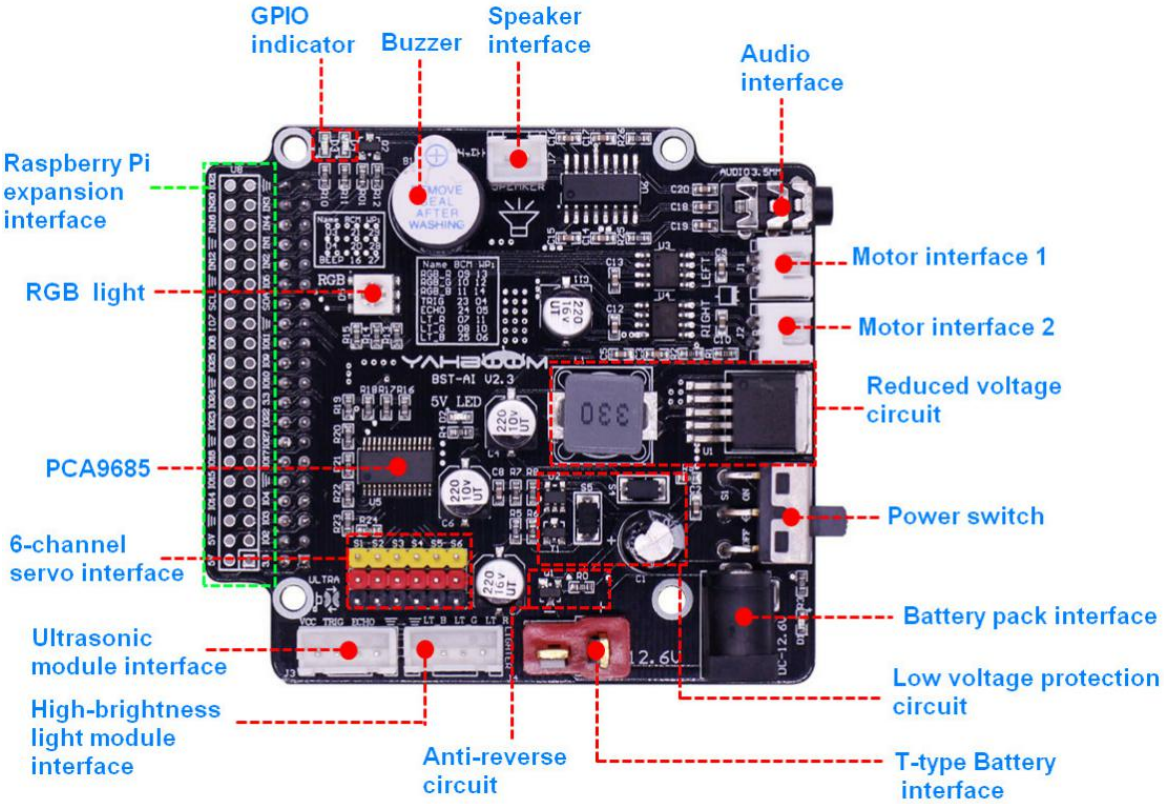
Pi-motion expansion board manual

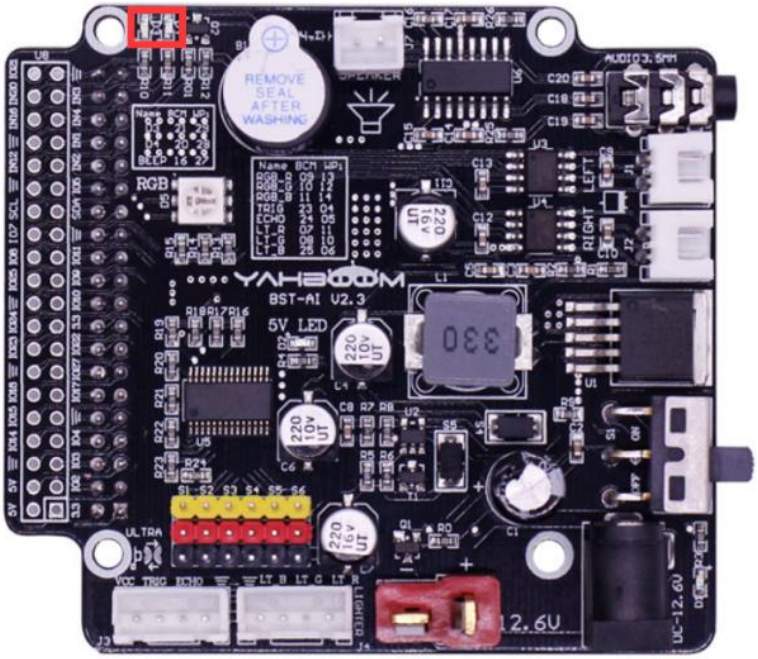


Detail:

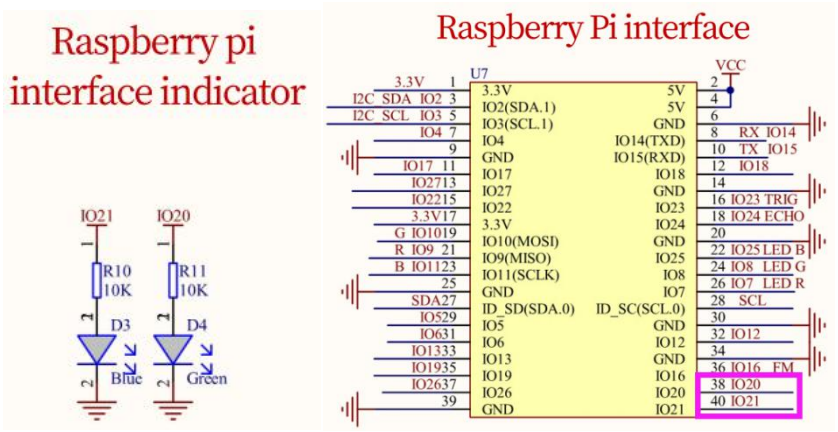
On-board I/O devices	active buzzer, dual LED, 1 channel GPIO_ RGB programming light	**Motor interface**	2 way DC motor (voltage is taken from the battery, current 4-6A)
Expansion interface	colorful searchlight, ultrasonic, Raspberry Pi extension IO interface	**Multimedia interface**	3.5mm audio input, 2Pin speaker output
Dedicated interface	Raspberry Pi interface	**Power supply interface**	DC3.5 battery pack interface, T-type battery interface
Servo interface	6-way servo (voltage: 5V, Max: 4A)	**Protection Solution**	Reverse connection protection, Low voltage protection
Buck Solution	XL4005E1 (rated 5A)	**Servo Solution**	PCA9685

Motor solution	AM2857	Output voltage	5V
Input voltage	9.7~13 wide voltage input (default lithium battery pack 12.6V)	Application areas	voice broadcast, face recognition, Raspberry Pi car , Robotic arm , etc.

1.GPIO indicator



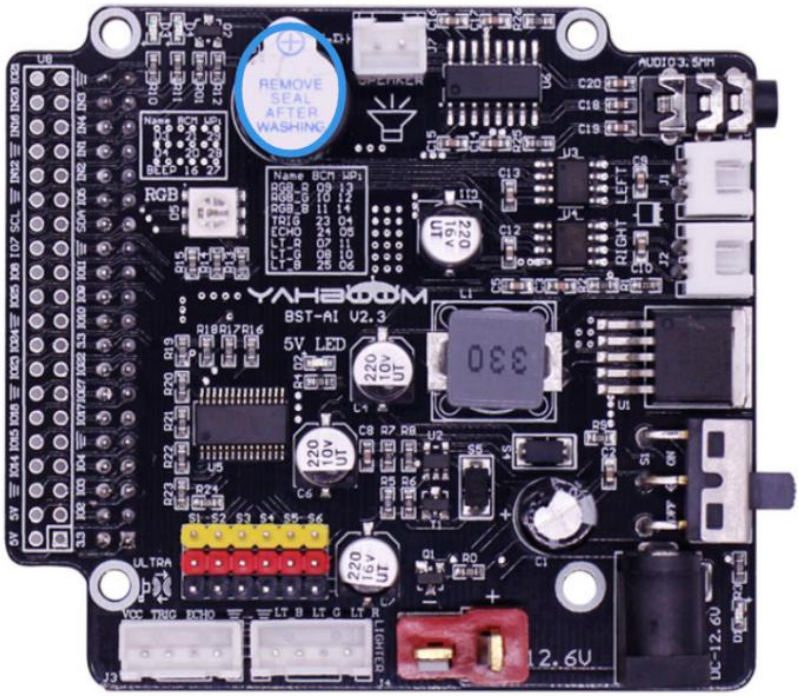
1-1 position



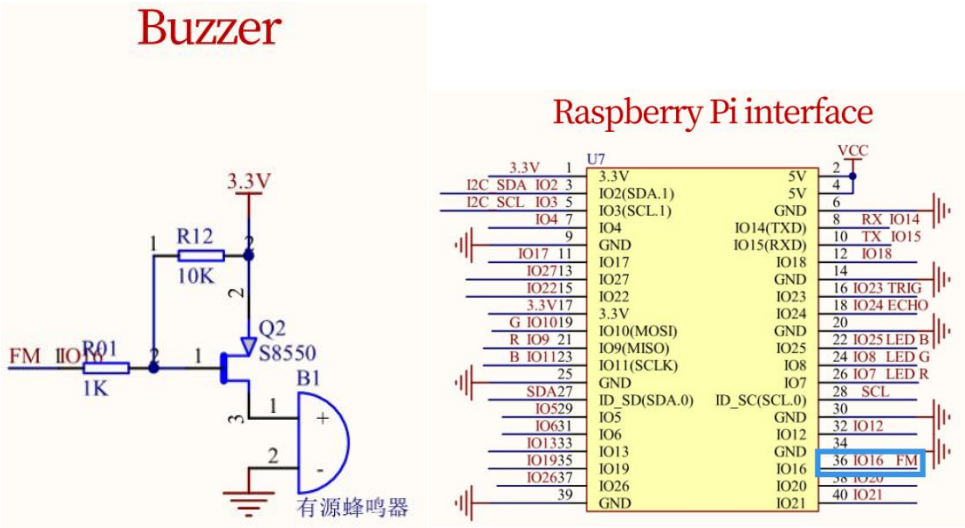
1-2 Schematic diagram

Two GPIO indicators next to the buzzer on the expansion board.

2.Buzzer



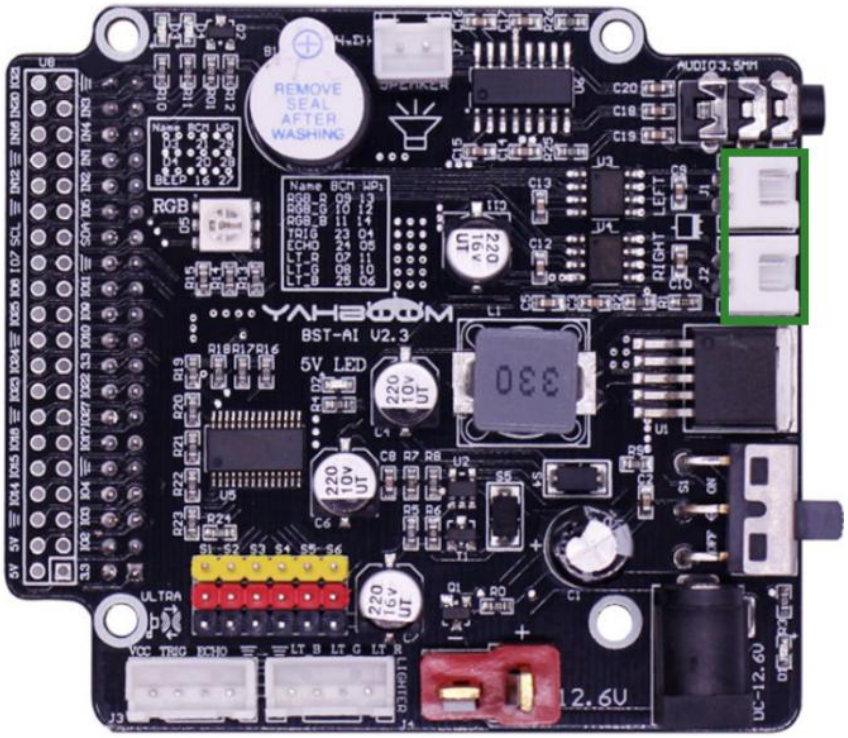
2-1 position



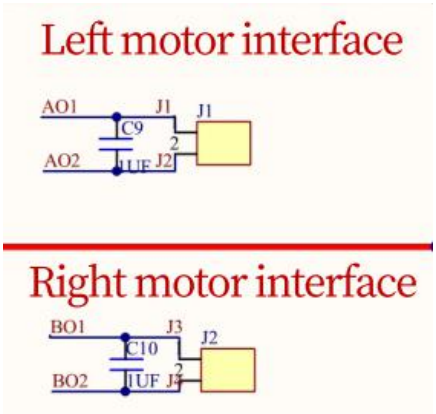
2-2 Schematic diagram

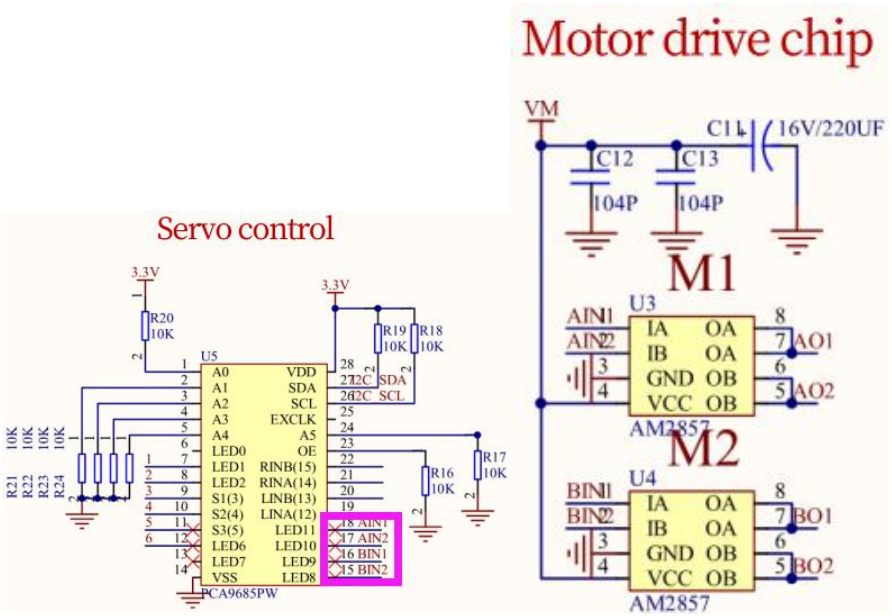
We are using active buzzer here.

3.Motor interface


REMOVE SEAL AFTER WASHING
RGB
BST-AI V2.3
5V LED
ULTRA
VCC TRIG ECHO
LT B LT G LT R
LIGHTEN
12.6U
DC-12.6V
AUDIO3.5MM
LEFT
RIGHT

3-1 position


Left motor interface
AO1
AO2
J1
C9
1UF
J2
Right motor interface
BO1
BO2
J3
C10
1UF
J4

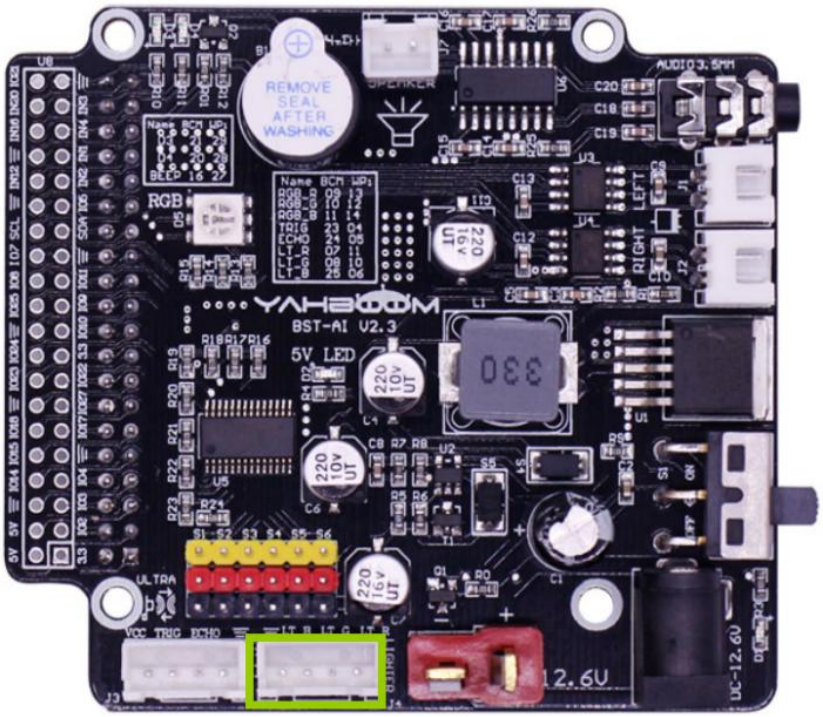


3-2 Schematic diagram

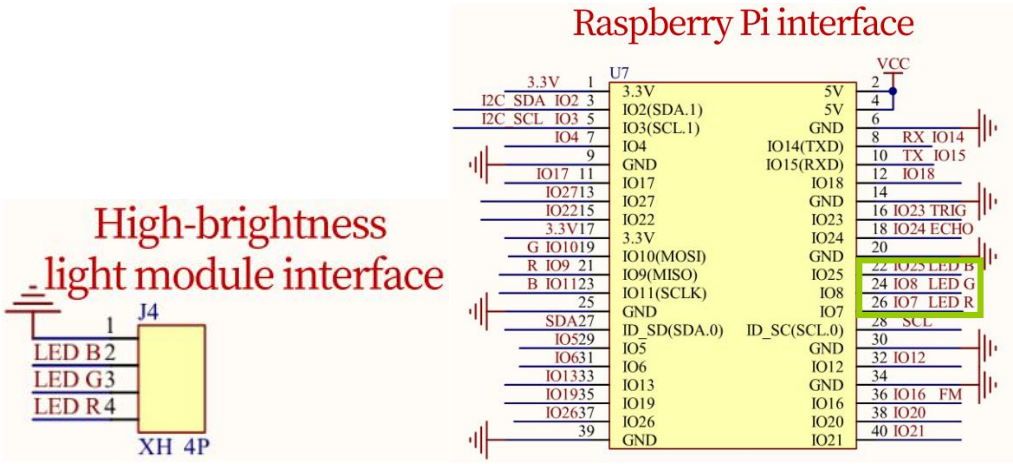
This motor interface is compatible with 370 motors, 520 motors, TT motors, etc.

The size of the interface voltage depends on the power supply of the battery, and the current range is 4~6A.

4. High-brightness light module interface



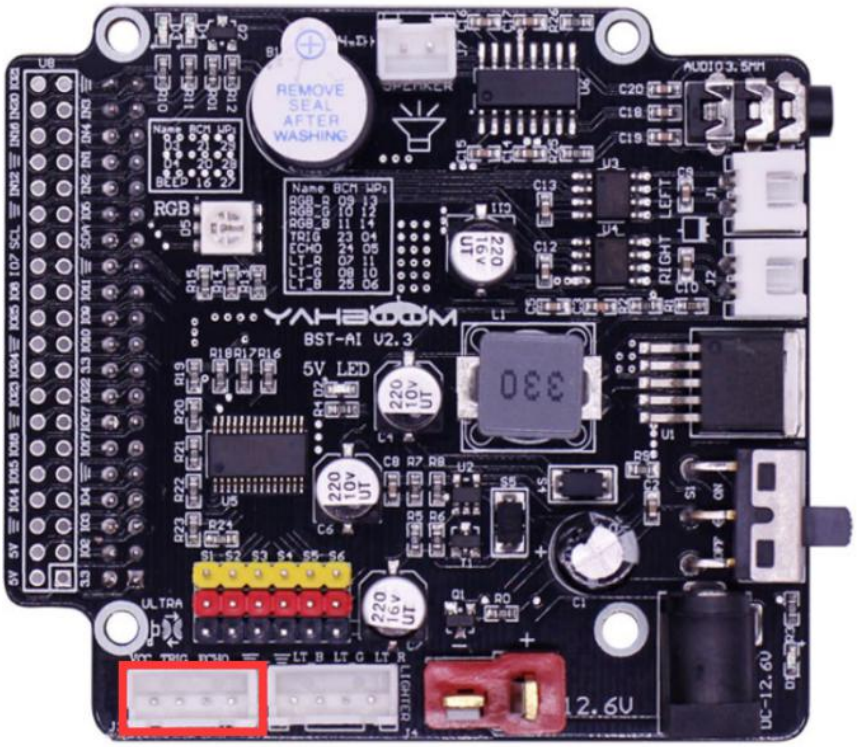
4-1 position



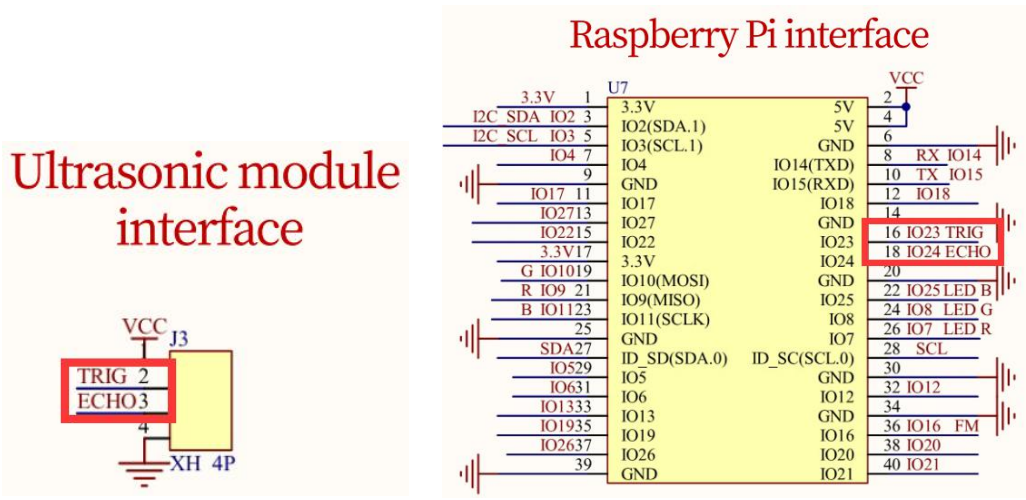
4-2 Schematic diagram

When the pin inputs high level, the RGB light is on, and the low level RGB light is off.

5. Ultrasonic module interface



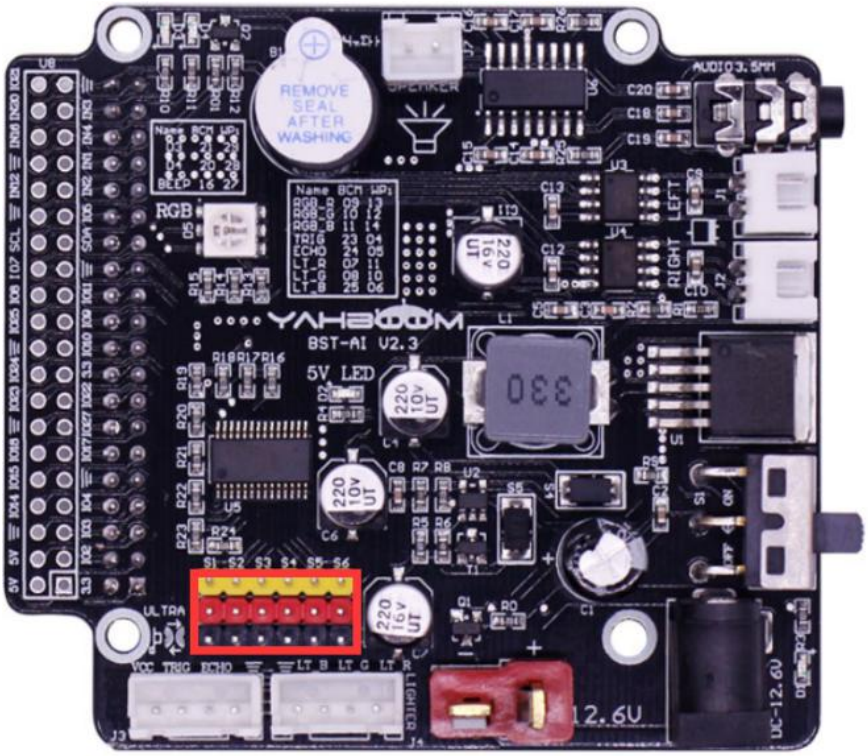
5-1 position



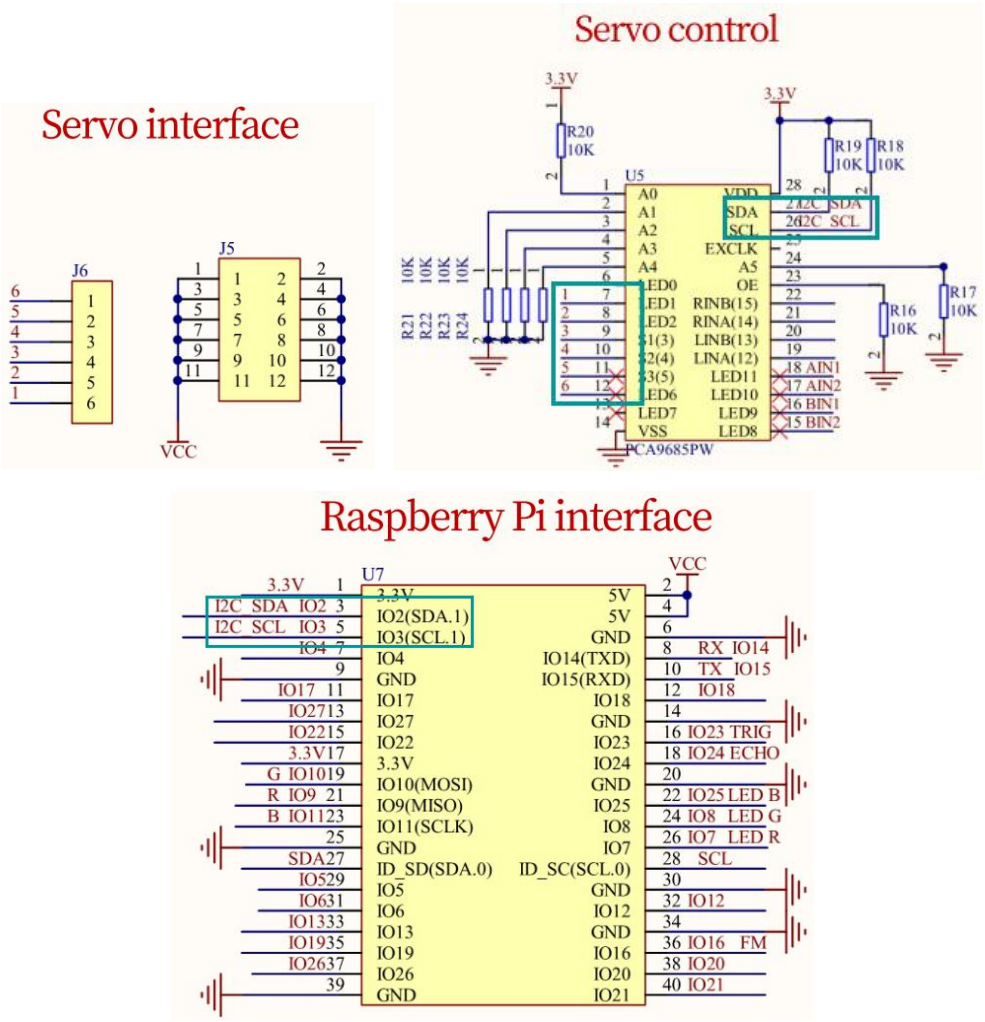
5-2 Schematic diagram

The interface has four pins: VCC, GND, TRIG, ECHO. Under normal operating conditions, VCC is 5V.

6. Servo interface



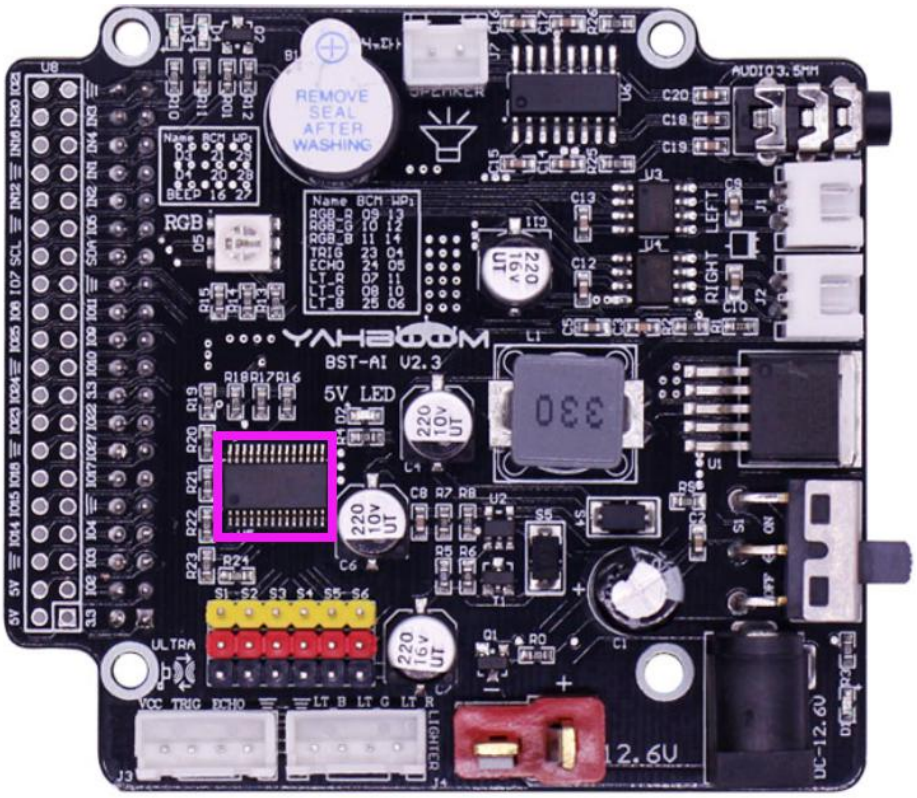
6-1 position



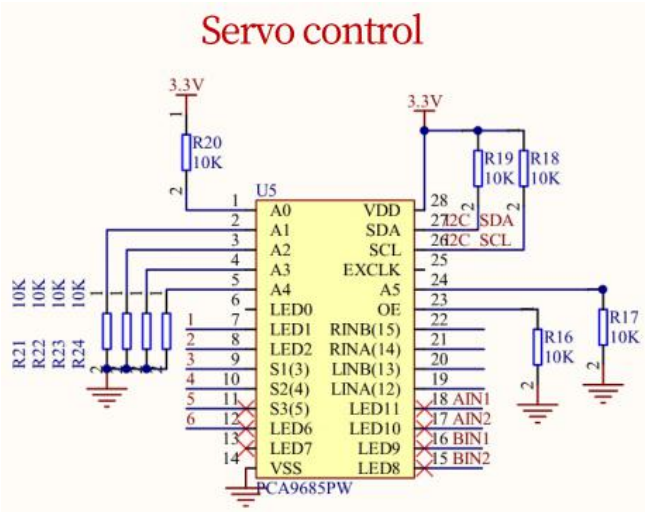
6-2 Schematic diagram

There are 6 servo interfaces, each with three pins: VCC, GND, and IO. VCC is 5V under normal operating conditions. The maximum current of this interface is 4A. We use IIC communication method.

7.PCA9685



7-1 position

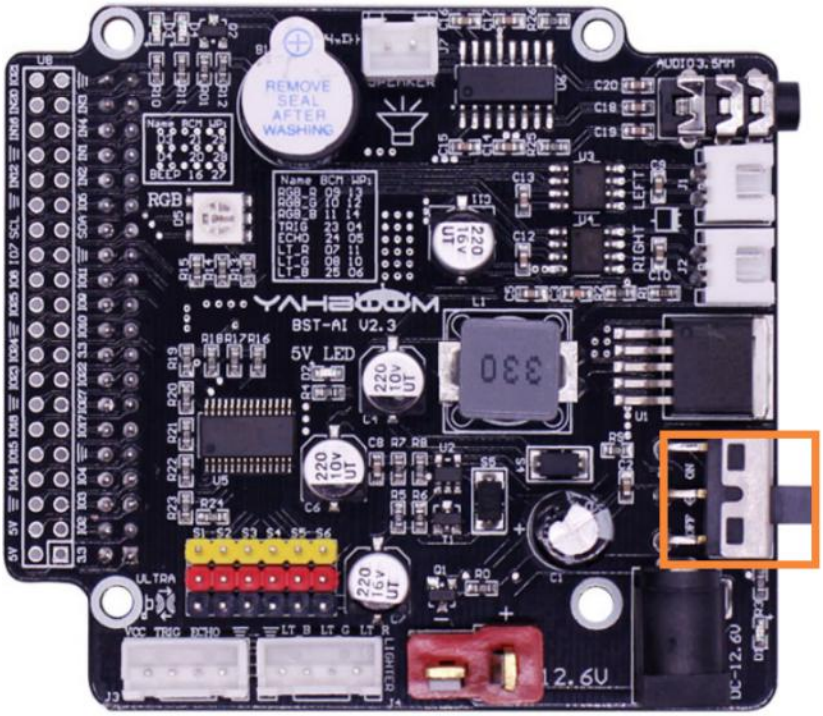


7-2 Schematic diagram

The PCA9685 is an I2C-bus controlled 16-channel LED controller optimized for LCD Red/Green/Blue/Amber (RGBA) color backlighting applications. Each LED output has its own 12-bit resolution (4096 steps) fixed frequency individual PWM controller that operates at a programmable frequency from a typical of 40 Hz to 1000 Hz with a duty cycle that is adjustable from 0 % to 100 % to allow the LED to be set to a specific brightness value.All outputs are set to the same PWM frequency.

Please see the PCA9685 data sheet for details of this chip.

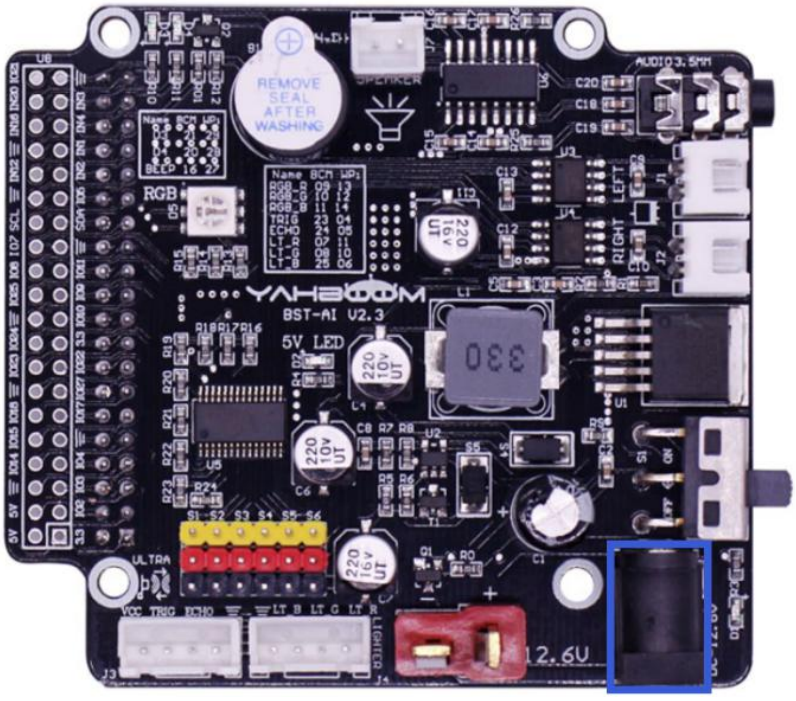
8.Power button



8-1 Position

It is used to control the power switch of the expansion board.

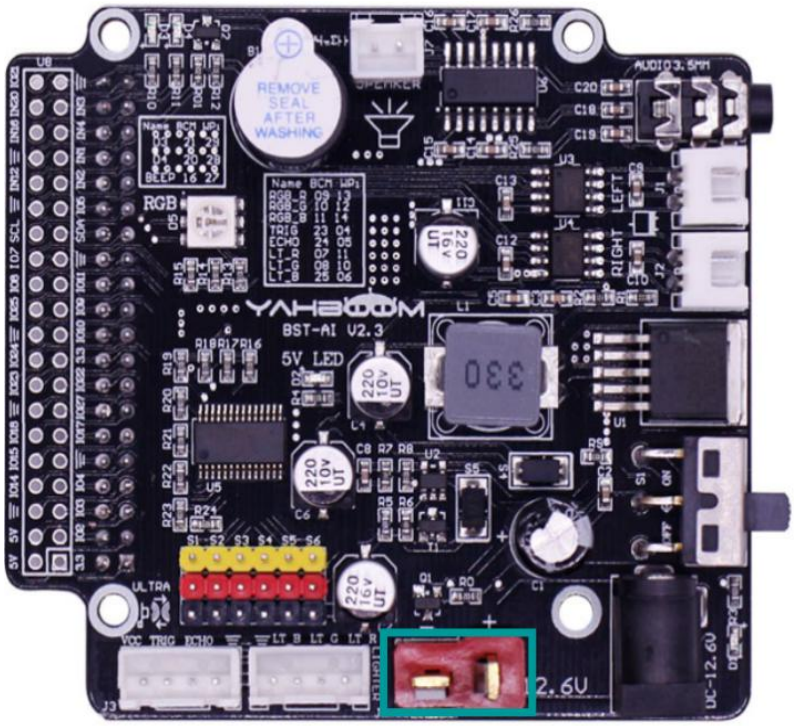
9.DC power interface



9-1 Position

Plug the special battery box here to supply power to the expansion board. The power supply voltage of the expansion board cannot exceed 12.6v.

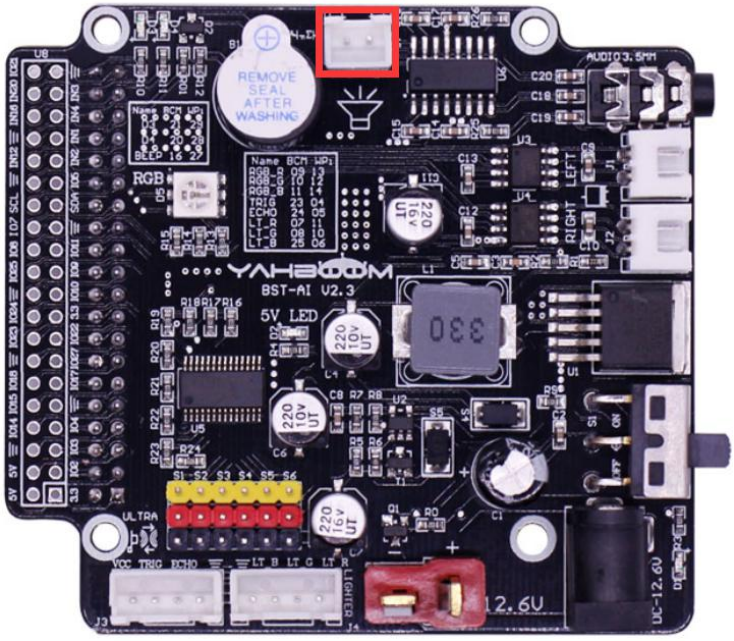
10.T-type power interface



10-1 Position

Plug the special T-type battery here to supply power to the expansion board. The power supply voltage of the expansion board cannot exceed 12.6v.

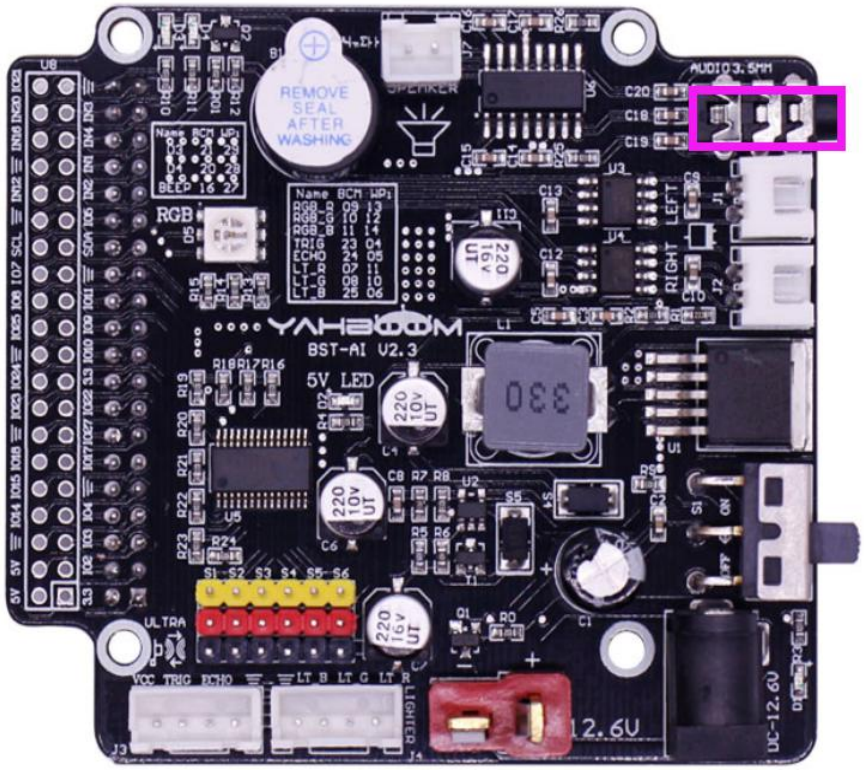
11.Speaker interface



11-1 Position

You can directly insert speaker, which we provided.

12. Audio interface



12-1 Position

This interface can be connected to the Raspberry Pi audio interface.