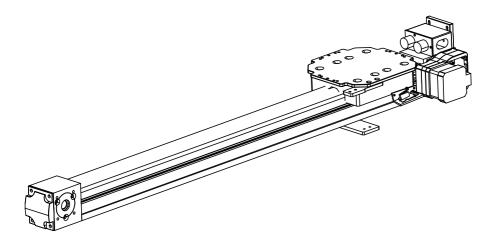


SLIDER

User Manual



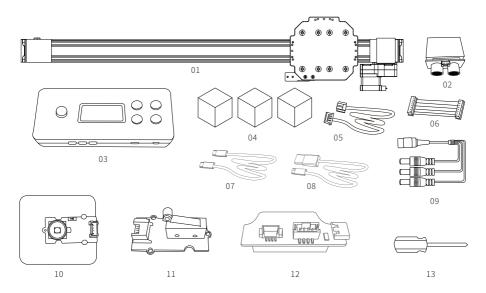
SHENZHEN UFACTORY CO., LTD.

V2.2

Contents

1 Parts List	03
1.1 Hardware —	03
1.2 Software	04
2 System Structure	04
3 Installation Tutorial	05
3.1 Hardware Installation Tutorial —	05
3.1.1 Suite Installation Tutorial	05
3.1.2 Wiring Tutorial ————————————————————————————————————	08
3.2 Software Installation Tutorial	09
3.2.1 uArm controller & uArm Swift Pro firmware writing tutorial ———	09
3.2.2 uArm Swift Pro Firmware Recovery	12
3.3 uArm Slider demo	13

1 Parts List



1.1 Hardware

01.Slider * 1

02.Ultrasonic sensor * 1

03.uArm Controller * 1

04.Target Object (Red Cube, Green Cube, Yellow Cube) * 1

05.Seeed Grove Sensor Cable* 3

06.Slider Motor 8-Pin cable * 1

07.USB Type C Cable * 1

08.USB Cable* 1

09.DC Power Supply 3-in-1 cable * 1

10.Color sensor * 1

11.Limit Switch *1

12.uArm 30P extendable base *1

13.Screwdriver * 1

1.2 Software

1.Arduino IDE

http://www.arduino.cc

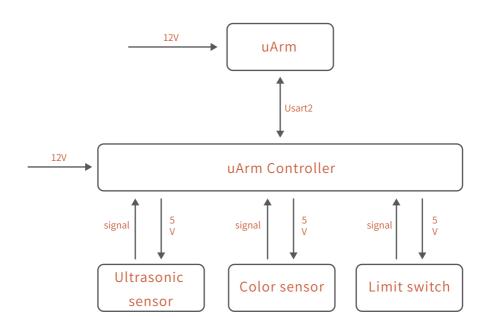
2.Slider.ino for Controller

https://bit.ly/2I8tvvP

3.uArmPro_V4.X.X.hex for uArm

https://github.com/uArm-Developer/SwiftProForArduino/tree/Version_V4.0/hex

2 System Structure



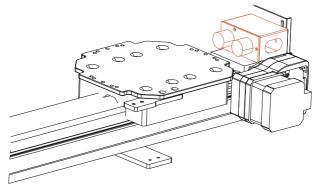
3 Installation Tutorial

3.1 Hardware installation tutorial

3.1.1 Suite Installation Tutorial

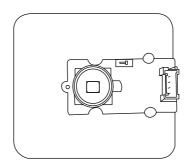
(1) Install the ultrasonic module

The mounting position for the Ultrasonic sensor



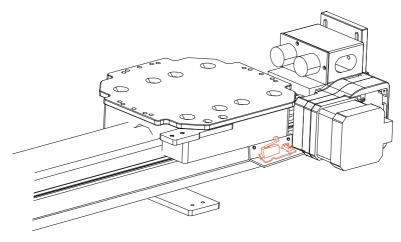
Put the ultrasonic sensor to the corresponding position of the slide rail.

(2) Color sensor



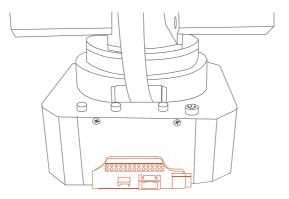
After locking in the position of the color sensor, users may run the system once to observe the gripping position of uArm, and then place the color sensor according to the grabbing position of the uArm.

(3)Limit switch



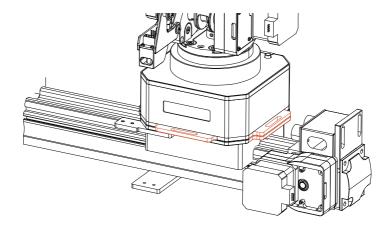
The main function of the limit switch module is to establish the uArm starting point and assist the uArm to reset.

(5) Install uArm 30P extendable base.



Install uArm 30P extendable base to the rear interface on uArm

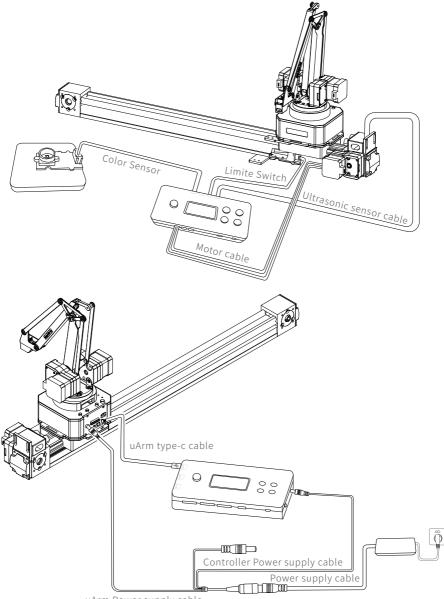
(6)Fix the uArm



Put uArm on the fixing plate of the slider.

3.1.2 Wiring Tutorial

Connecting cables of each module.



uArm Power supply cable

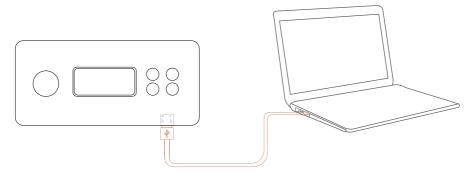
3.2 Software Installation Tutorial

3.2.1uArm controller & uArm Swift Pro Firmware Writing Tutorial

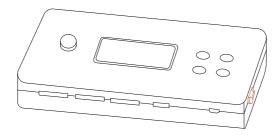
uArm Controller Firmware Writing

The firmware of uArm Controller has been written before leaving the factory. If you need to re-write the firmware, please refer to the following steps.

(1) Connect the uArm Controller to the computer with a USB cable



(2) Turn on the switch



(3) Download XLoader

https://drive.google.com/file/d/1doUByCPryPwEmDFmimSYODYo6s17S3rV/view?usp=sharing

(4) Download the hex(http://bit.ly/2Y36ggB),

click the link(http://bit.ly/32rA0mt)to learn how to download single directory from GitHub.

(5) Open XLoader and select your controller's COM port from the drop down menu on the lower left.

(6) Select the appropriate device from the dropdown list titled "Device".

(7) Check that Xloader set the correct baud rate for the device: 115200 for Mega (ATMEGA2560).

(8) Now use the browse button on the top right of the form to browse to your hex file.

(9) Once your hex file is selected, click "Upload" The upload process generally takes about 3 seconds to finish. Once completed, a message will appear in the bottom left corner of XLoader telling you how many bytes were uploaded. If there was an error, it would show instead of the total bytes uploaded. Steps should be similar and may be done through the command prompt.

X Xloa	_		×
Hex file			
C:\Users\D	evin\D	esktop\S	
Device			
Mega(ATMEG	A2560)		~
COM port	В	aud rate	
COM66	\sim	115200	
Upload		Abor	ut
			:

If you want to change the code in the firmware, you need to download the firmware in the following way:

(1)Download the project slider(http://bit.ly/2JMBM9i),

clickthe link(http://bit.ly/32rA0mt)to learn how to download single directory from GitHub.

(2)Configure Arduino IDE, select the board as "Arduino/Genuino Mega or Mega 2560", Select the COM that allocated randomly by your computer, please refer to the following picture:

(3) Open the "Manage Libraries".

File Edit	Sketch Tools Help					
	Verify/Compile	Ctrl+R				
	Upload	Ctrl+U				
slider	Upload Using Programmer	Ctrl+Shift+U	Ultrasonic.cpp	Ultrasonic.h	color_senor.cp	рр
#inc	Export compiled Binary	Ctrl+Alt+S				
#def	show sketch roider	Ctri+K	.2\11			
exte		3		Δ		
outo	Add File		Manage Librar	ies	Ctrl+Shift+I	
exte			Add 7ID Librar			

(4) Install u8glib.

Library N	Manager					
ype All	~	Topic	A11	~	uSglib	
More info	tar monic	77 nga n	acrystan, 120 ,	r grapnic ai	באומיזי נעטקונין עטקבווטווי זן	
SD1329,	me LCD, (y controller: SSD1305, SSD1306, SSD1309, SSD1322, SSE	
(50108, 5 Successor SSD1606, JC1604, 0 SED1520,	eD1520, of U8glib SSD1607 UC1608, U	C1608, SBN16 Suppo SH11 JC1610	UC1610, UC 61, IL3820, I orted display 06, SH1107, UC1611, U	1611, UC13 MAX7219. controller: SH1108, S IC1701, ST	SH1108, SH1122, T6963, RA8835, LC7981, PCD8544, PCF 701, ST7565, ST7567, ST7588, ST75256, NT7534, IST3020, Interfaces: I2C, SPI, Parallel. Monochrome LCD. OLED an : SSD1305, SSD1306, SSD1309, SSD1322, SSD1325, SSD1 SH1122, T6963, RA8835, LC7981, PCD8544, PCF8812, HXI 7565, ST7567, ST7588, ST75256, NT7534, IST3020, ST79 d interfaces: I2C, SPI, Parallel. Features: UTF8, >700 font:	577920, LD7032, ad eInk Library. 327, SSD1329, 1230, UC1601, 220, LD7032, KS0108,
KS0108, S Successor SSD1606, UC1604, U SED1520, More info U8glib by A library f	GeD1520, of U8glib SSD1607 JC1608, U SBN1661, SBN1661, oliver Ve for monoc	C1608, SBN16 . Suppo , SH110 JC1610 IL382 rsion 1 hrome	UC1610, UC 61, IL3820, I orted display 06, SH1107, , UC1611, U 0, MAX7219.	Controller: SH1108, S C1701, ST Supported LLED	701, ST7565, ST7567, ST7588, ST75256, NT7534, IST3020, Interfaces: I2C, SPI, Parallel. Monochrome LCD, OLED an : SSD1305, SSD1306, SSD1309, SSD1322, SSD1325, SSD1 SH1122, T6963, RA8835, LC7981, PCD8544, PCF8812, HX; 7365, ST7567, ST7588, ST75256, NT7534, IST3020, ST79	5T7920, LD7032, d eInk Library. 327, SSD1329, 1230, UC1601, 520, LD7032, KS0108, s, U8x8 char output.

(5) Press the "Upload" button to upload firmware.



uArm Swift Pro firmware Writing tutorial

Connect uArm Swift Pro to your computer. Open XLoader

and load uArmPro_V4.X.X.hex

download link:https://github.com/uArm-Developer/SwiftProForArduino/tree/Version_V4.0/hex

Click the "Upload" button to upload the code to uArm Swift Pro.

X Xloa	—		×
H ex file C:\Users\T	on vi Dor	- 	
Device Mega(ATMEG		skrop dita	
COM port	B	aud rate	•
COM14 Upload	~ 1	.15200 Abo	
oproad		AD0	

3.2.2 uArm Swift Pro Firmware Recovery

A dedicated firmware has been flashed for uArm Swift Pro, such as firmware is not able to control the robotic arm with uArm Studio. To control the robotic arm with uArm Studio, please restore the firmware as follows:

Connect uArm Swift Pro to your computer, open XLoader and load uArmPro_V4.X.X.hex https://github.com/uArm-Developer/SwiftProForArduino/tree/Version_V4.0/hex Click the "Upload" button to upload the code to uArm Swift Pro.

X Xloa	—		×
Hex file			
C:\Users\T	ony\De	sktop\Ma	
Device			·
Mega(ATMEG	A2560)		~
COM port	В	aud rate	
COM14	~ [115200	
Upload		Abou	ıt
			:

3.3 uArm Slider Demo

A dedicated firmware has been flashed for uArm Swift Pro, such as firmware is not able to control the robotic arm with uArm Studio. To control the robotic arm with uArm Studio, please restore the firmware as follows:

Connect uArm Swift Pro to your computer, open XLoader xloader.russemotto.com/ and load uArmPro_V4.X.X.hex https://github.com/uArm-Developer/SwiftProForArduino/tree/Version_V4.0/hex Click the "Upload" button to upload the code to uArm Swift Pro.

Video Demo:

https://youtu.be/v8YozgnrShk

Note: If the cube is placed on the color sensor, and uArm is not able to grab, it is likely due to the value of the color sensor recognition is inconsistent with the preset color cube value, which makes it impossible to follow the default procedure. You can view the real-time values by uncommenting the following code and connecting the uArm Controller to your computer.

```
void get_color()
{
    r = tcs.read16(TCS34725_RDATAL) / 255;
    g = tcs.read16(TCS34725_GDATAL) / 255;
    b = tcs.read16(TCS34725_BDATAL) / 255;
    r = constrain(r, 0, 255);
    b = constrain(b, 0, 255);
    g = constrain(g, 0, 255);

// Serial.print("r:"); Serial.println(r);
// Serial.print("b:"); Serial.println(b);
// Serial.print("g:"); Serial.println(g);
```

Taking a yellow cube as an example, r, b, and g are the three-color values of the yellow cube read.

r:255 b:96 g:255 Yellow r:255 b:96 g:255 Yellow r:255 b:96 g:255 Yellow

According to the real-time value of the color cube, the following values are changed, R corresponds to the red cube, Y corresponds to the yellow square, and G corresponds to the green cube.

RED, GREEN and BLUE are the three-color values.







UFACTORY_UF



UFACTORY

Website: www.ufactory.cc | Email:info@ufactory.cc Address:2F, Building M-6, Ma Que Ling Industrial Zone, Nanshan District, Shenzhen, Guangdong, P.R. China