# Expansion-Sonar:bit

## Contents



## 5.1. Introduction

Sonar:bit is a 3-wire ultrasonic module with the working voltage between 3-5V. It is available to be used to 3.3V or 5V micro-controller system. With only one 3-wire(GVS) cable, it can work properly. Compared to the normal 4-wire ultrasonic module, it has saved one IO port.

The measurement range of sonar:bit is 4cm-400cm. It can output stable and accurate measurement data with ±1cm tolerance only.

It can connect to the Ring:bit with an expansion board.

## 5.2. Features

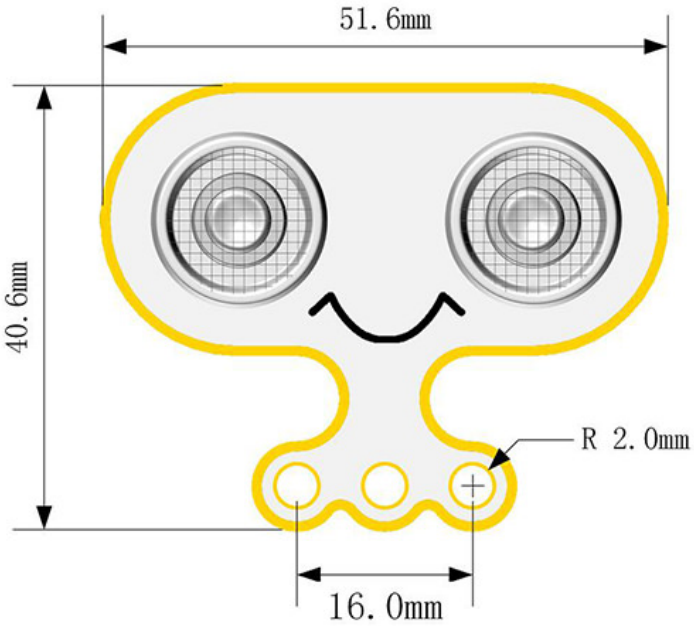
Input voltage:3V~5V and can be driven by micro:bit directly.

Standard 3-wire GVS connecotr, which occupies 1 IO port only.

## 5.3. Parameter

| Item | Parameter | Note |
|---|---|---|
| Name | Ring:bit Car v2 Sonar:bit | |
| SKU | EF04089 | |
| Working Voltage | DC 3-5V | |
| Connections | 3pin GVS Connection | |
| Output signal | Analog | |
| Measurement | 4~400cm | |
| Size | 40.60×51.60mm | |
| NW | 12g | |

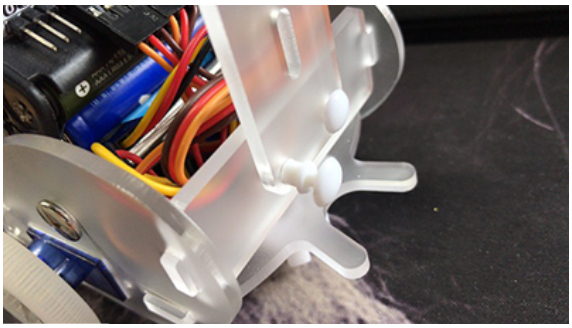
## 5.4. Outlook and Dimensions




## 5.5. Quick to Start

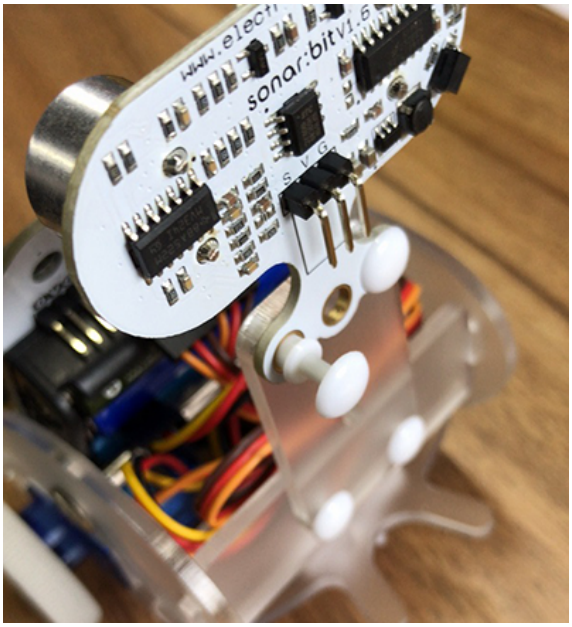
### Hardware Connections

Connect the acrylic transition board to the back board with the rivets.

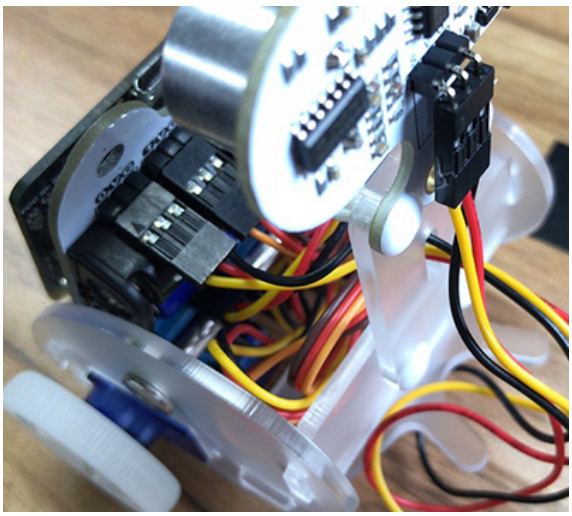




Connect the Sonar:bit to the other side of the acrylic transition board with rivets.




Connect the Sonar:bit to the Ring:bit breakout board with a 3-pin wire.



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## 5.6. Programming

Preparation for Programming: Info

## Samples Code

```
# Import modules that we need
import board
from ringbit import *

# Set the pins of both wheels
ringbit = Ringbit(board.P1, board.P2)

# Change the speed in accordance with the distances detected by the sonar:bit
while True:
    if ringbit.get_distance(board.P0, Unit.cm) > 20:
        ringbit.set_speed(100, 100)
    else:
        ringbit.set_speed(0, 0)
```

## Details of the program

1.Import the modules that we need. `board` is the common container, and you can connect the pins you'd like to use through it; `ringbit` module contains classes and functions for Ring:bit smart car operations.

```
import board
from ringbit import *
```

2.Set the pins of the servos

```
ringbit = Ringbit(board.P1, board.P2)
```

3.While true, set the speed to be controlled by the distance value given by the sonar:bit

```
while True:
    if ringbit.get_distance(board.P0, Unit.cm) > 20:
        ringbit.set_speed(100, 100)
    else:
        ringbit.set_speed(0, 0)
```

# 5.7. Result

The Ring:bit car drives normally when there are no obstacles, stops when there are obstacles, and continues to drive when the obstacles leave.

## 5.8. Exploration

## 5.9. FAQ

## 5.10. Relevant Files

By ELECFREAKS Team