SONICBOT

SETUP GUIDE

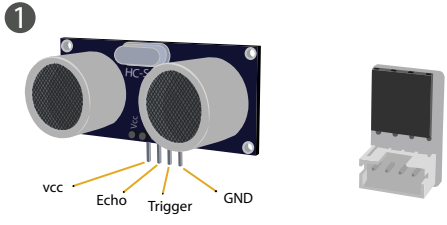
CONTENTS

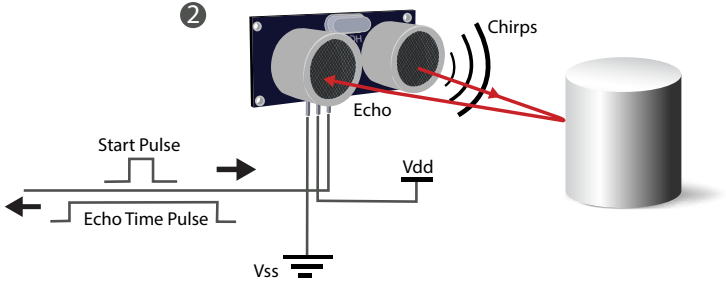
SonicBot

SonicBot is a REX robot that detects the objects in front of it thanks to the HCSR04 (Distance Sensor) on it and decides next movements. By using the converter of the HCSR04 distance sensor, you can easily connect the HCSR04 distance sensor to the connector on the REX board with a single cable.

How Does SonicBot Detect The Objects That In Front of It?

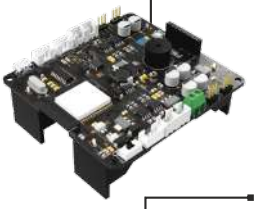
SonicBot detects objects in front of it thanks to the HCSR04 distance sensor located in its body. HCSR04 distance sensor is an input sensor with 4 pin ports as GND, VCC, Trigger and Echo. The distance between the sensor and the object in front of it is measured by using the return time of the ultrasonic wave sent from the trigger pin to the echo pin.





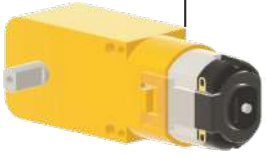
The Installation Steps

Required Components to build TrackerBot



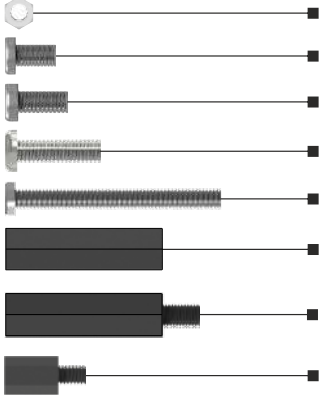
RREX 8in1 Main Board

Converter Board



Gear motor ***4 pcs.***

HC - SR04



M3 Nuts ***10 pcs.***

M3 x 6mm screw ***4 pcs.***

M3 x 8mm screw ***16 pcs.***

M3 x 12mm screw ***4 pcs.***

M3 x 30mm screw ***8 pcs.***

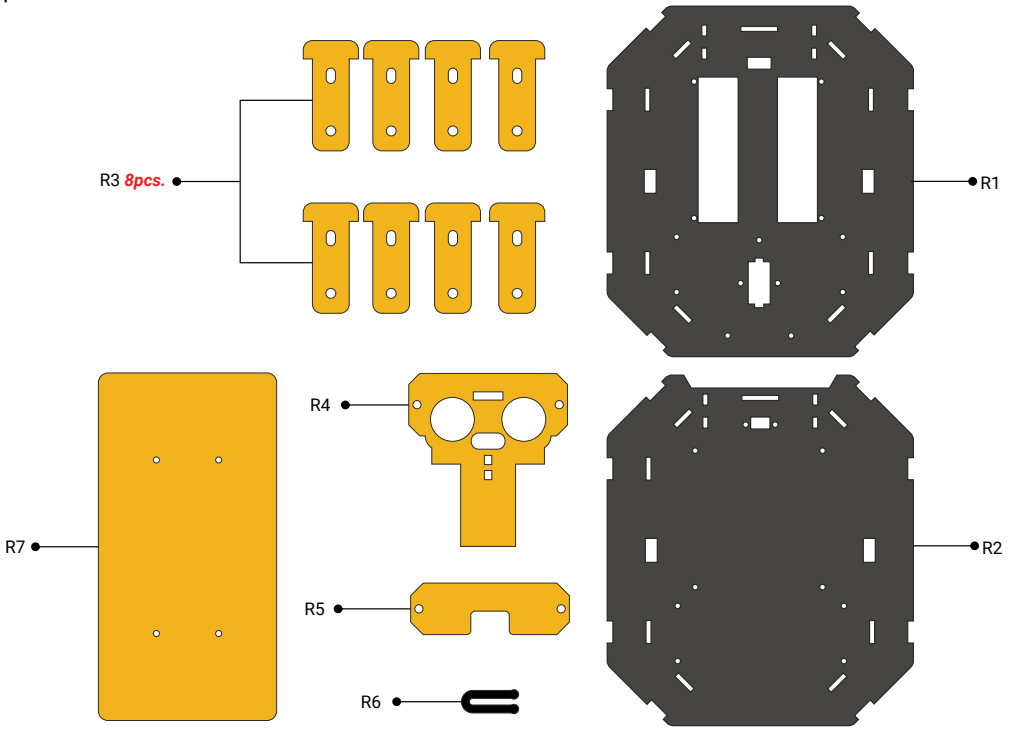
M3 x 25mm female spacer ***8 pcs.***

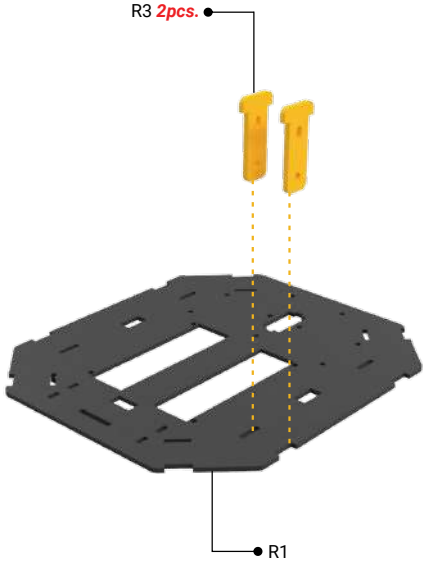
M3 x 25mm Female - male spacer ***4 pcs.***

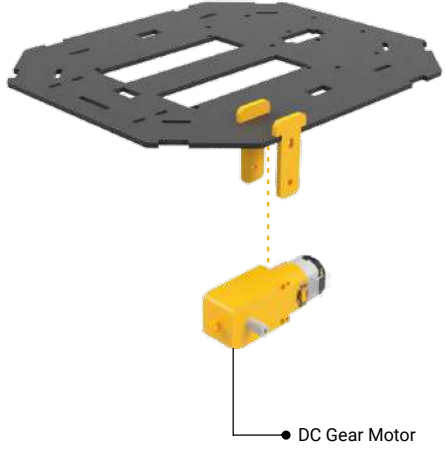
M3 x 6mm female - male spacer ***4 pcs.***

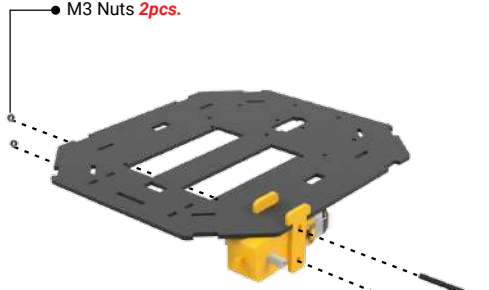
Gear motor wheel ***4pcs.***

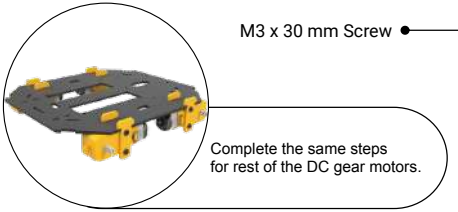
Required Parts

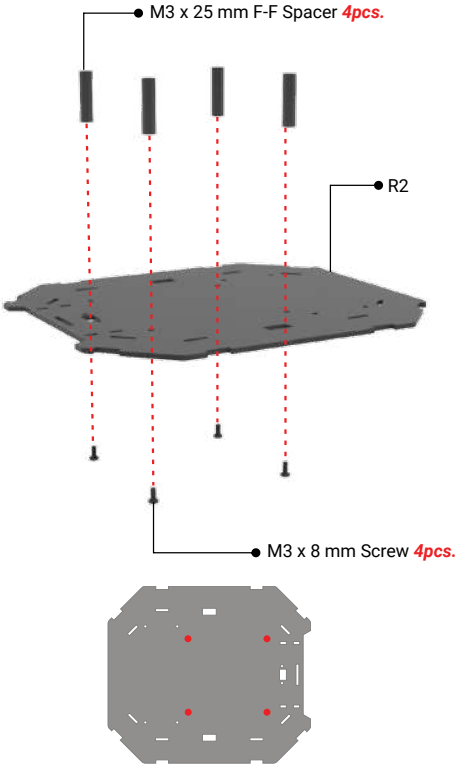


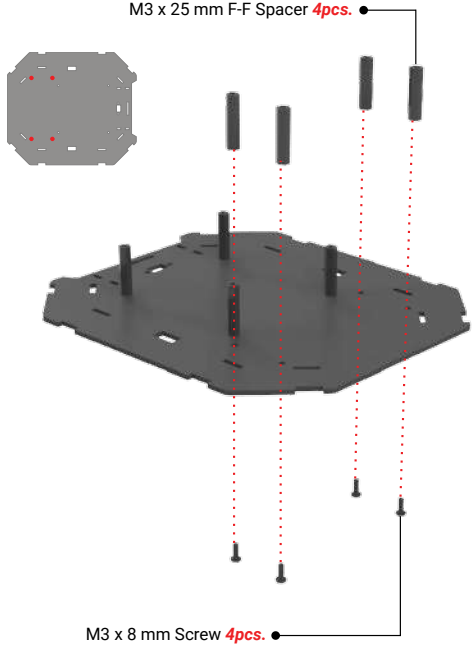

R3 2pcs.
R1

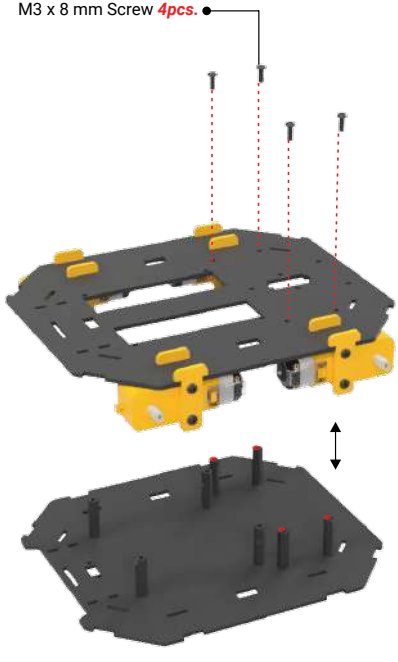

DC Gear Motor

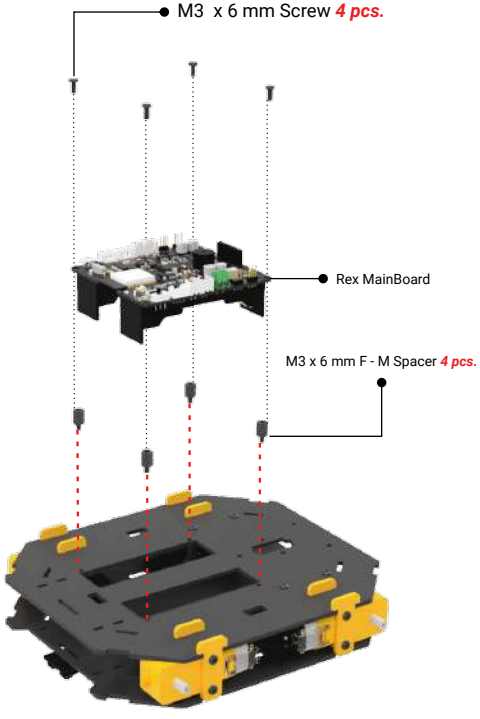

M3 Nuts 2pcs.
M3 x 30 mm Screw

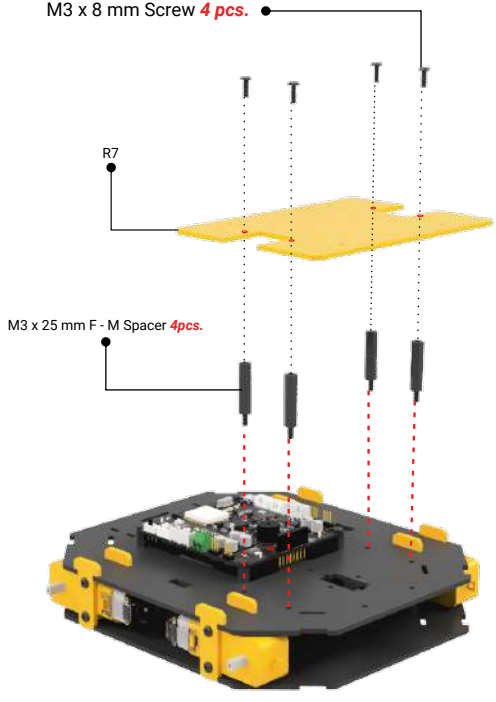

Complete the same steps
for rest of the DC gear motors.

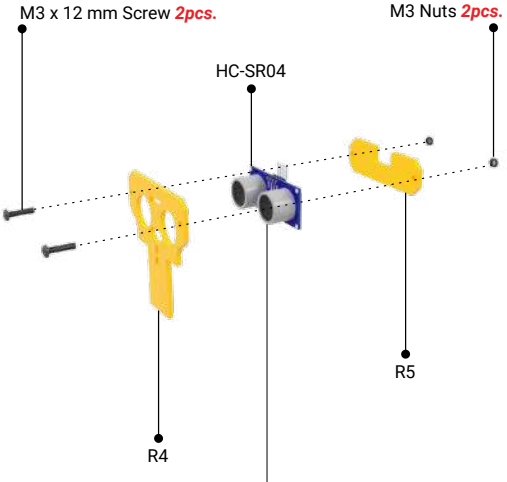

M3 x 25 mm F-F Spacer 4pcs.
R2
M3 x 8 mm Screw 4pcs.

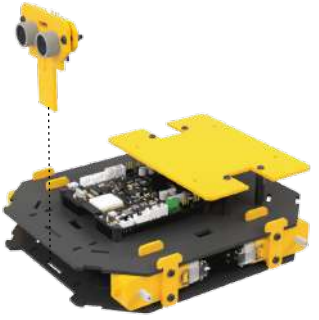

M3 x 25 mm F-F Spacer 4pcs.
M3 x 8 mm Screw 4pcs.


M3 x 8 mm Screw 4pcs.

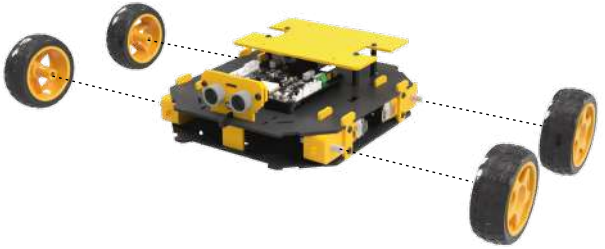

M3 x 6 mm Screw 4 pcs.
Rex MainBoard
M3 x 6 mm F - M Spacer 4 pcs.

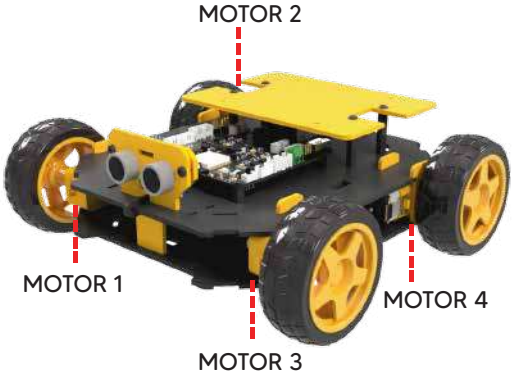

M3 x 8 mm Screw 4 pcs.
R7
M3 x 25 mm F - M Spacer 4pcs.


M3 x 12 mm Screw 2pcs.
M3 Nuts 2pcs.
HC-SR04
R5
R4
Make sure HC-SR04 pins are facing upward as in the image.

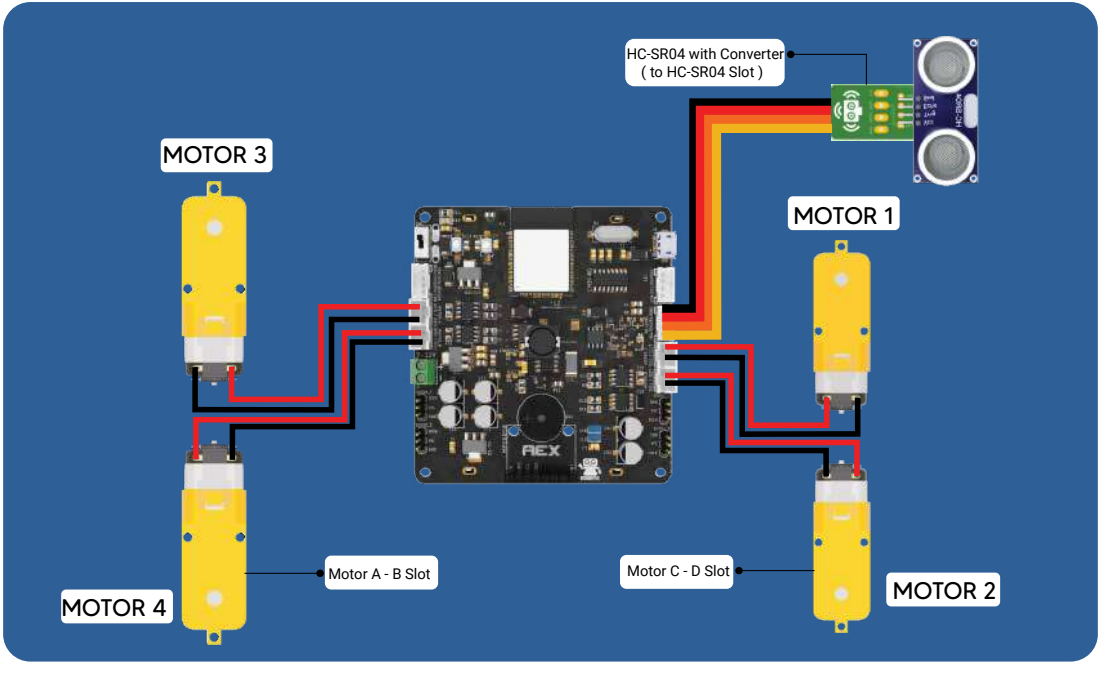



R6

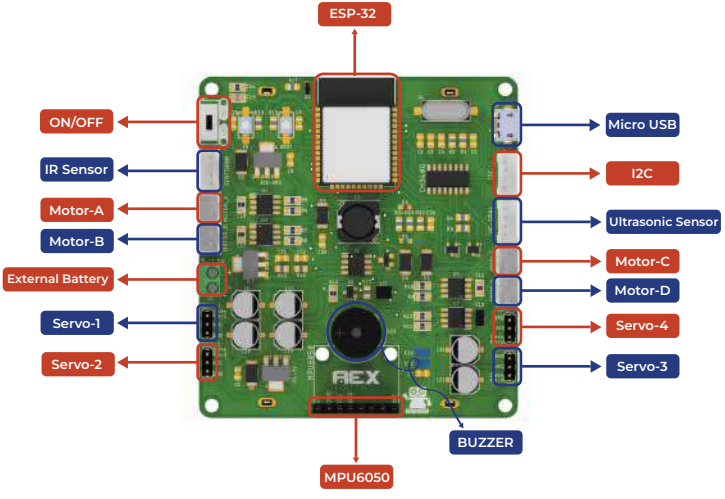



MOTOR 2
MOTOR 1
MOTOR 4
MOTOR 3

The Circuit Diagram



REX Main Board Diagram



Arduino Code

SonicBot.ino

```
int trigPin = 4;  // Trigger
int echoPin = 5;  // Echo
long duration, cm;

#define slow 120
#define MID 140
#define FAST 110

#define MotorA1 15
#define MotorA2 23

#define MotorB1 32
#define MotorB2 33

#define MotorC1 17
#define MotorC2 16

#define MotorD1 27
#define MotorD2 14


int turns = 0;
void setup() {
  //Serial Port begin
  Serial.begin(115200);

  //Define inputs and outputs

  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);


  pinMode(MotorA1, OUTPUT);
  pinMode(MotorA2, OUTPUT);

  pinMode(MotorB1, OUTPUT);
  pinMode(MotorB2, OUTPUT);

  pinMode(MotorC1, OUTPUT);
  pinMode(MotorC2, OUTPUT);

  pinMode(MotorD1, OUTPUT);
  pinMode(MotorD2, OUTPUT);
```

Scan the QR code to go to the whole code and the necessary libraries.

REX8

GitHub

rbt.ist/rexgithub

Rex DOC

rbt.ist/rexrdt

Shop.robotistan/Rex

rbt.ist/rexrdt