

Case 14: The Reading Range Guitar

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16.1. Purpose

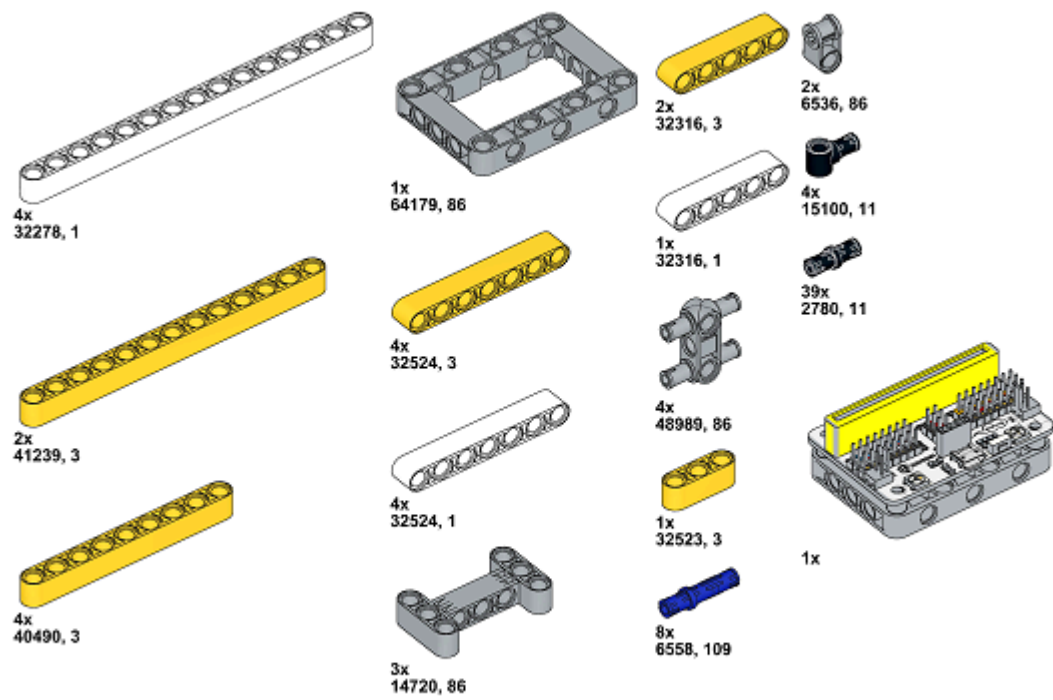
To make a guitar that is able to read ranges.



16.2. Link:

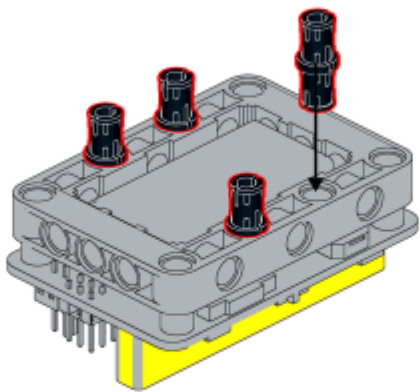
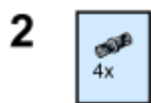
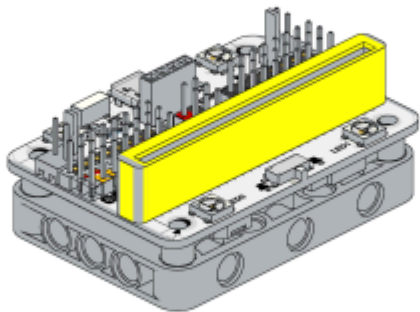
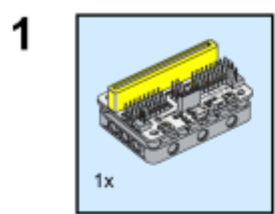
[micro:bit Wonder Building Kit](#)

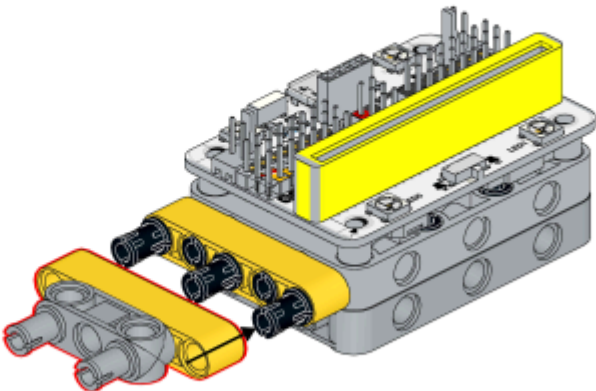
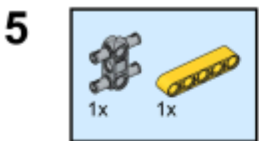
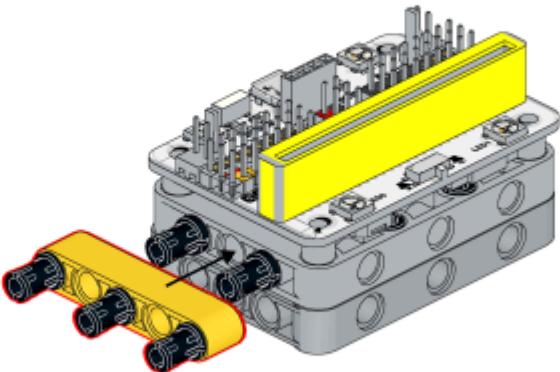
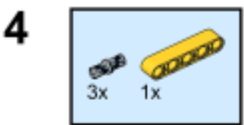
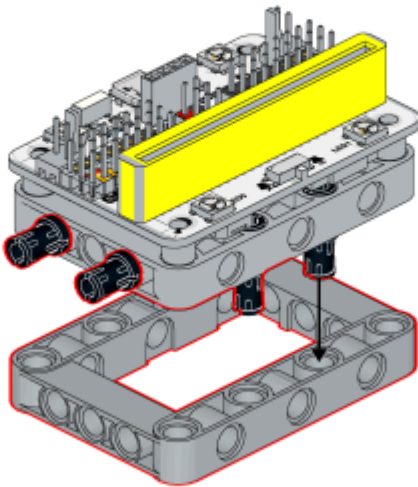
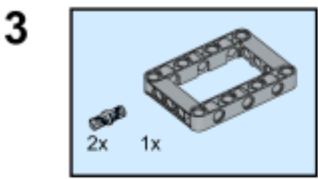
16.3. Materials Required




Video link: https://youtu.be/B_P8gOaA0Gc


16.4. Bricks build-up

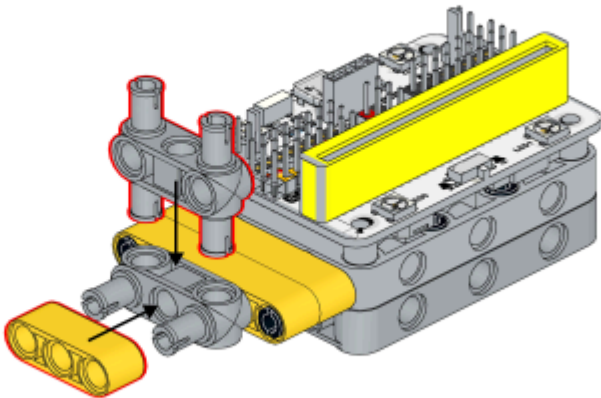





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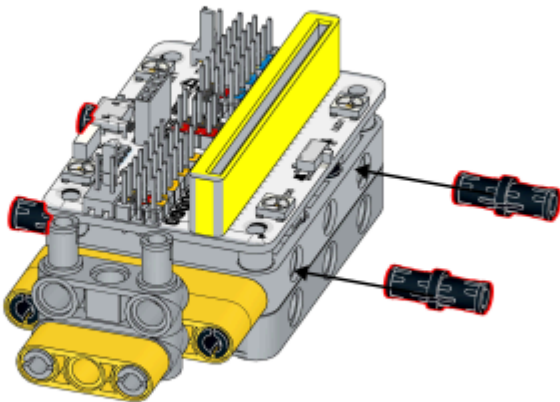

1x


1x




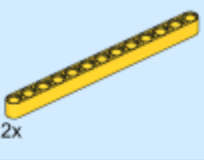
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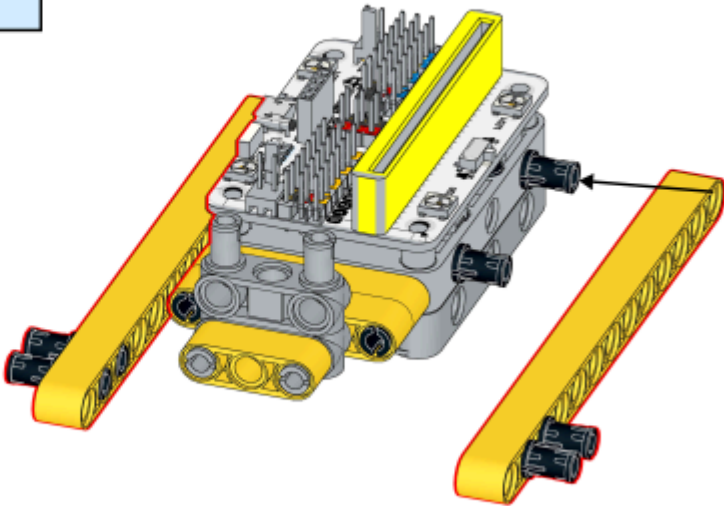

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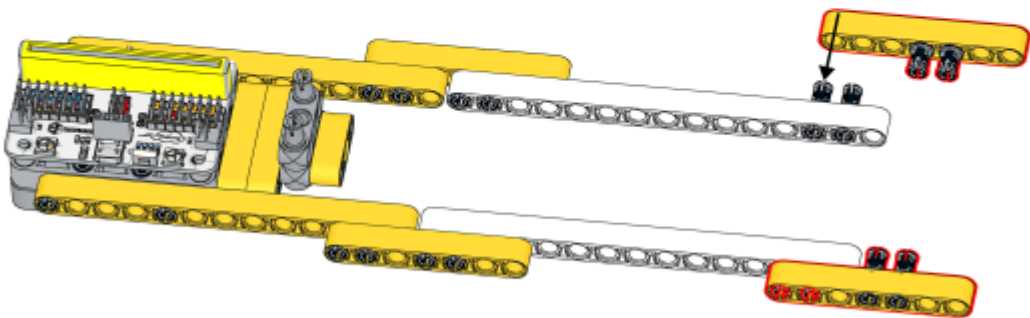
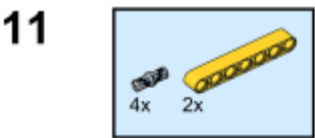
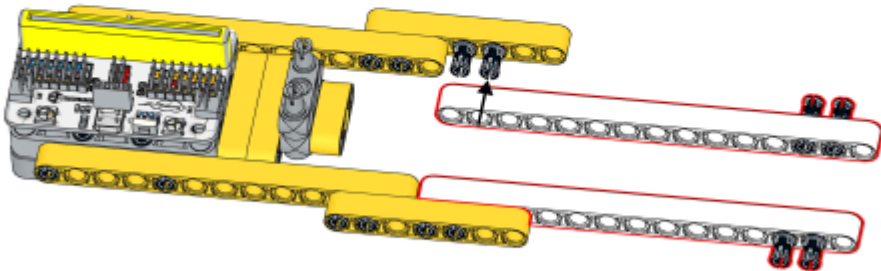
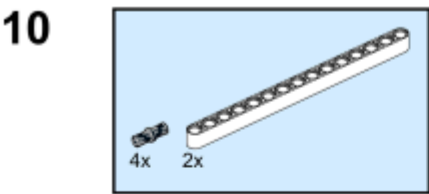
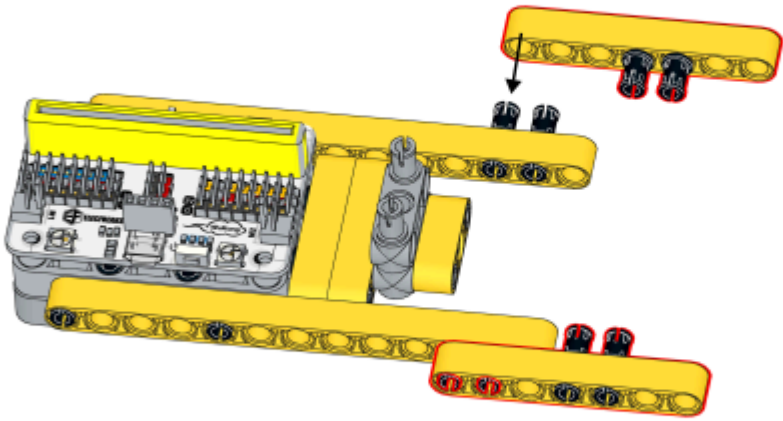
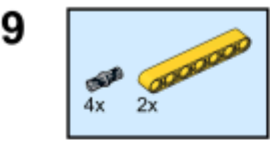


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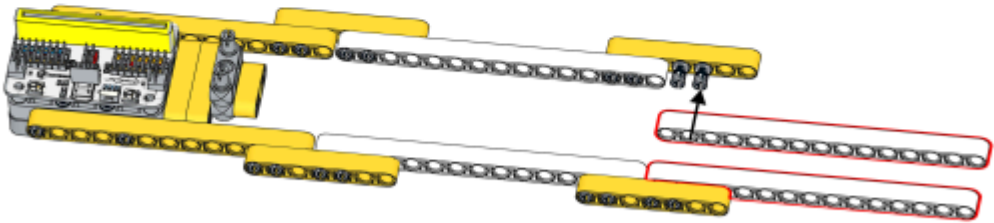
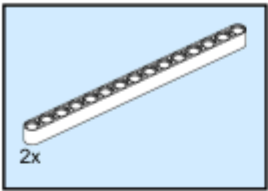

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2x

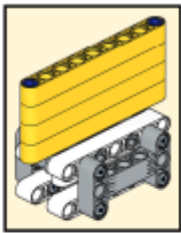
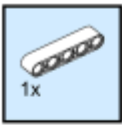




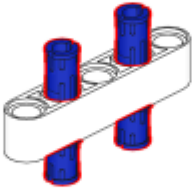
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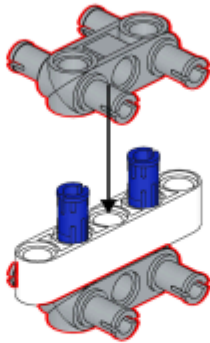
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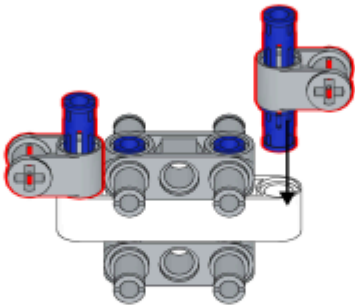
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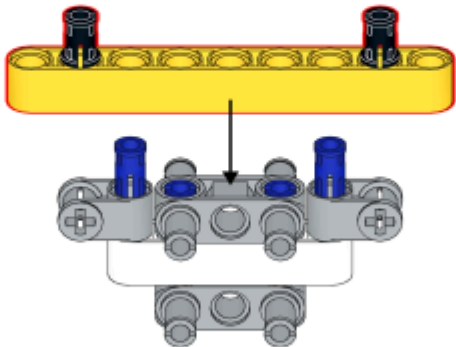
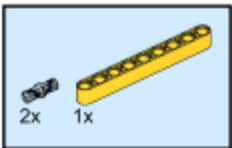
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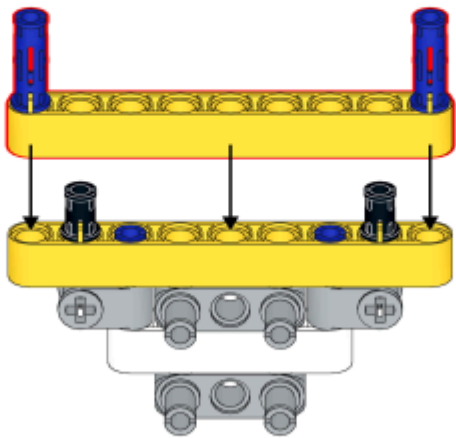
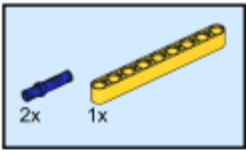
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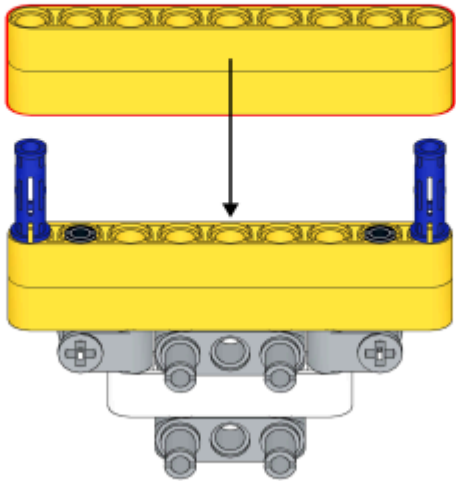
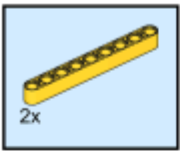
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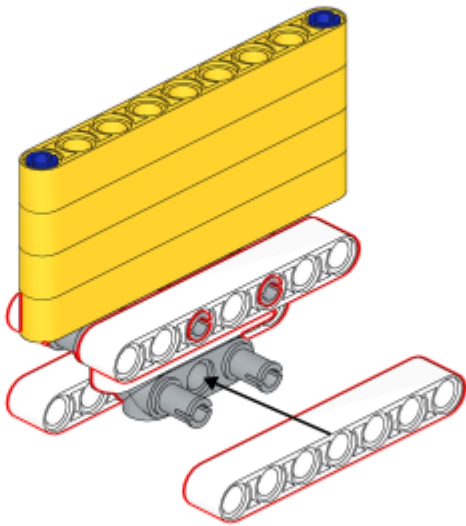
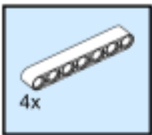
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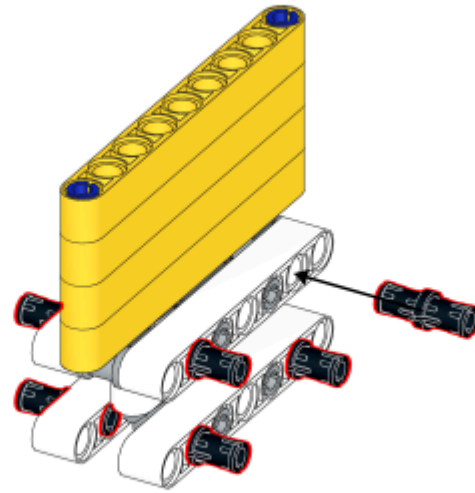
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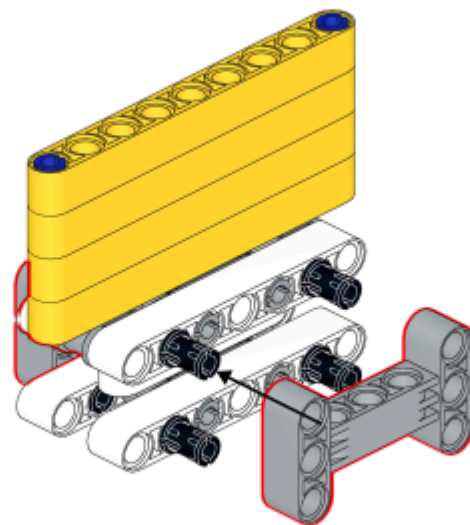
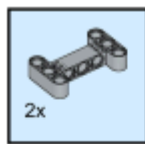
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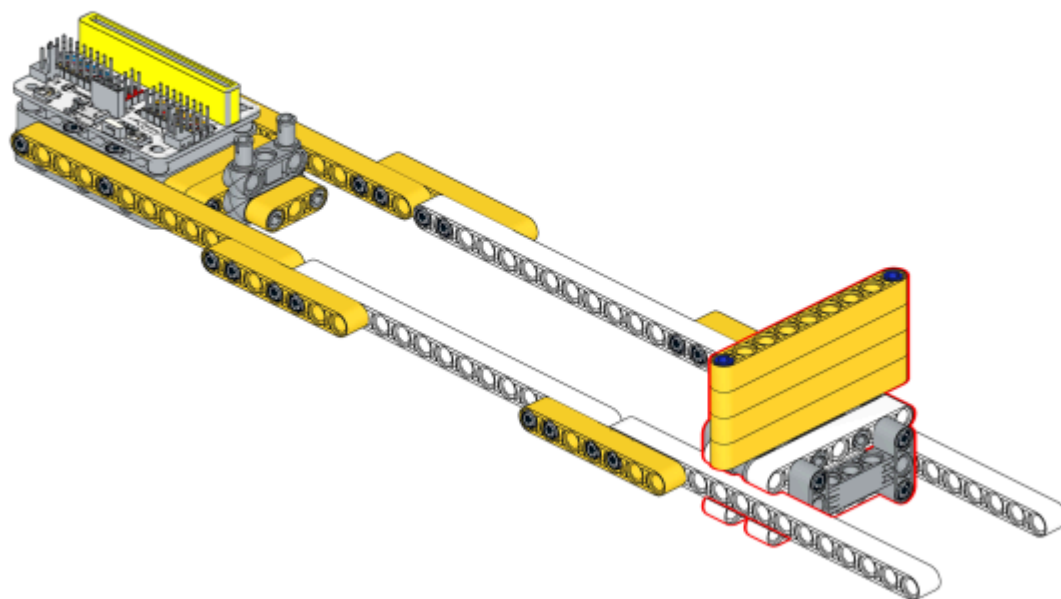
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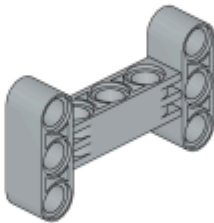
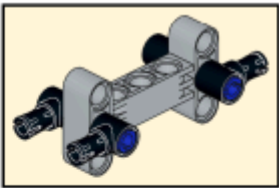
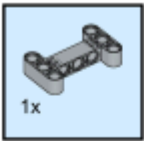
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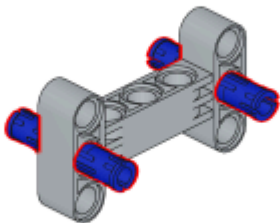
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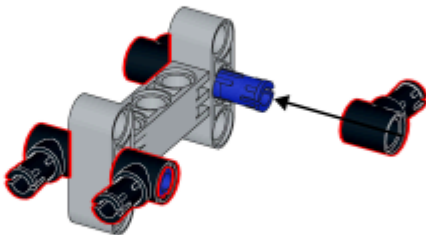
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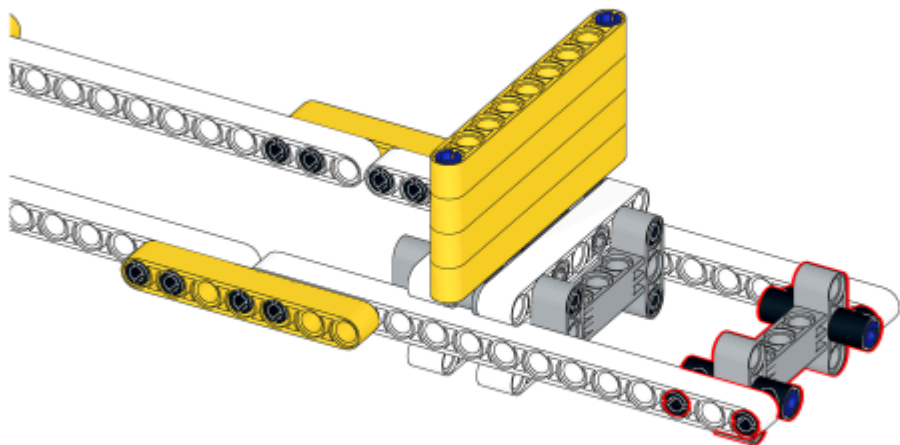
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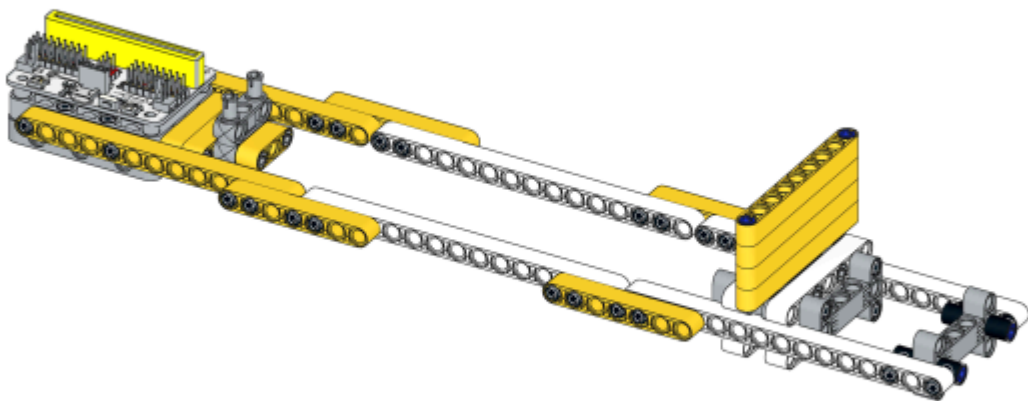
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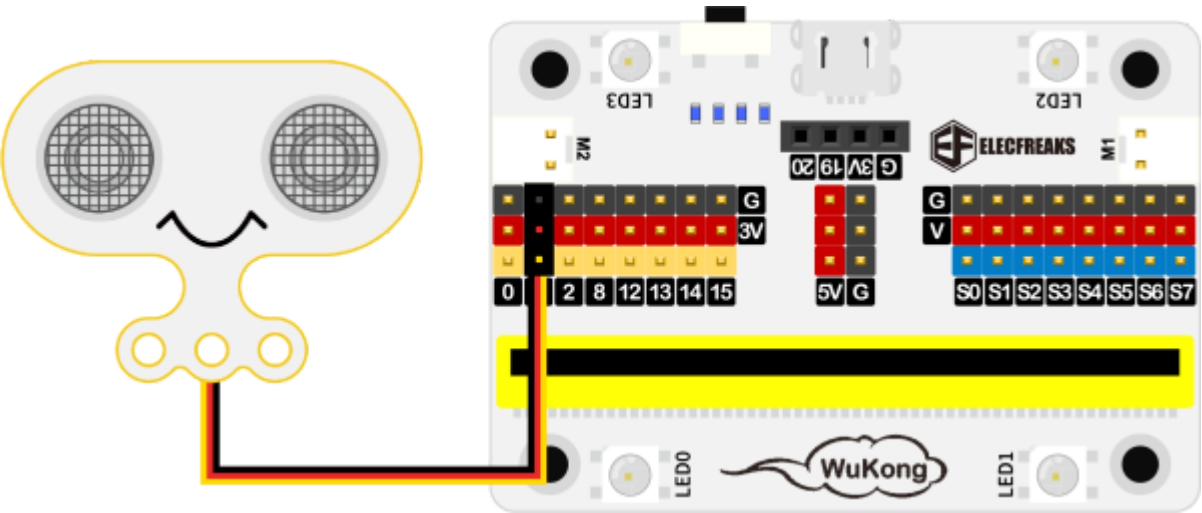
16.5. Installation Mthods of Hardwares

Install the sonar:bit with the bricks.



16.6. Hardware Connection

Connect a [sonar:bit](#) to P1 port on [Wukong breakout board](#).



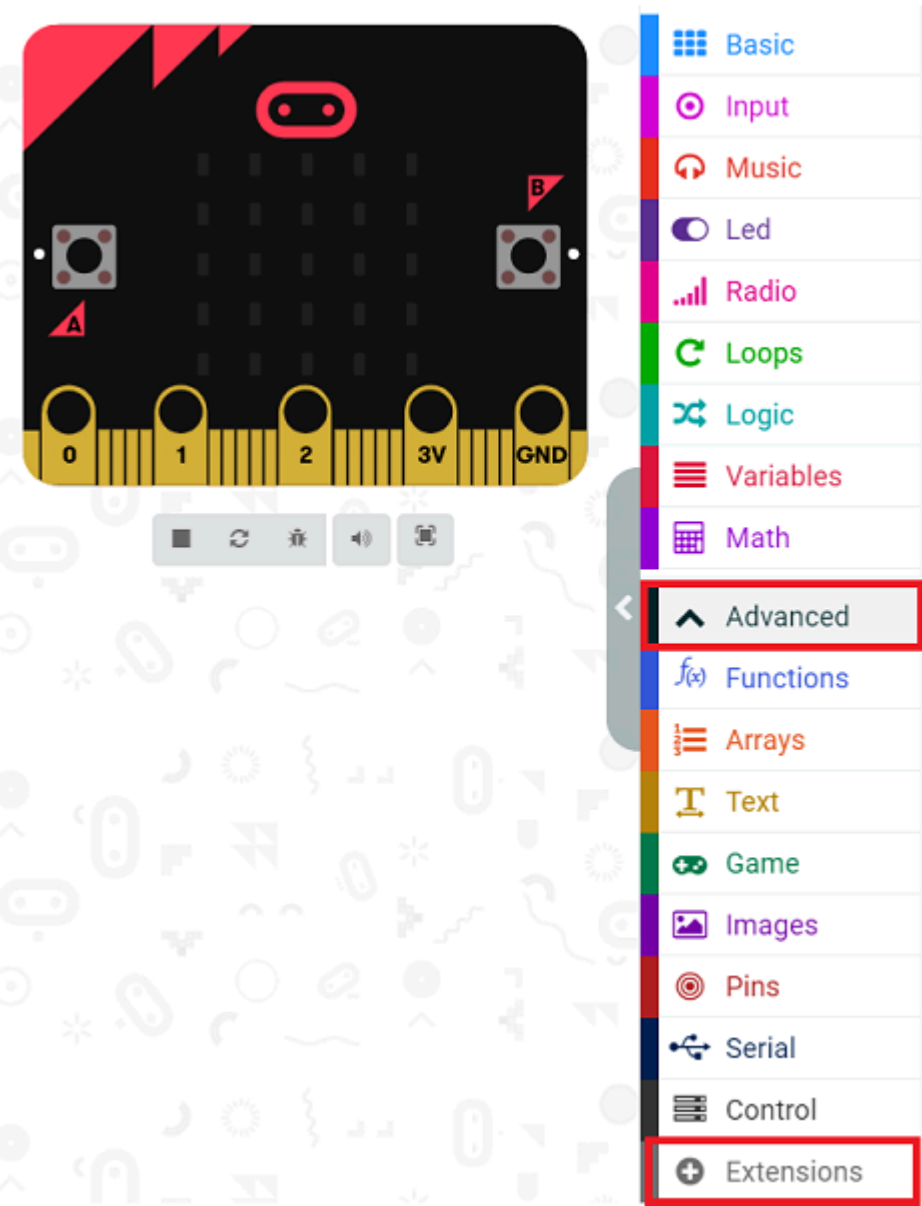
16.7. Software Platform

[MakeCode](#)

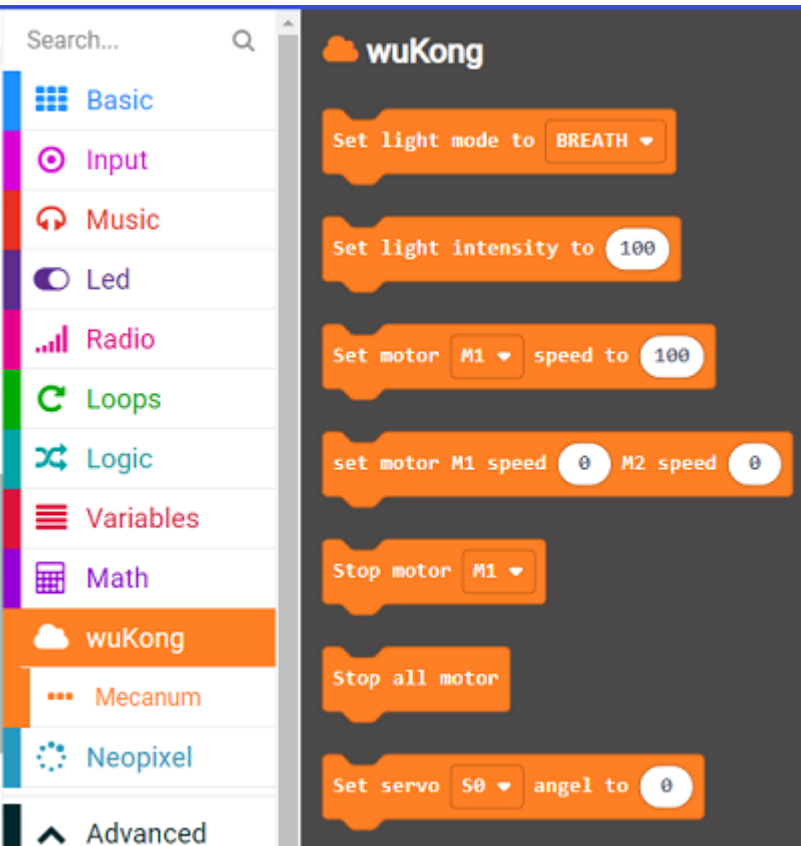
16.8. Coding

Add extensions

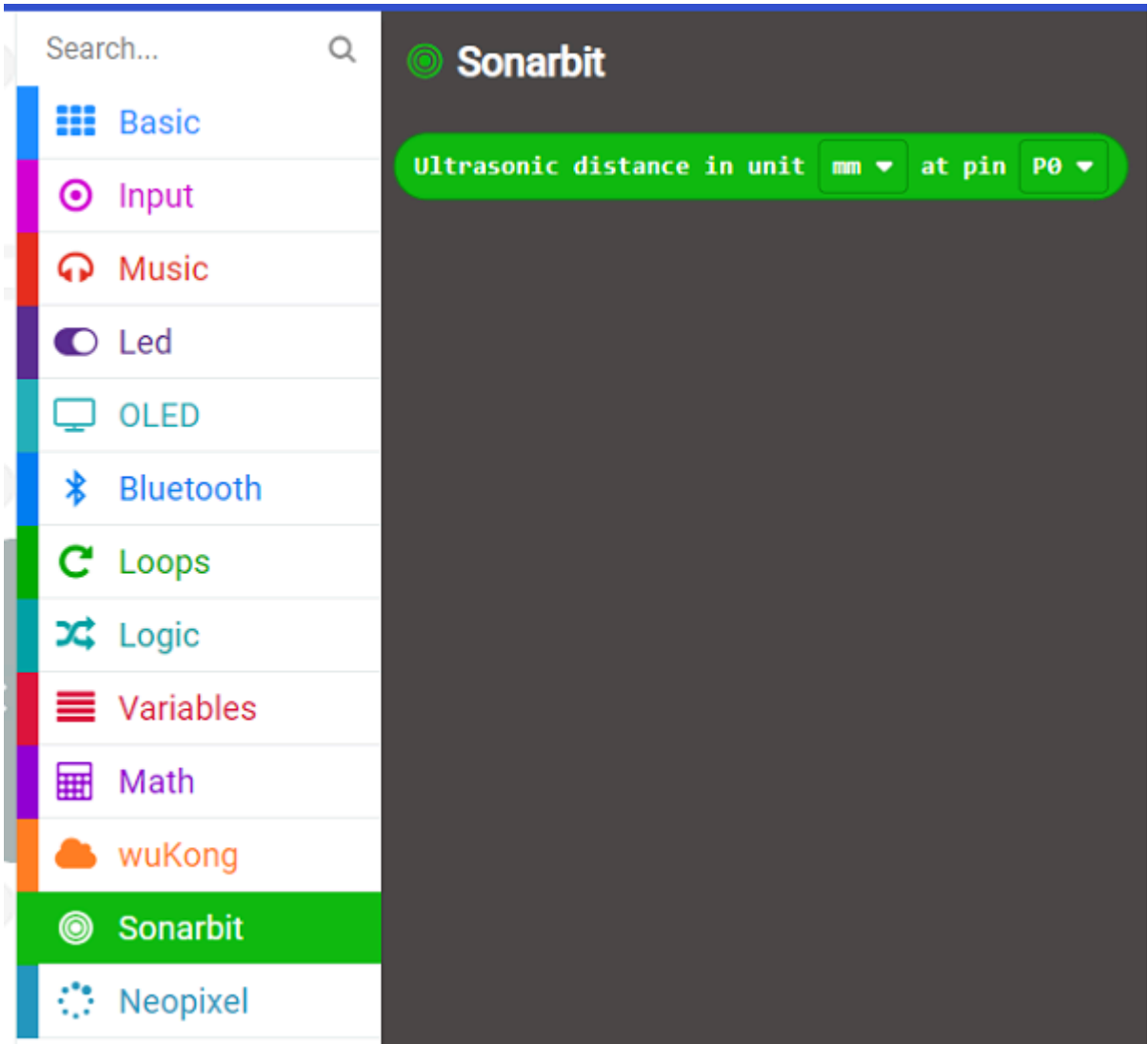
Click “Advanced” in the MakeCode to see more choices.



Search with Wukong in the dialogue box to download it.



Search with <https://github.com/electfreaks/pxt-sonarbit> in the dialogue box to add the sonar:bit extension.



Program

```
on start
  set x to 0
  show icon [grid icon]
  set built-in speaker ON

forever
  set x to Ultrasonic distance in unit cm at pin P1
  if x >= 6 and x <= 8 then
    play tone High C for 1 beat
  else if x > 8 and x <= 10 then
    play tone High D for 1 beat
  else if x > 10 and x <= 12 then
    play tone High E for 1 beat
  else if x > 12 and x <= 14 then
    play tone High F for 1 beat
  else if x > 14 and x <= 16 then
    play tone High G for 1 beat
  else if x > 16 and x <= 18 then
    play tone High A for 1 beat
  else if x > 18 and x <= 20 then
    play tone High B for 1 beat
  +
```

Link:https://makecode.microbit.org/_1YvYtE8RM8oL

Result

By detecting the value of the distance between the ultrasonic sensor and the baffle only, the buzzer is controlled to emit different tones.