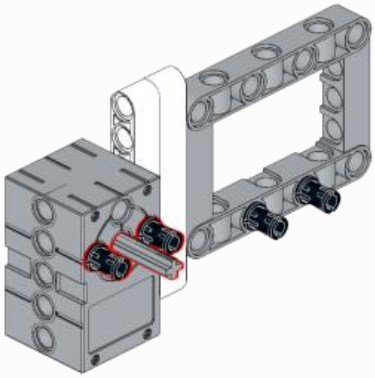
4



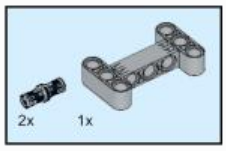


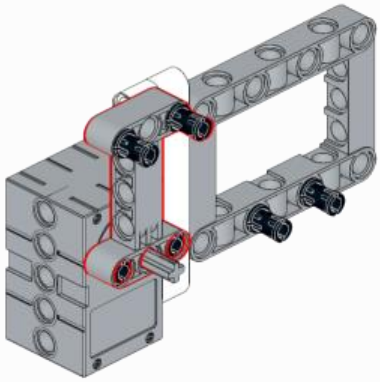
5



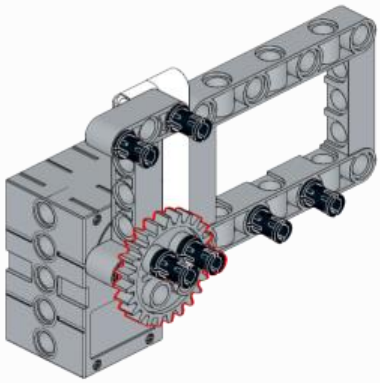


6

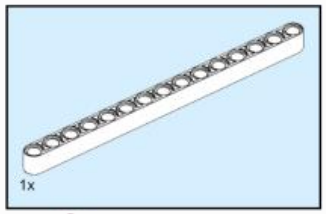


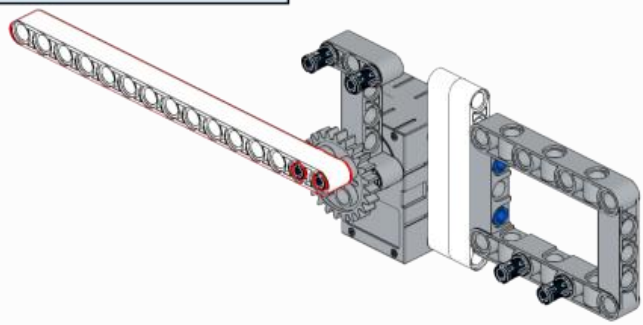


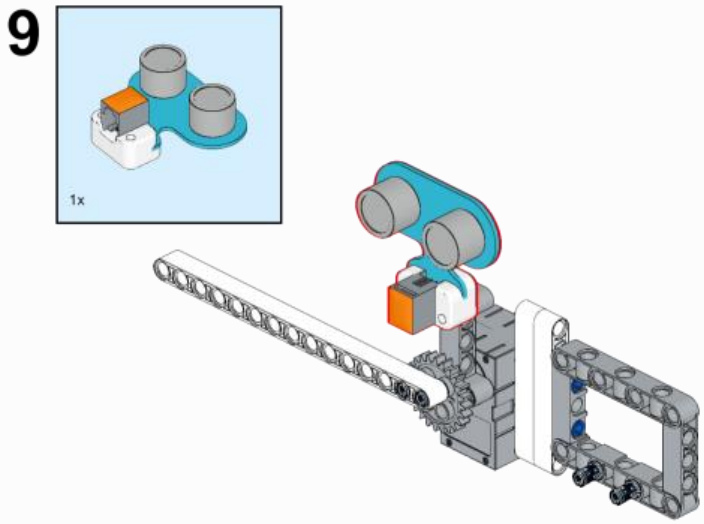
7

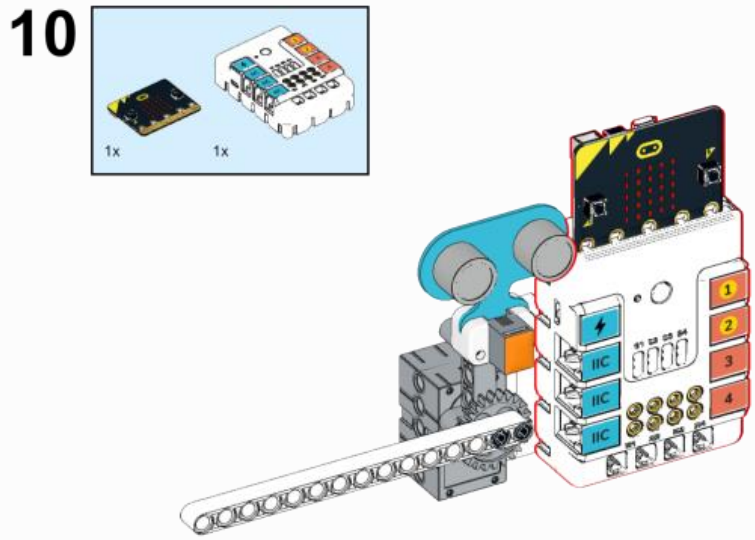


8





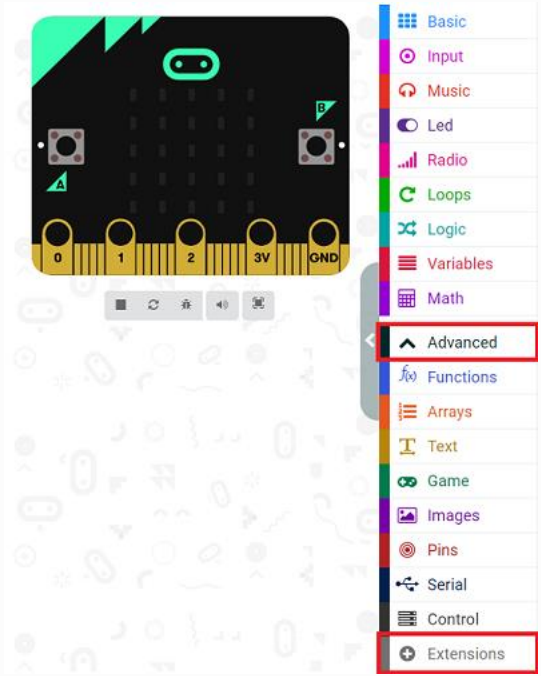




4.3. MakeCode Programming

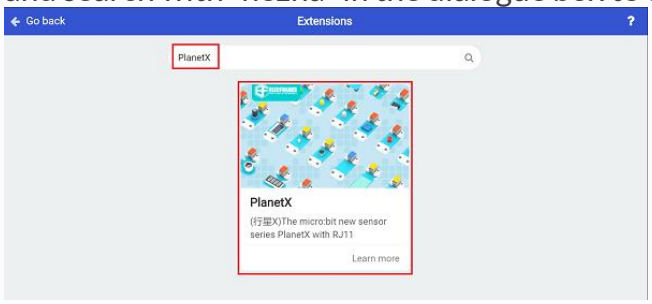
Step 1

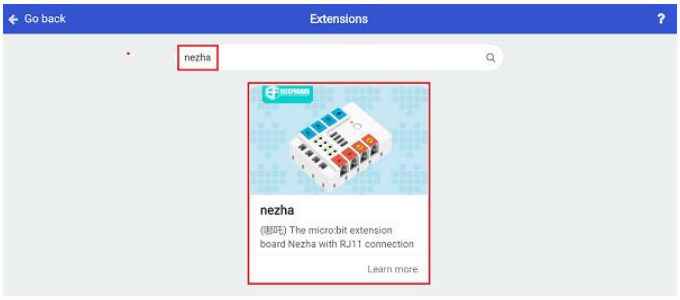
Click “Advanced” in the MakeCode to see more choices.



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.

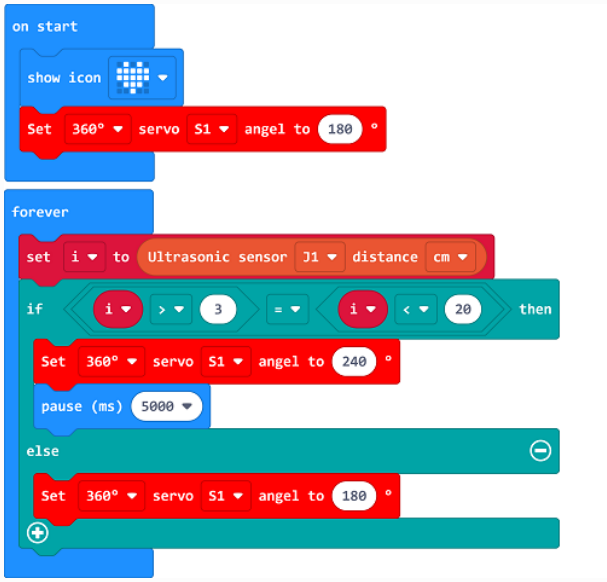


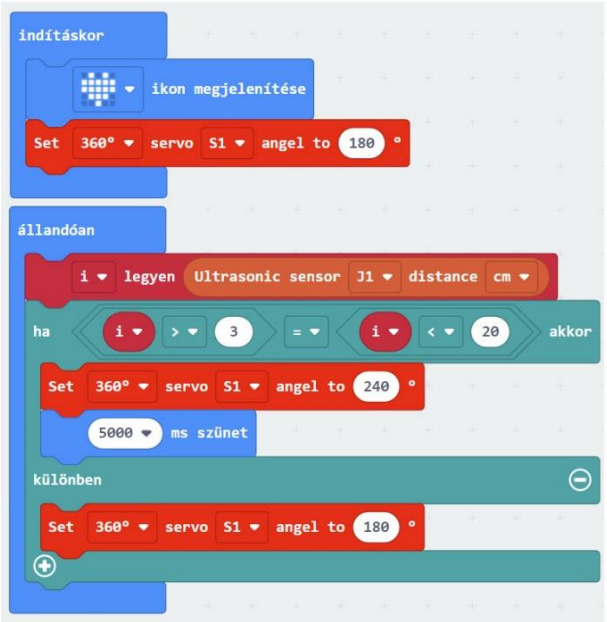


Notice: If you met a tip indicating that some codebases would be deleted due to incompatibility, you may continue as the tips say or create a new project in the menu.

Step 2

Code as below:





Reference

Link：https://makecode.microbit.org/_VqieaTVyeUXx

You may also download it directly below:

Result

While the ultrasonic sound sensor detects any object, the gate opens automatically.