Maker’s Supply Remote Control Kit

User’s Manual

EngiPlay Kit

EPK001-1，EPK001-2

1. Features

- Uses 2.4Ghz wireless communication with a communication distance of more than 100m.
- Cost-effective; suitable for car, boat, tank models.
- Offers up to 10 channels that can access different devices.
- Remote control voltage range: 4.8V-12V (support 1S-3S); working current 65mA.
- Receiver voltage range: 3.3V-10V, no-load current 60mA, normal operation current 200~300mA, maximum current 3A.
- Supports configuration through mobile phone/PC with easy-to-use interfaces.

2. Components

2.1. Main Control Board

Supports Bluetooth and WiFi functions, and MicroPython programming.

Fig 1 Dimensions

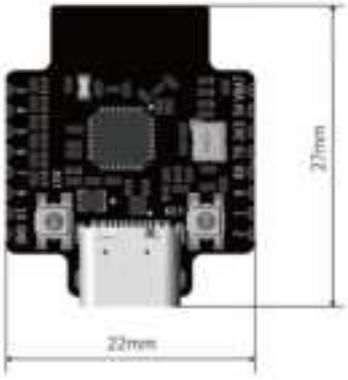


Table 1 Basic information

Parameter	Description
Input voltage	DC 5V.
Battery voltage	3.7V - 12.6V.
Antenna type	PCB antenna.
Weight	6g.

Fig 2 Port

Table 2 Basic information

No.	Description
1	WS2812 light: RGB indicator for system status.
2	Stamp holes: Where lead-out pins are soldered on.
3	Reset button: Used to reset the main program.
4	Type-C port: Used to install firmware and for programming.
5	User button: Used for extended functions.

2.2. Remote Control Receiver

Able to connects to up to 2 brushed motor drivers, 4 PWMs and 2 ws2812 lights.

Fig 3 Dimensions

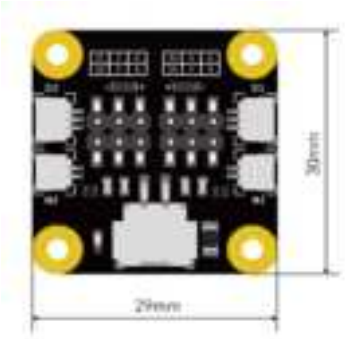


Table 3 Basic information

Parameter	Description
Input voltage	DC 7.4V - 8.4V.
Current	No-load current 60mA, normal operating current 200 - 300mA, and maximum current 3A.
Output channel	4CH PWM, 2CH MOTOR, 2CH LED.
Weight	6g.

Fig 4 Port

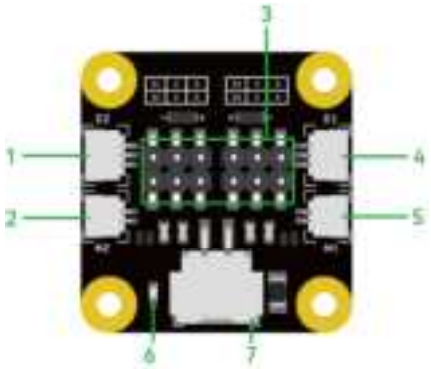


Table 4 Port description

No.	Description
1	Access port for LED light: SH1.0 3P LED port; connects to WS2812 lights.
2	Access port for motor: SH1.0 2P DC brushed motor port.
3	PWM port: Connects to a steering engine.
4	Access port for LED light: SH1.0 3P LED port; connects to WS2812 lights.
5	Access port for motor: SH1.0 2P DC brushed motor port.
6	Power indicator: Solid white when power is connected.
7	Power input port: XH2.54 power port.

2.3.Remote Control Transmitter

10 channels.

Fig 5 Dimensions

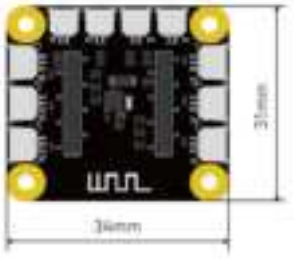


Table 5 Basic information

Parameter	Description
Input voltage	DC 3.7 - 8.4V.
Working current	65mA.
Output channel	6 ADC channels and 4 IO channels.
Weight	5.5g.

Fig 6 Port

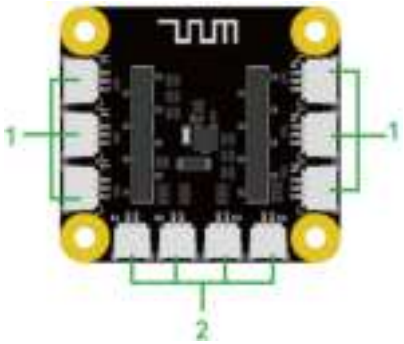


Table 6 Port description

No.	Description
1	Analog input port: Supports connecting to joysticks, rocker switches and other modules.
2	Switch input port: Supports connecting to button modules.

2.4.2-channel Joystick Module

A 2-channel module that outputs analog joystick signals.

Fig 7　Dimensions

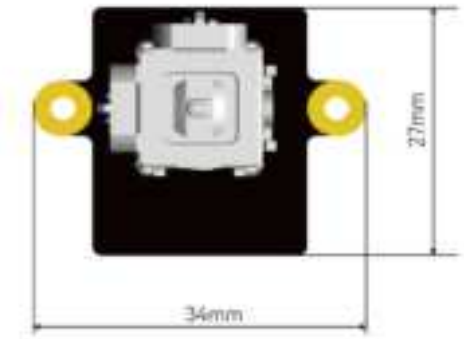


Table 7　Basic information

Parameter	**Description**
Output type	Analog signals.
Output channel	2 channels.
Sensor type	Potentiometer.
Resistance	10kΩ.
Output port	6.6g.
Weight	3-pin SH1.0 * 2.

Table 8　Appearance

2.5.Single Channel Joystick Module

A 1-channel module that outputs analog joystick signals.

Fig 8　Dimensions

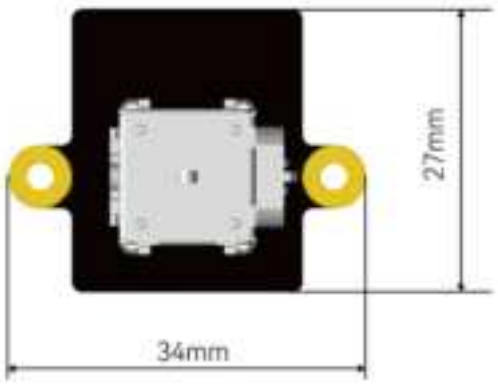


Fig 9　Appearance

Table 9　Basic information

Parameter	**Description**
Input voltage	3.3V.
Output type	Analog signals.
Output channel	1 channel.
Sensor type	Potentiometer.
Resistance	10kΩ.
Weight	6.15g.
Output port	2-pin SH1.0.

2.6.Rocker Switch Module

A 3-position rocket switch.

Fig 10 Dimensions

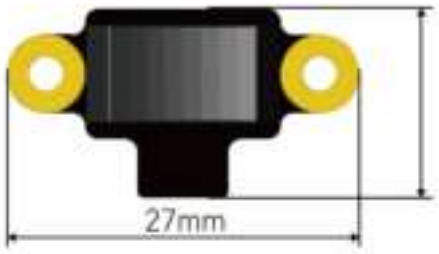


Fig 11 Appearance

Table 10 Basic information

Parameter	**Description**
Input voltage	3.3V.
Output type	Analog signals.
Output position	3 positions.
Weight	2.73g.
Output port	3-pin SH1.0.

2.7.Power Board

Controls whether to connect to power.

Fig 12 Dimensions

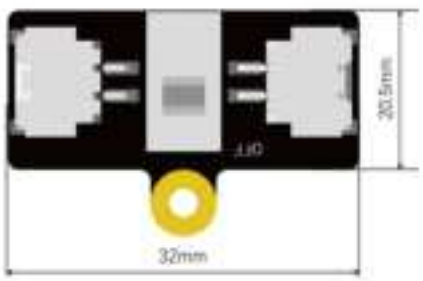


Fig 13 Appearance

Table 11 Basic information

Parameter	Description
Input voltage	3.3V.
Output type	Analog signals.
Output position	3 positions.
Weight	2.73g.
Output port	3-pin SH1.0.

2.8.Button Module

A button module for the remote control receiver.

Fig 14 Dimensions

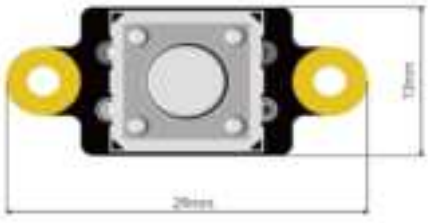


Fig 15 Appearance

2.9.Light Adapter Board

Support connecting up to 4 ws2812 lights.

Fig 16 Dimensions

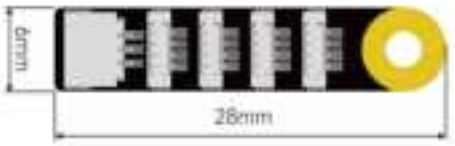


Fig 17 Port

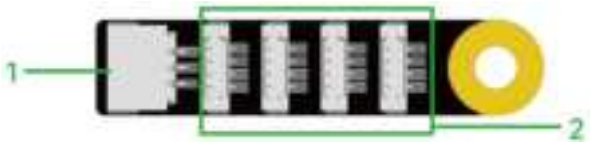


Table 12 Port description

No.	Description
1	Input terminal: 3-pin SH1.0; 5V.
2	Output terminal: 0.8mm piercing terminal.

2.10. Ws2812 Light

An RGB light that connect to the light adapter board.

Fig 18 Appearance

Table 13 Basic information

Parameter	Description
Input voltage	3.5-5.3V.
Input terminal	0.8mm 4-pin piercing terminal.

2.11. Connection Wire

Connects the remote control receiver/transmitter to peripherals.

Fig 19 Appearance

Table 14 Basic information

Parameter	Description
Wire terminal	2-pin SH1.0 male-to-male connector.
Length	10cm.

2.12. Lithium Battery

2S 700mAh lithium battery.

Fig 20 Appearance

2.13. Brushed Motor

Fig 21 Appearance

2.14. 360° Steering Engine

Fig 22 Appearance

2.15. Screws and Magnets

Fig 23 Appearance

2.16. Gear Box

Fig 24 Appearance

3. Introduction to Remote Control Transmitter

Fig 25 Remote control transmitter (1)

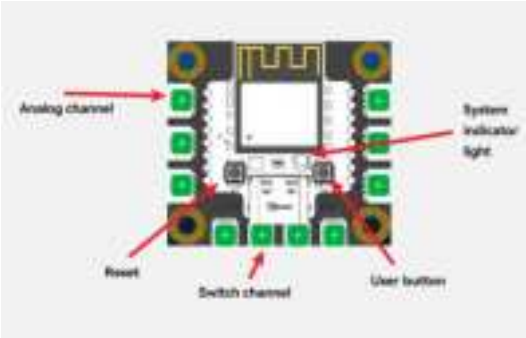
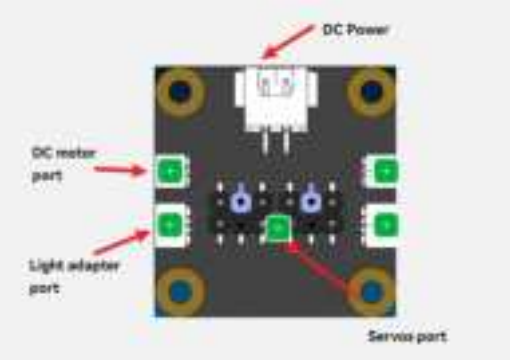


Fig 26 Remote control transmitter (2)



There are 3 analog channels on the left and right, and 4 switch channels on the bottom. The remote control transmitter is powered by 5V through the USB port.

- **Analog channel**: Connects to single/2-channel joystick modules, and rocker switch module.
- **Switch channel**: Connects to switch modules.
- **DC motor port**: Connects to a brushed DC motor; supporting controlling the forward and reverse rotation of the motor.
- **Light adapter port**: Connects to the light adapter board.
- **Steering engine port**: Connects to common 5V steering engines.

4. Connection

As shown in the picture below, there are silkscreen markings on the main control board, remote control receiver, and remote control transmitter. When connecting them, make sure that the silkscreen markings are in the same direction.

Fig 27 Make sure the silkscreen markings are in the same direction

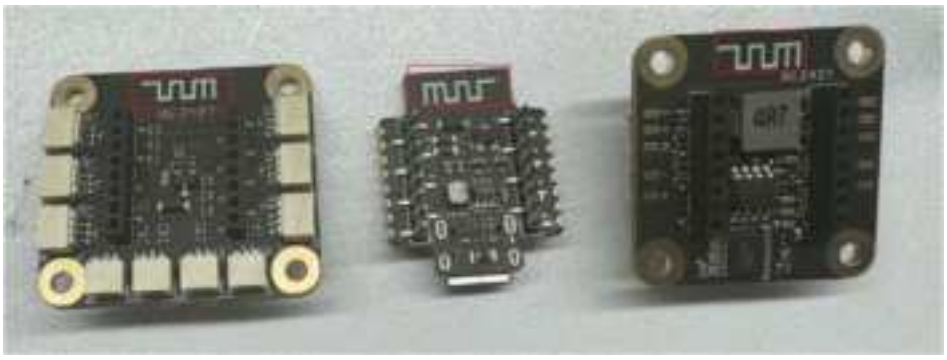


Fig 28 Connect the main control board and remote control transmitter

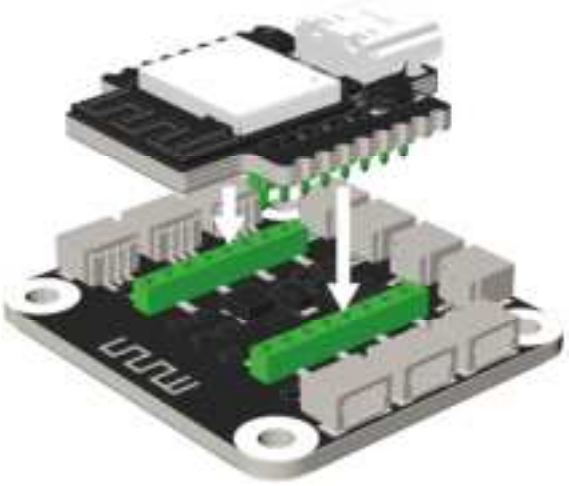
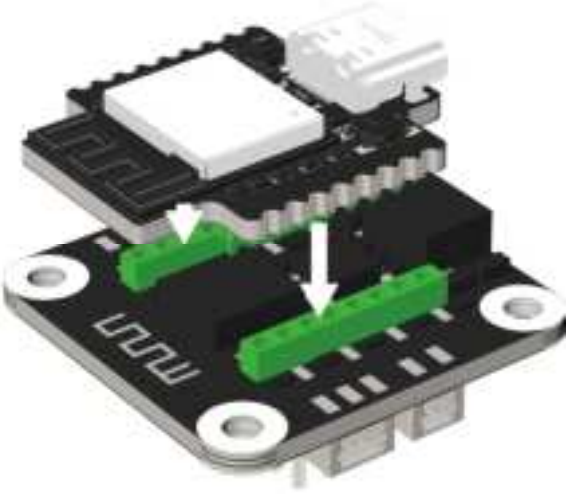


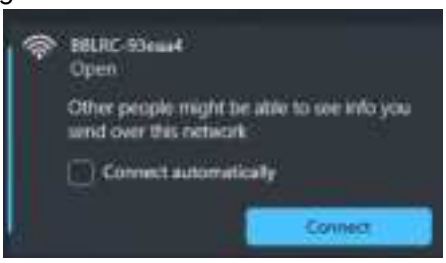
Fig 29 Connect the main control board and remote control receiver



5. Visit the Configuration Page

Step 1 On your phone or computer, connect to the wireless network that starts with “BBLRC-”.

Fig 30 Connect to the same network



Step 2 Go to http://webserver/ in the browser.

Fig 31 Configuration Page

6. Configure the Parameters

Step 1 Click **Create Configuration**.

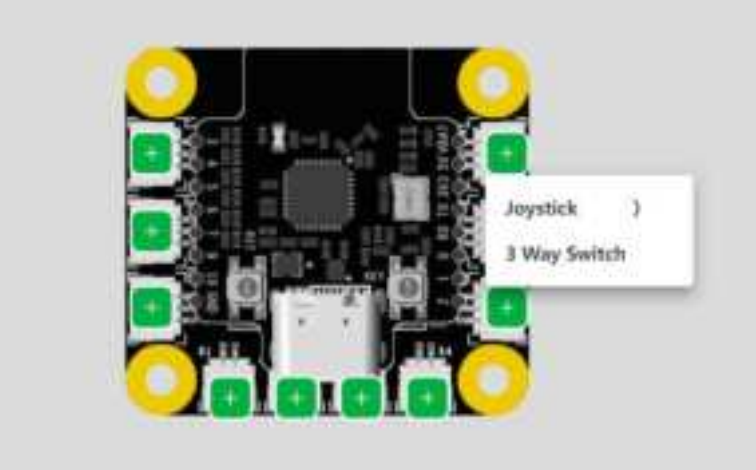
Step 2 Select a template or customize your model. A customized model allows you to configure your own parameters. The steps below take a customizing a model as an example.

Fig 32 Customize a model

Step 3 Click + to add the channels you need. 3-way switches and joysticks can be added to the channels on the left and right. Buttons can be added to the channels on the bottom.

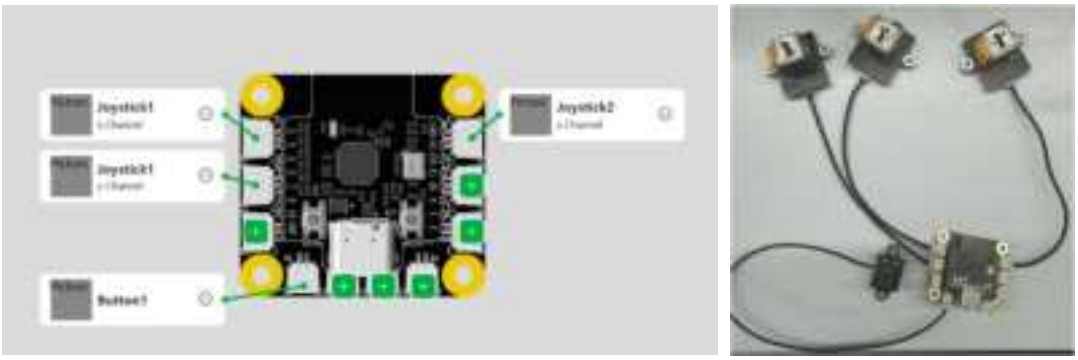
Fig 33 Add channels

Fig 34 Supports 3-way switches and joysticks.



Step 4 Take a forklift as an example. Add three joysticks and one button. The physical modules must match the channels.

Fig 35 Match physical modules and channels



Step 5 Click **Add Receiver** and enter a name for it. This step takes **Forklift** as an example.

Step 6 Click **Forklift** and configure its parameters.

Fig 36 Enter a name for the receiver.

Step 7 Click +, and then add two motors, one steering engine for controlling up and down, and one light.

Fig 37 Click +

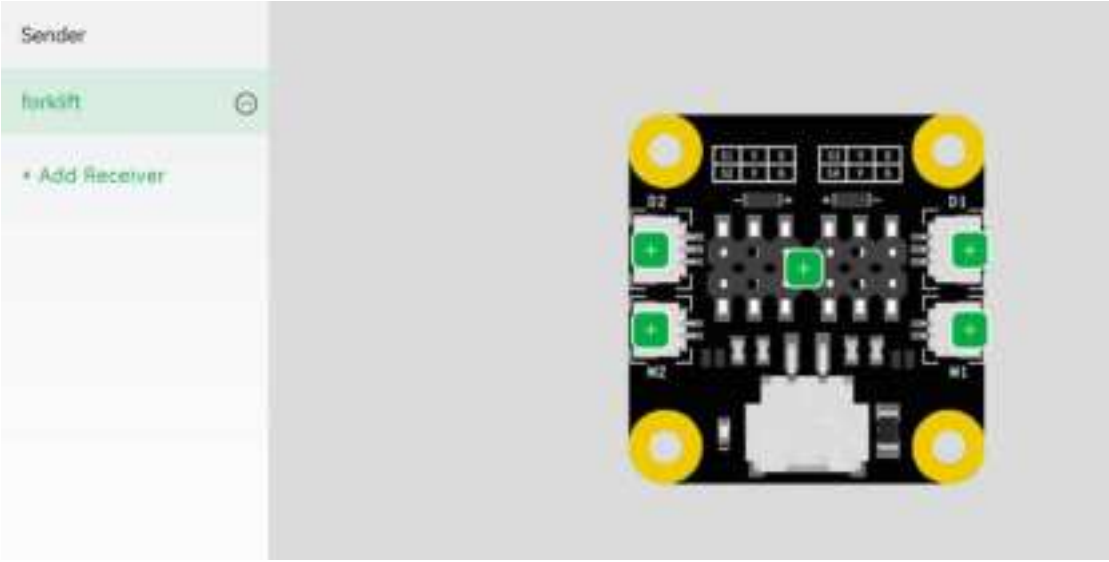
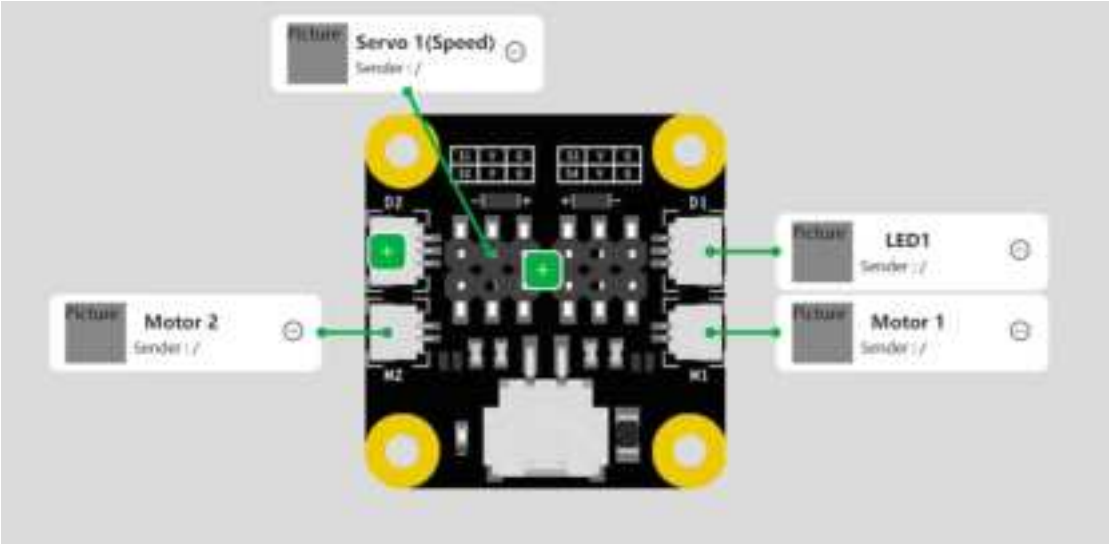
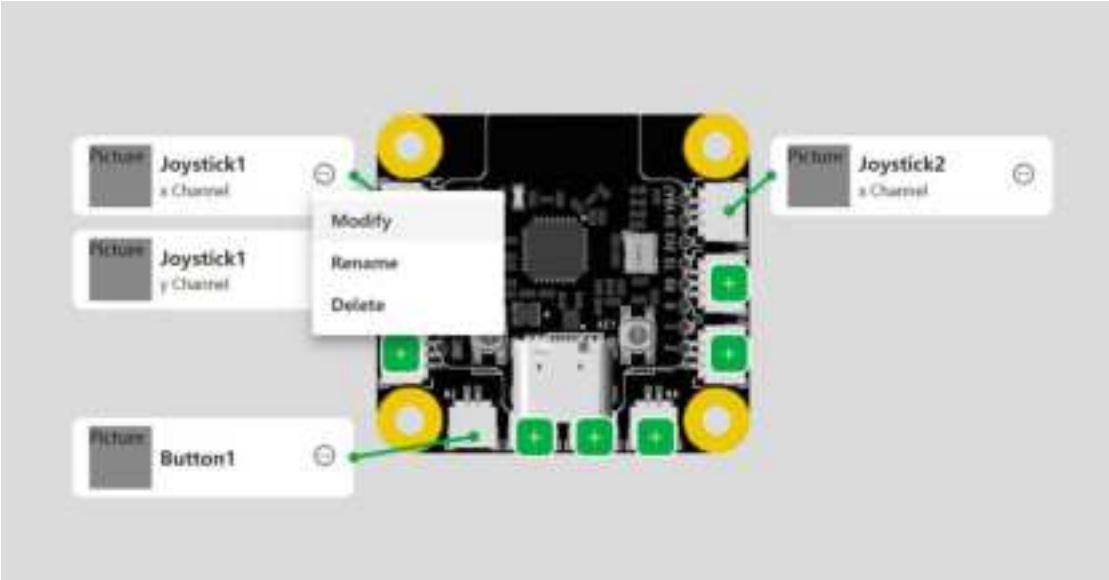


Fig 38 Add 2 motors, one steering engine and one light



Step 8 Select **Sender > Joystick1 > Modify** to map the channels.

Fig 39 Configure parameters



Step 9 Set the midpoint values for X and Y channel based on the actual value of the current channel.

Fig 40 Set midpoint values

Step 10 Click **Add** on the lower-left corner.

Fig 41 Add receiver device (1)

Step 11 Select the receiver deivce for the channel.

Fig 42 Add receiver device (2)

Step 12 Configure the positive and negative directions and the corresponding receiver device for the X and Y channels. This will be used to control the spinning and moving of the chassis.

Fig 43 Configure the directions and receiver devices for X and Y channels

Step 13 Configure the receiver device of the **Joystick2** channel to be **Servo 1**. Then the joystick2 can control the steering engine.

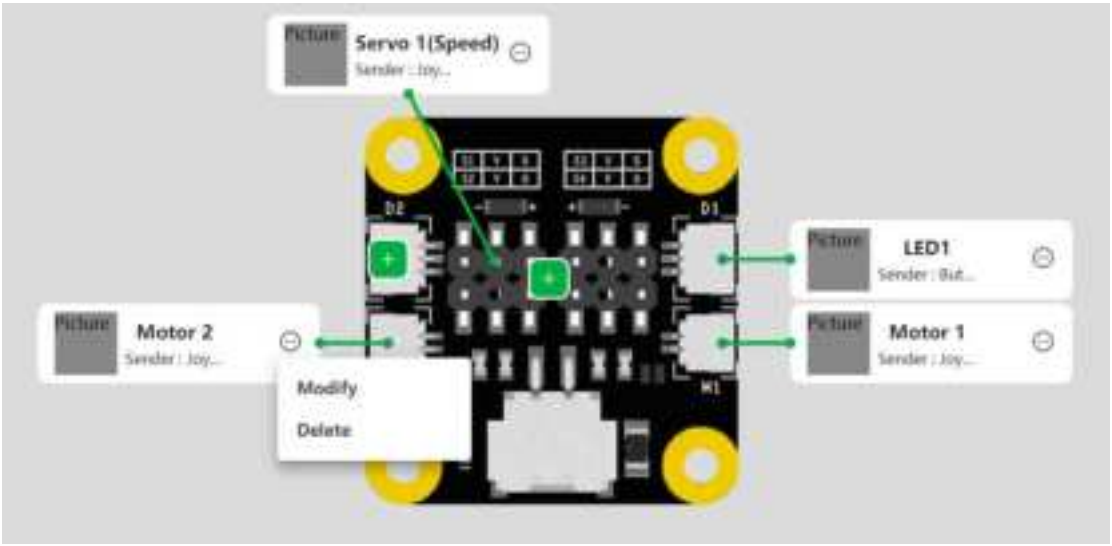
Fig 44 Configure joystick2

Step 14 Configure the receiver device of the **Button1** channel to be **LED1**, and the trigger event to be **Short Press**.

Fig 45 Configure button1

Step 15 Click **Forklift**, and then configure the parameters for **Motor 1** and **Motor 2**.

Fig 46 Configure motor parameters



Step 16 Configure the motors' maximum positive and negative speed.

Fig 47 Configure maximum speed

Step 17 Click **LED** and configure the light effect parameters.

Fig 48 Click LED light effect parameters

Step 18 Click, and then configure the maximum positive and negative speed.

Fig 49 Configure maximum positive and negative speed

Step 19 Click **Save** on the upper-right corner to save the current configurations.

Step 20 Go back to the Profile List page, and then click **Enable** to enable your configurations.

Fig 50 Enable configurations

7. Paring Modules

Step 1 Click **Forklift**, and then click **Pair.**

As the transmitter, the forlift will search for receivers nearby. After the search is finished, the following page will be displayed.

Fig 51 Click Pair

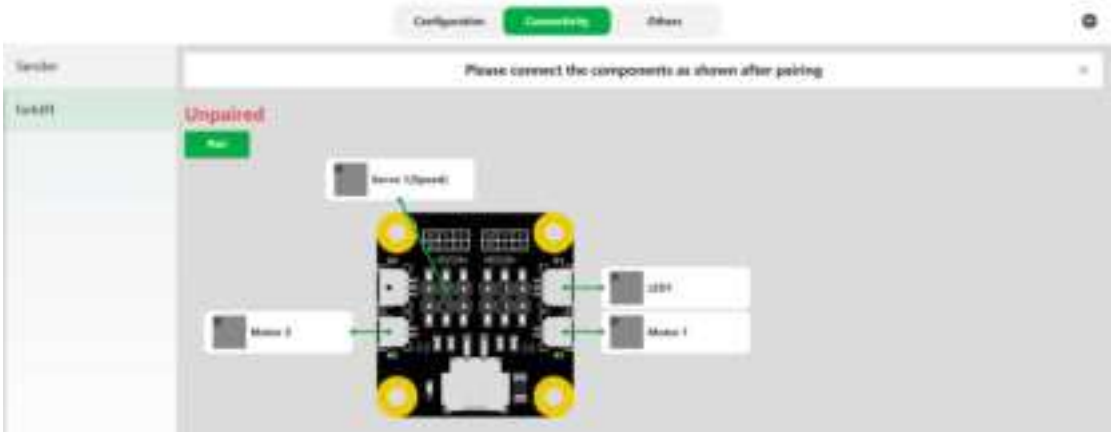


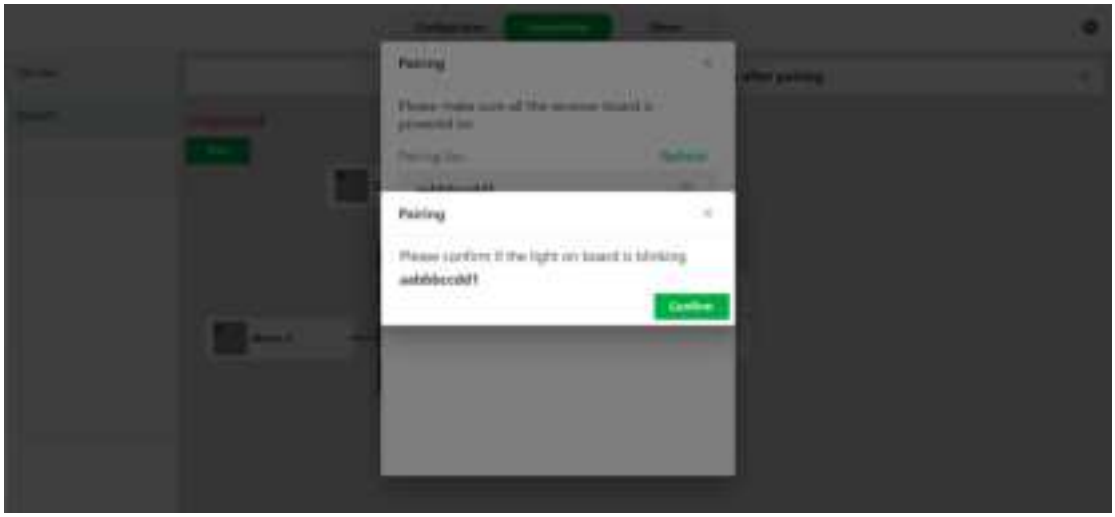
Fig 52 Search for receivers nearby

Step 2 Click the receiver you want to pair with.

The selected device will change from **solid red** to **flashing red**.

Step 3 Click **Confirm**.

Fig 53 Pair with the receiver you need



If pairing is successful, the secondary machine will change to solid green. Also, the pairing information will be displayed on the configuration page.

Fig 54 Successfully paired

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Labelling