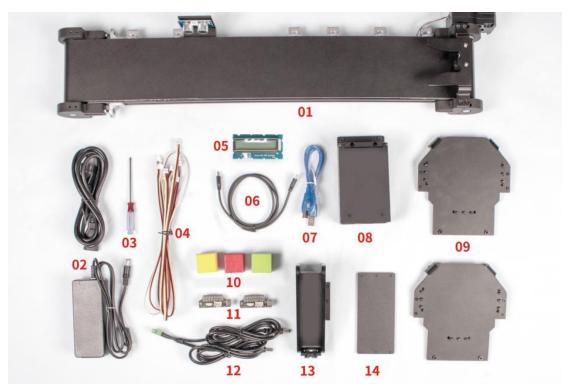
# uArm Conveyor User Manual V1.0.0



### **Part Lists**

### Hardware:

- 1. Conveyor Belt \* 1
- 2. 12V Power Adapter \* 1
- 3. Screwdriver \* 1
- 4. Seeed Grove Sensor Cable \* 4
- 5. LCD \* 1
- 6. USB Type C Cord \* 2
- 7. USB Cable \* 1
- 8. Control Board \* 1

- 9. uArm Swift Pro Stator \* 2
- 10. Target Object (Red & Green & Yellow Cube) \* 1
- 11.uArm 30P Bottom Expansion Plate \* 2
- 12.uArm Power Cable \* 1
- 13.Material Slide \* 1
- 14.Connection Plate \* 1

### Software:

- 1. Arduino IDE
- 2. conveyor belt.ino for Arduino Mega 2560
- 3. <u>UArmSwiftPro\_2ndUART.hex</u> for uArm

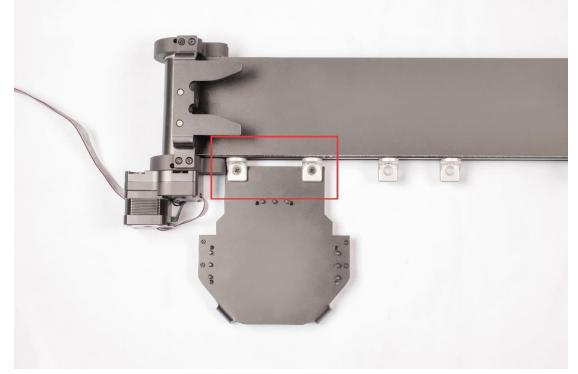
### 1. Software installation

- 1) Download the <u>hex</u>
- 2) Download and extract <u>XLoader</u>.
- 3) Open XLoader and select your uArm's COM port from the drop down menu on the lower left.
- 4) Select the appropriate device from the dropdown list titled "Device".
- 5) Check that Xloader set the correct baud rate for the device: 115200 for Mega (ATMEGA2560).
- 6) Now use the browse button on the top right of the form to browse your hex file.
- 7) Once your hex file is selected, click "Upload" The upload process generally takes about 10 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 is an error, the total bytes uploaded will be shown instead. (Please check if the parameters are the same as shown in the picture below, except COM port may different)

🗙 Xloa	—			$\times$
Hex file	۱. م	1	Var.	
C:\Users\T Device	ony\D	esktop	una	
Mega(ATMEG	42560	0		
COM port	n2000	., Baud r	0 <b>†</b> 0	~
COM14	~	11520		
				_
Upload		, i	About	

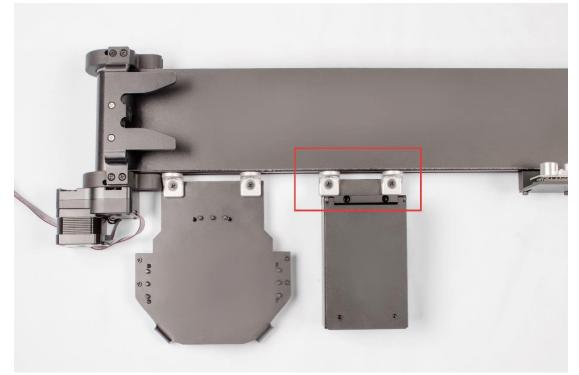
# 2. Hardware installation

1) Install the uArm Stator

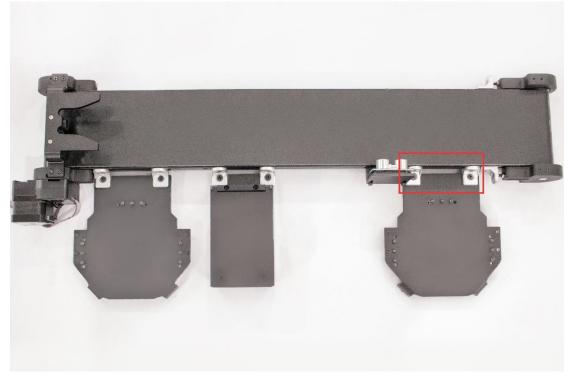


Fix the uArm stator on the conveyor belt.

#### 2) Install Main Control Board



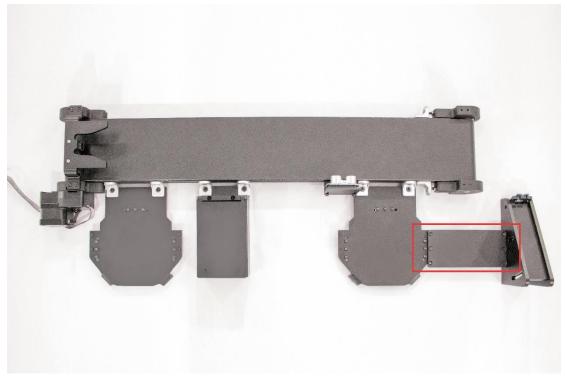
Fix the control board on the base of the conveyor belt.



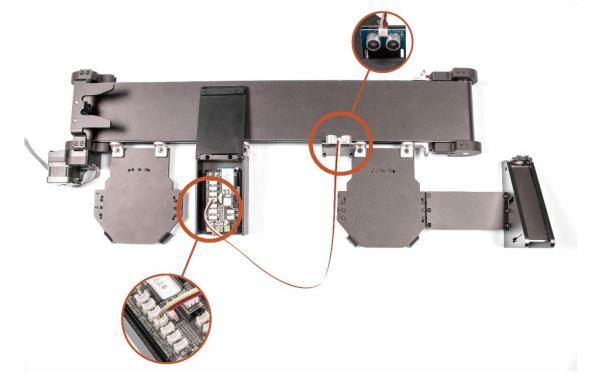
3) Install another uArm Stator

Fix another stator on the conveyor belt.

#### 4) Install the Material Slide



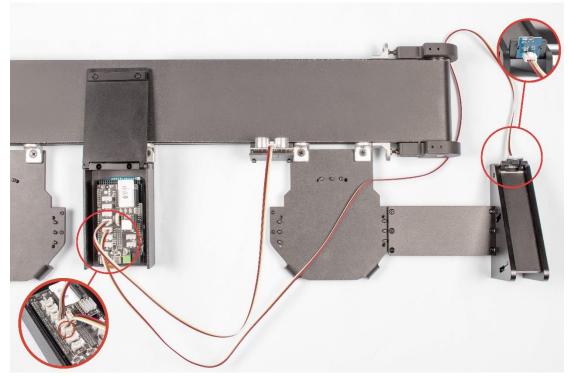
Use the connection plate to connect the stator and material slide.



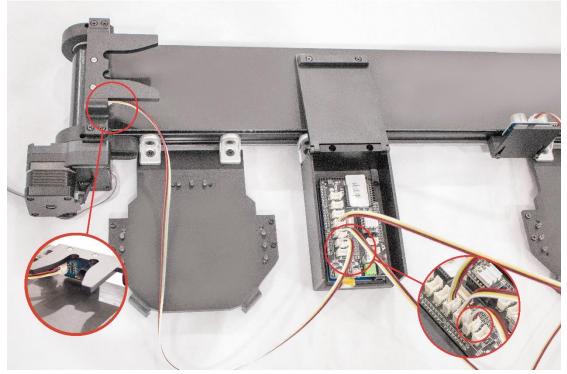
5) Connect the Ultrasonic Sensor

Insert the ultrasonic sensor cable into the D10-D11 port of the control board.

#### 6) Connect the Line Finder



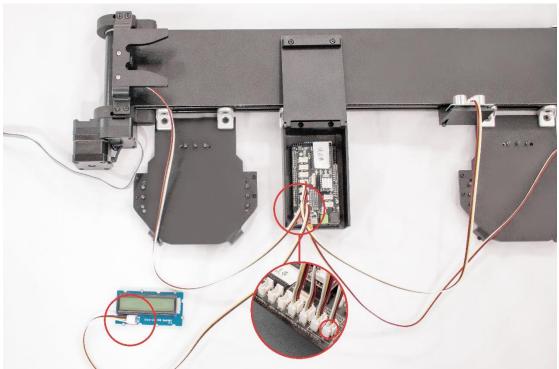
Insert the line finder cable into the D12-D13 port of the control board.



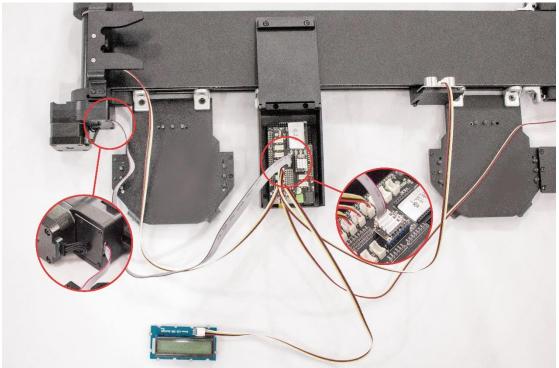
7) Connect the color sensor

Insert the color sensor cable into the IIC port of the control board.

### 8) Connect the LCD



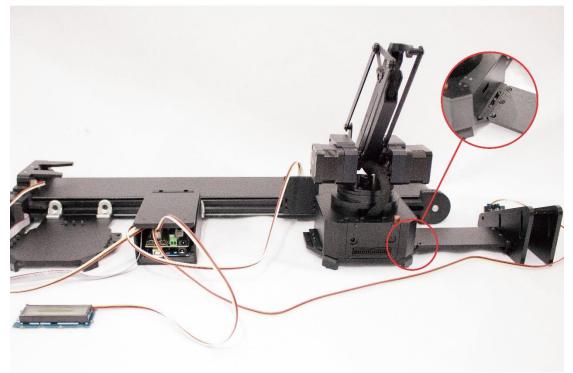
Insert the LCD cable into the IIC port of the control board.



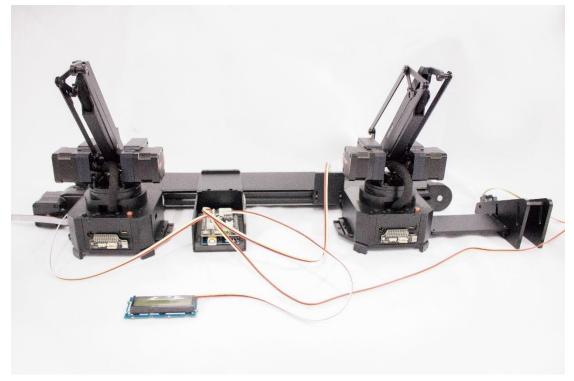
9) Connect the Conveyor Belt

Insert the conveyor belt motor 8PIN cable into the motor drive port of the control board.

#### 10) Install the uArm Swift Pro

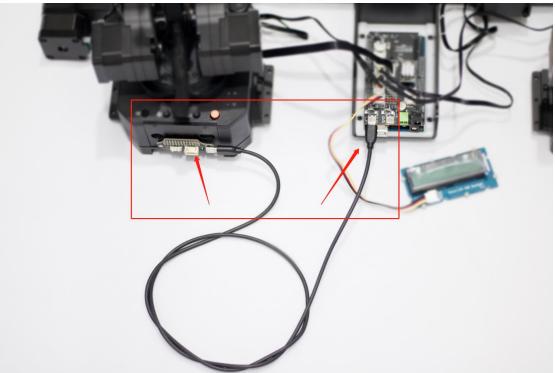


Place the uArm Swift Pro on the stator tightly.

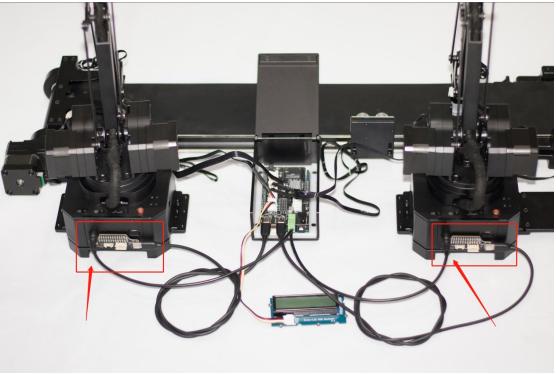


Place the other uArm Swift Pro the same way.

#### 11) Connect the COM of uArm Swift Pro



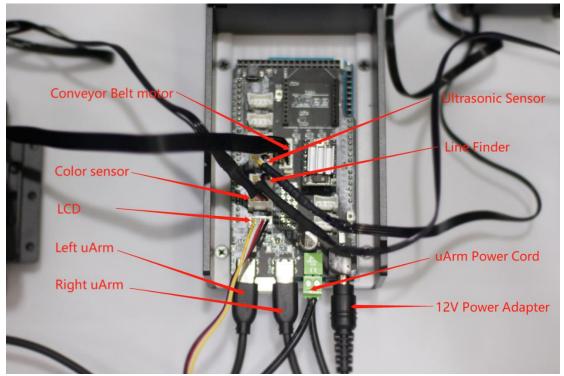
Connect the uArm Swift Pro to the control board with the TYPE-C cable. The TYPE-C interface on the left side of the control board is connected to the uArm Swift Pro on the left, and the TYPE-C interface on the right is connected to the uArm Swift Pro on the right.



#### 12) Connect the Power Supply of uArm Swift Pro

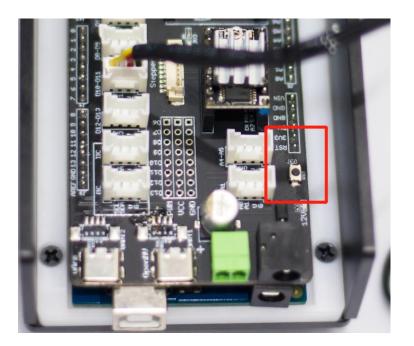
Link the two uArm Swift Pro to the power terminal.

#### 13) Overview



# 3. Operation

- 1) Press the uArm power button
- 2) Use 12V power adapter to power up the whole system
- 3) Press the reset button of the control panel to reset the system



4) Place the color cube on the material slide and wait for uArm to pick it up.

## 4. Video

https://www.youtube.com/watch?v=bnhiZaNqpz8

## 5. Firmware Reset

In the first step, a special firmware for the conveyor belt is added to the uArm Swift Pro. uArm cannot be controlled using uArm Studio. If you want to control uArm using uArm Studio, please follow the following steps to restore the firmware:

- 1. Connect the uArm Swift Pro to your computer, open <u>XLoader</u> and load <u>swiftpro3.2.0.hex</u>.
- 2. Click the "upload" button to upload the hex to uArm Swift Pro.

🗙 Xload —					
Hex file F:\UFactory_project\1.vi Device Mega(ATMEGA2560) ~					
COM <del>grot</del> COM9 ~	Baud rate 115200				
Upload	About				
	.::				

## 6. Note

The firmware Arduino Mega2560 has been set before it shipped. If the firmware need to be re-written, please refer to the following steps:

- (1) Download firmware: <u>conveyor\_belt.ino</u> for Arduino Mega 2560
- (2) Connect Mega2560 to the computer via USB cable.



### (3) Download External libraries

∞ sketch_j	jun20a   Arduino 1.8.5	– 🗆 X
File Edit Sk	etch Tools Help	
	Verify/Compile Ctrl+R	
	Upload Ctrl+U	
sketch	Upload Using Programmer Ctrl+Shift+U	
1 void	Export compiled Binary Ctrl+Alt+S	^
2 //	Show Sketch Folder Ctrl+K	Δ
4 }	Include Library	Manage Libraries
5 6 void 10	Add File	Add .ZIP Library
7 // pu 8 9 }	t your main code here, to run repeatedly:	Arduino libraries Bridge EEPROM Esplora Ethernet Firmata HID Keyboard LiquidCrystal Mouse
	Arduino/Genuino Mega or Mega 2560	Robot Control Robot IR Remote Robot Motor SD SPI Servo

(4) Open firmware in the Arduino IDE and send the firmware to Arduino Mega2560 with the parameters.

💿 conveyor_belt	Arduino 1.8.5		_		×
File Edit Sketch	Tools Help				
	Auto Format	Ctrl+T			Ø
	Archive Sketch				
conveyor_belt	Fix Encoding & Reload				
1 #include <	Serial Monitor	Ctrl+Shift+M			^
2 #include <a< td=""><td>Serial Plotter</td><td>Ctrl+Shift+L</td><td></td><td></td><td></td></a<>	Serial Plotter	Ctrl+Shift+L			
3 #include <w< td=""><td></td><td></td><td></td><td></td><td></td></w<>					
4 #include "r	WiFi101 Firmware Updater				
5 #include "U	Board: "Arduino/Genuino Mega or Me	ga 2560" >			
6 7 #define DEV	Processor: "ATmega2560 (Mega 2560)"				
8 #define SOF	Port: "COM16 (Arduino/Genuino Mega				
9	Get Board Info	· · · · · · · · · · · · · · · · · · ·			
10 rgb_lcd le					
11 Ultrasoni	Programmer: "ArduinolSP.org"	>			
12	Burn Bootloader				
13 enum pick_mo					
14 RED_MODE =					
15 GREEN_MODE 16 YELLOW_MOD					
17 };	2,				
18					
19 Adafruit_TCS	34725 tes = Adafruit_TCS34725(TCS34725_	INTEGRATIONTIME_700MS, TCS34725_GAIN_1X	);		
20					
21 void setup()					
	r setup code here, to run once:				~
		Arduino/Genuino Mega or Mega 2560, ATme	ega2560 (Mega 25)	80) on CC	M16
💿 conveyor_belt	Arduino 1.8.5		_		$\times$
File Edit Sketch	Tools Help				
					Ø
conveyor_belt					
1 #include <p< td=""><td>exiTimer2. h&gt;</td><td></td><td></td><td></td><td>^</td></p<>	exiTimer2. h>				^