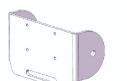


# Assembly Tutorial

## Packing List

	Car chassis		Car top plate
	Car side plate*2		Camera fixed bracket
	Battery fixed plate		65mm Mecanum wheel *4
	RGB Cooling HAT		ROS expansion board
	USB HUB board		Motor*4
	OLED + Acrylic protective board + Wire		USB wireless handle + AAA battery
	Antenna		Motor connect line *4
	Charger		Instruction manual
	MS200 Lidar + Adapter board		Lidar accessory package
	USB3.0 male to USB3.0 male		Micro USB data cable (right-bend)

	XH2.54 flat cable		Battery
	Parts package		Screwdriver *2
	TF card		Card reader
	RDK X5 MIPI camera (For RDK X5 version)		RDK X3 MIPI camera (For RDK X3 version)

## Astra Pro depth camera (Optional)

	Astra Pro depth camera		Camera fixed bracket
	Screw pack		

## RDK X3 Board (Optional)

	RDK X3 board		Serial port module
	Connect line		

## RDK X5 Board (Optional)

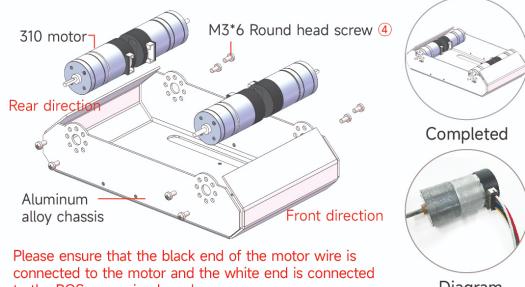


RDK X5 board

## Install Steps

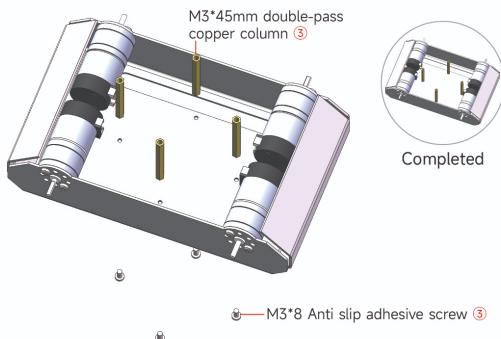
### 1. Install 310 motor

Note: After the installation of this step is completed, check and connect the motor wires properly.

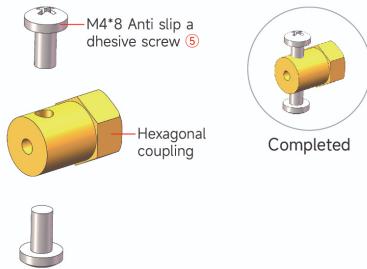


Please ensure that the black end of the motor wire is connected to the motor and the white end is connected to the ROS expansion board.

### 2. Install power supply copper column

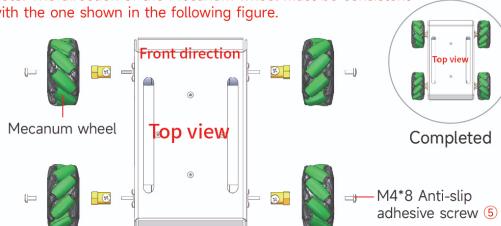


### 3. Install motor coupling



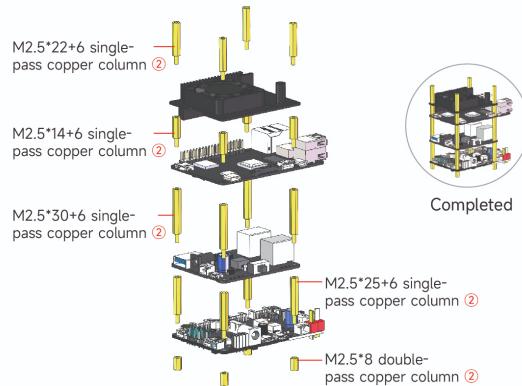
### 4. Install Mecanum wheel

Note: The direction of the Mecanum wheel must be consistent with the one shown in the following figure.

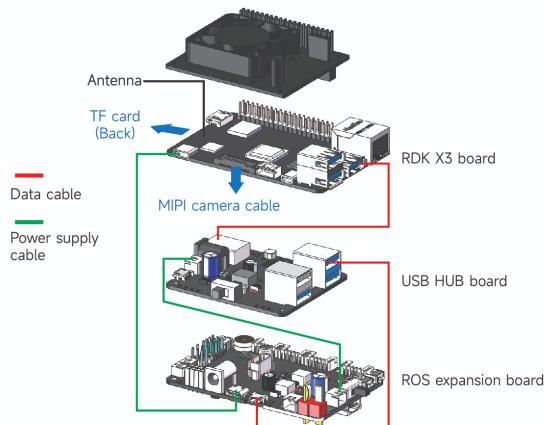


### 5. Install expansion board (Just for RDK X3 version)

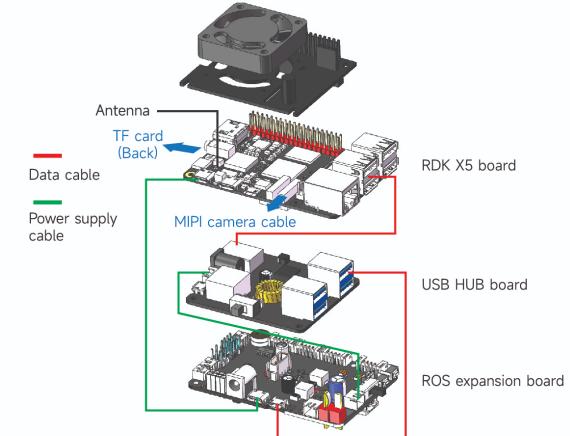
Note: Please ensure that the direction of each PCBA board must be consistent with that shown in the figure below. Connect the data cable, power supply cable, TF card, insert the expansion board and RDK X3 board.



RDK X3 version wiring diagram

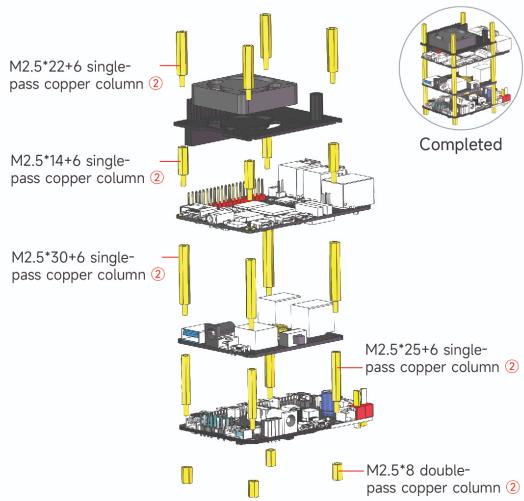


RDK X5 version wiring diagram

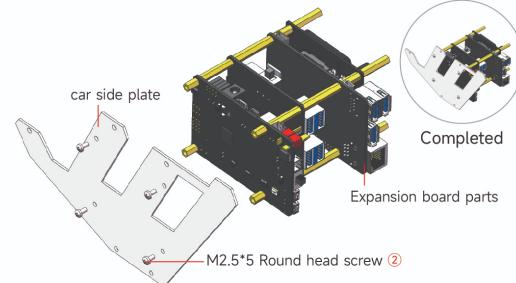


#### 6. Install expansion board (Just for RDK X5 version)

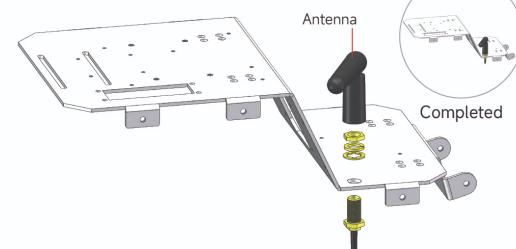
Note: Please ensure that the direction of each PCBA board must be consistent with that shown in the figure below. Connect the data cable, power supply cable, TF card, insert the expansion board and RDK X5 board.



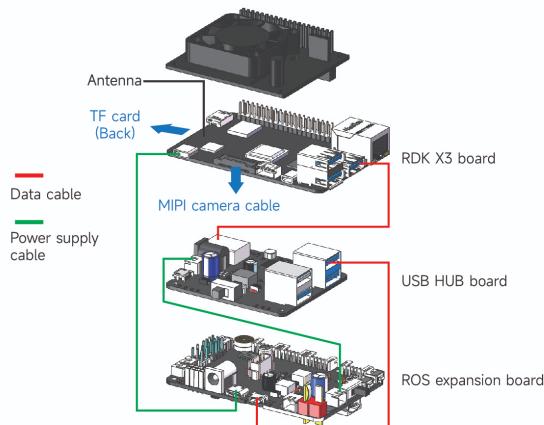
#### 7. Install main control board



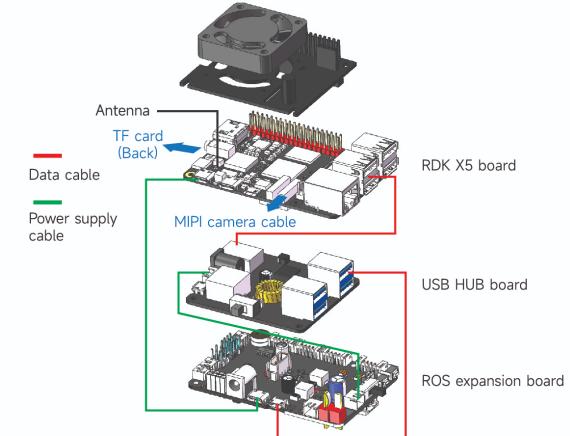
#### 8. Install car top plate and antenna



RDK X3 version wiring diagram

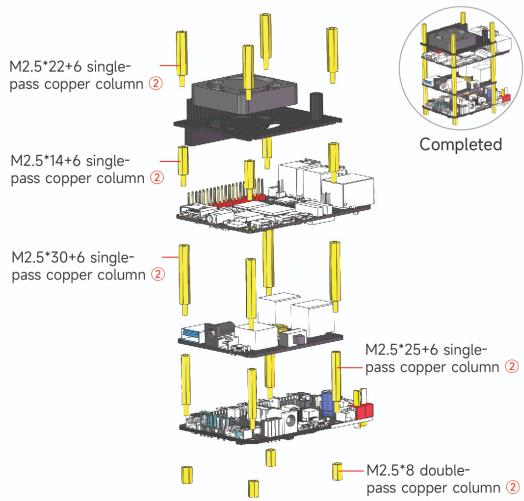


RDK X5 version wiring diagram

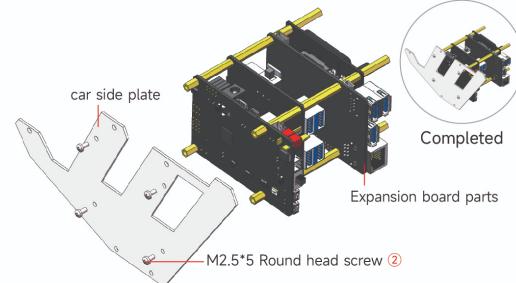


#### 6. Install expansion board (Just for RDK X5 version)

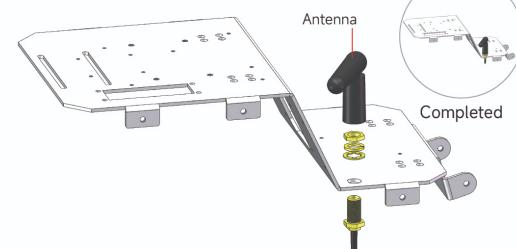
Note: Please ensure that the direction of each PCBA board must be consistent with that shown in the figure below. Connect the data cable, power supply cable, TF card, insert the expansion board and RDK X5 board.



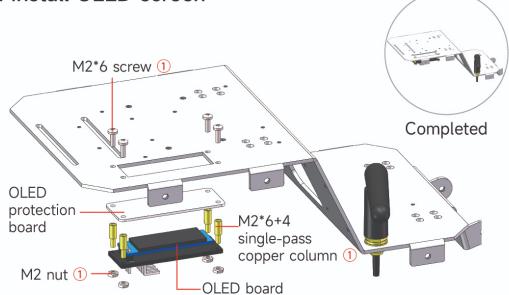
#### 7. Install main control board



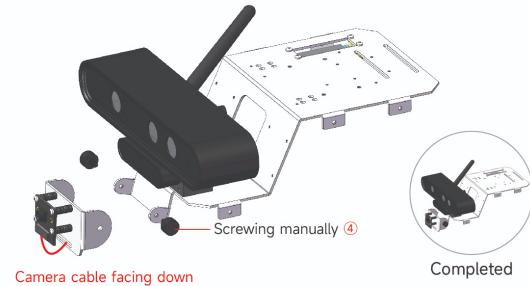
#### 8. Install car top plate and antenna



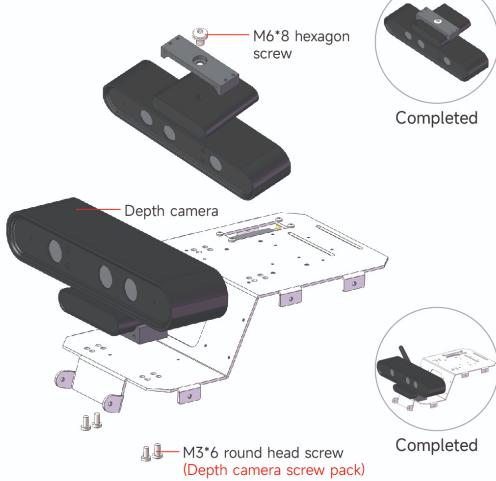
### 9. Install OLED screen



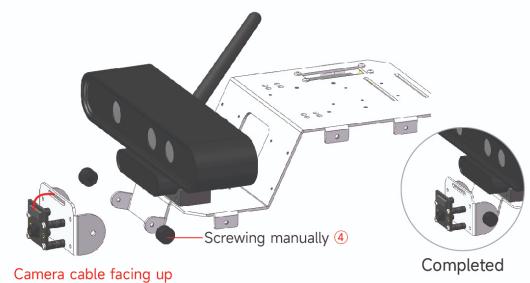
### 12. Install RDX X3 camera part (Just for RDK X3 version)



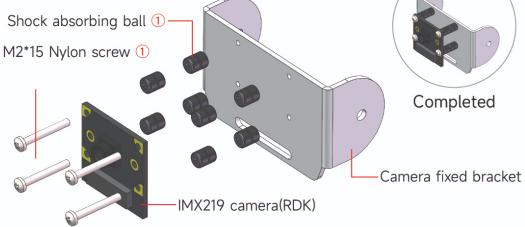
### 10. Install Depth camera(Optional)



### 13. Install RDX X5 camera part (Just for RDK X5 version)

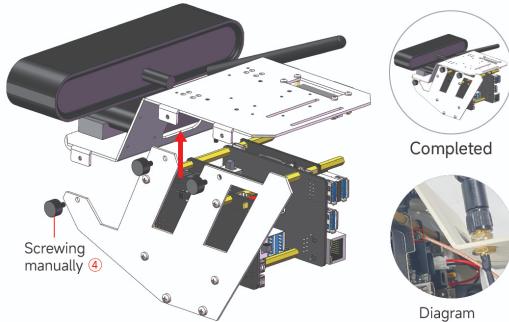


### 11. Install camera parts



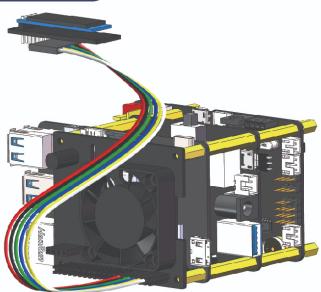
### 14. Install top plate

Note: Connect the antenna, OLED, depth camera and expansion board/main board before installation.

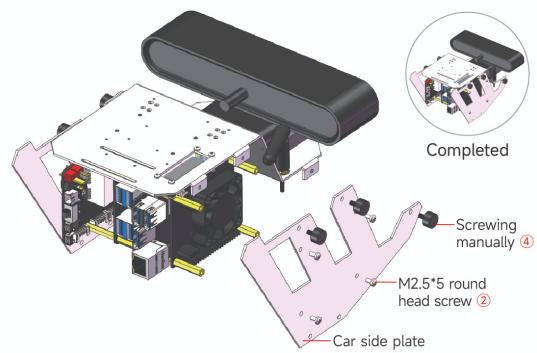


The depth camera cable passes through the hole in the middle of the top plate, and connects to any USB port of RDK-X3/X5 or USB HUB board

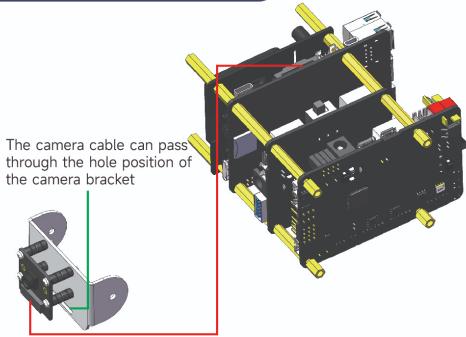
OLED wiring diagram



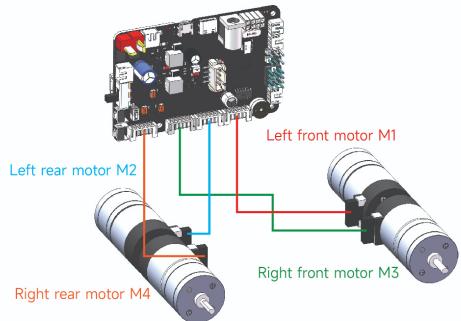
15. Install right side plate



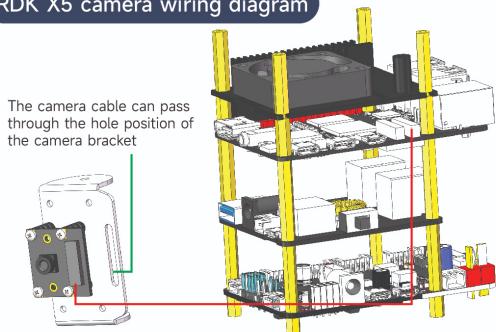
RDK X3 camera wiring diagram



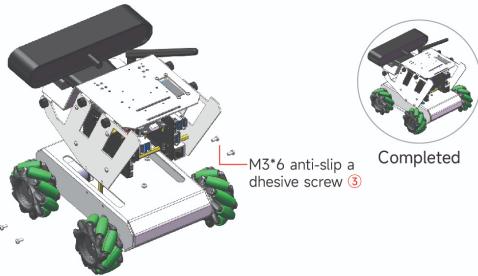
310 motor wiring diagram



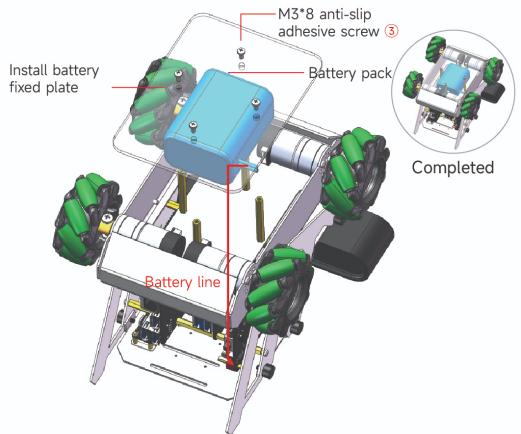
RDK X5 camera wiring diagram



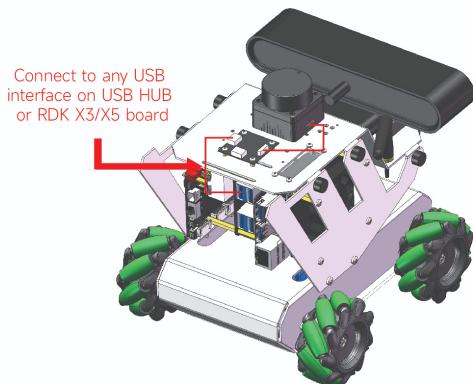
16. Install car body



## 17. Install battery

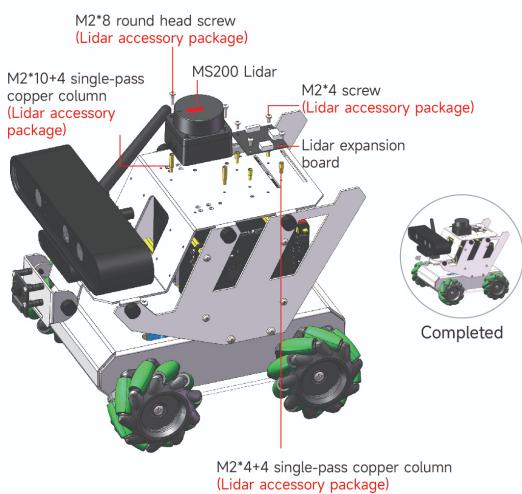


Lidar wiring diagram

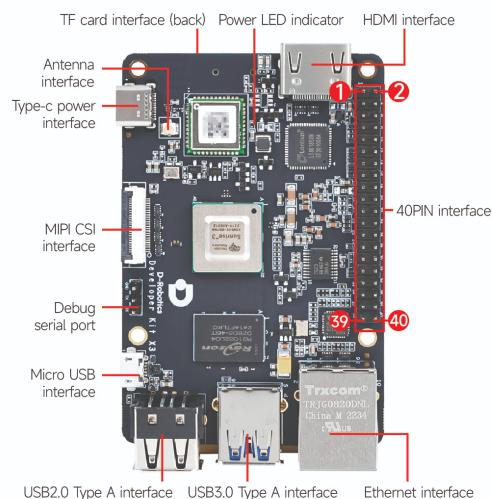


## 18. Install lidar

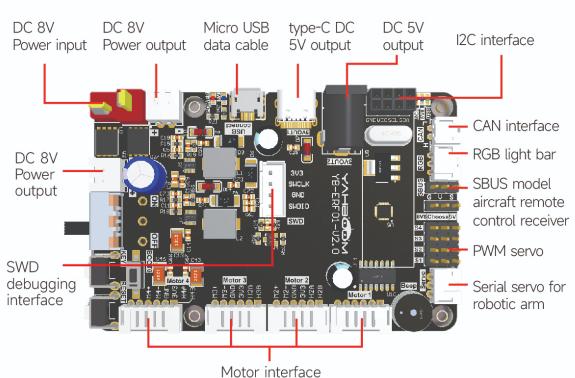
Note: Ensure the lidar is installed correctly with the top arrow pointing straight ahead.



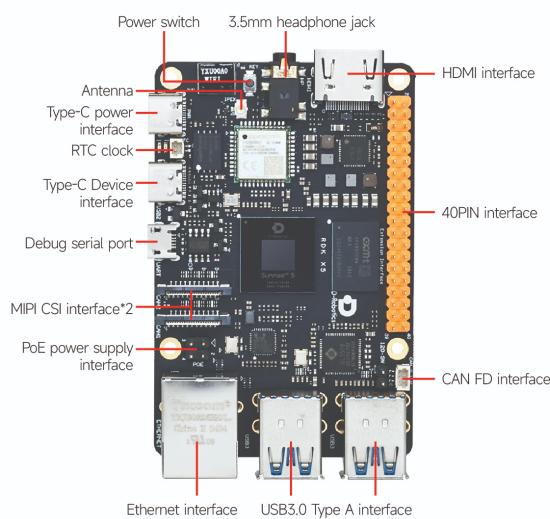
## RDK X3 Board Interface Description



## Expansion board interface description



## RDK X5 Board Interface Description



RDK Pins Comparison Table									
Function description	X3 pin number	BCM code	CVM function name	Physical pin BOARD code	CVM function name	BCM code	X3 pin number	Function description	
3.3V power signal			VDD_3V3	1 2	VDD_5V			5V power signal	
I2C0 data signal	9	2	I2C0_SDA	3 4	VDD_5V			5V power signal	
I2C0 clock signal	8	3	I2C0_SCL	5 6	GND			Ground signal	
I2S0 MCLK clock signal	101	4	I2S0_MCLK	7 8	UART_TXD	14	111	UART3 send signal	
Ground signal			GND	9 10	UART_RXD	15	112	UART3 receive signal	
GPIO6 signal	6	17	GPIO6	11 12	I2S0_BCLK	18	102	I2S0 BCLK clock signal	
GPIO5 signal	5	27	GPIO5	13 14	GND			Ground signal	
GPIO30 signal	30	22	GPIO30	15 16	GPIO27	23	27	GPIO27 signal	
3.3V power signal			VDD_3V3	17 18	GPIO7	24	7	GPIO7 signal	
SPI2 MOSI signal	12	10	SPI2_MOSI	19 20	GND			Ground signal	
SPI2 MISO signal	13	9	SPI2_MISO	21 22	GPIO29	25	29	GPIO29 signal	
SPI2CLK signal	14	11	SPI2_SCLK	23 24	SPI2_CSN	8	15	SPI2 CS signal	
Ground signal			GND	25 26	GPIO28	7	28	GPIO28 signal	
I2S1 BCLK clock signal	106	0	I2S1_BCLK	27 28	I2S1_LRCK	1	107	I2S1 LRCK clock signal	
GPIO119 signal	119	5	GPIO119	29 30	GND			Ground signal	
GPIO118 signal	118	6	GPIO118	31 32	PWM4	12	25	PWM4 signal	
PWM0 signal	4	13	PWM0	33 34	GND			Ground signal	
I2S0 LRCK signal	103	19	I2S0_LRCK	35 36	GPIO3	16	3	GPIO3 signal	
GPIO105 signal	105	26	GPIO105	37 38	I2S0_SDIO	20	104	I2S0_SDIO signal	
Ground signal			GND	39 40	I2S1_SDIO	21	108	I2S1_SDIO signal	

## RDK X3 ROBOT Wiring Diagram

