# 2019

## Arduino Starter Kit

**Graphical Programming Tutorials** 





## Graphical programming

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## **1- LED Twinkle**

You need to follow the steps below to build blocks.

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Q Actuator					
Monitor					6
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▼ YahBoom	1				
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#### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

LED\*1 (color random)

220Ω resistor \*1

Breadboard \*1

Dupont line \*1 bunch

Actual object wiring diagram:

Negative electrode	1		ED
220 Q Resistor		Pos	sitive electrode
dupont line			Breadboard
rduino UNO board			

Steps of experiment:



1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.





2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.



n folder. D:\YahBoom\arduino-1.8.2\hardware\arduino\avr

n in folder. D:\YahBoom\arduino-1.8.2\hardware\arduino\avr



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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.



6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.





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avrdud avrdud	e: verifying e: 2390 by	tes of fla	sh verified						
avrdud	e done. Th	ank you							
Upload	success!								

7.After the code is uploaded, we can see LED light twinkle every second, as shown in the picture below.





### 2- Analog value

You need to follow the steps below to build blocks.

Blocks	Code	Copyright © Minly Teem@BNU makes from side on	(Timmi Advanced)	50
🚍 In/Out				
Control				
Math				
T Text	Dienal	Write PIN# 10. Stat HIGH .		
Lists	Delay	mt 1 50		
💡 Logic	Dietal	Vote PDVs of 10.1		
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🧳 Sensor				
Actuator				
U Monitor				
😴 Variables				
$\downarrow$ 2 Functions				
▶ YahBoom				

#### List of component :

Arduino UNO board \*1

USB cable \*1

LED\*1 (color random)

220Ω resistor \*1

Breadboard \*1

Dupont line \*1 bunch

#### Actual object connection diagram:

We need to connect the circuit as shown in the figure below.





#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



A5



2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

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4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.

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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.

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6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



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Documents\Arduino'	\libraries\libraries;	C:\Users\Administrator	\Documents\Arduino\libra
builder -dump-prefs	-logger-machine	-hardware D:\YahBoom	\arduino-1.8.2\hardware -



7. After the code is uploaded, we can see LED light twinkle at intervals of 0.05 seconds, as shown in the picture below.





## **3- Key light**

You need to follow the steps below to build blocks.

🙀 Blocks	Code	Copyright © Mixely Team@BNU mahar.htm.ada m
In/Out	Î	
Control		
Math	LED	Port II Set OFF
T Text		
Lists	o if it is	
P Logic	• н в	Port 7 Pressed
🤌 SerialPort		
Communicate	do LED	Port 11 Set ON
🥐 Sensor		111
Actuator		

#### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

LED\*1 (Color random)

220Ω Resistor \*1

10kΩ Resistor \*1

Key switch \*1

Breadboard \*1

Dupont line \*1 bunch

Actual object connection diagram:

We need to connect the circuit as shown in the figure below.





#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



LED Port 11 Y OFF Button Ort 7. Pre-	ssed
3 3	
4 4	
5 5	
6 6	_
9	
10	
17	
13 13	
A0 0A	
A1 A1	
A2 A2	
A3 A3	
A4 A4	
A5 A5	
In/Out	
scrup	
Control	
Math	
Text end program	
Late	
Logic Daby ms 1 1000	
Seriairon	
Communicate	
🖑 Sensor do	
Actuator	

2.You need to combine the selected blocks, as shown in the figure below.





3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.



5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.



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P B	uetooth Se	erial Port (C	OM16)							
- 17 B	uetooth Se	erial Port (C	OM17)							
- TP 8	uetooth Si	erial Port (C	OM18)							
- 17 B	uetooth Se	erial Port (C	OM19)							
-17 B	uetooth Se	erial Port (C	OM20)							
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1 8	uetooth Se	erial Port (C	OM22)							
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6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



New	Open	Save	Save as	Export	Import	Manager	Compile	Upload
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avrdude	verifying	l	- h					
avrdude avrdude	verifying 2190 by	tes of fla	sh verified					

7. After the code is uploaded, when the button is pressed, the LED light will be on, and the LED light will be off when the button is released, as shown in the figure below.

YAHBOOM





## **4- Advertising lights**

You need to follow the steps below to build blocks.

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Blocks Code	Copyright © Mindy TransgBS(1) analor framedra or
In-Out	LED THE PART (2. SHE ONLY)
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) Math	Duty ment a 2000
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Lists	Date: mill 1 100
Logic	11.0 2.0 (2.1 Set OFFER
SerialPort	
Communicate	LED 2m UK* Se 5000
Sensor	Data (mm.2)   9000
Actuator	LED Part (St. Sec. 033)
Monitor	
Variables	
Functions	Division and a BOOD
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	District and a second
	LZD
	Dalay (888.22 + 1000)
	LED For COLUMN

#### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

LED\*6 (Color random)

220Ω Resistor \*1

Breadboard \*1

Dupont line \*1bunch

#### Actual object connection diagram:

We need to connect the circuit as shown in the figure below.



#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.







2. You need to combine the selected blocks, as shown in the figure below.





3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

			1.2				YA	Had
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload

t

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.

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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.

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Comptie successi				

6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



++" -c -g -Os -w -std=gnu++11 -fpermissive -fno-exceptions -ffunctionino-1.8.2\libraries\YahBoom\YahBoom\_4WDCar.cpp

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ceading	Innannn	******	******		*******	**********	100% 0.325	

Jpload success!

7. After the code is uploaded, we can see that 6 LED lights are turned on successively and then turned off successively, as shown in the figure below.





### **5- Traffic lights**

You need to follow the steps below to build blocks.



#### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

LED\*3 (Color random)

220Ω Resistor \*3

Breadboard \*1

dupont line \*1bunch

#### Actual object connection diagram:

We need to connect the circuit as shown in the figure below.

Negative electrode short pin	x::::@::@::@::@	LED		
		Positive	electrode	
200 Registor		long pin	crectrone	
	_			
t line		brea	iboard	
	. : 00	UNO		
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		<u>UNO</u>		

#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.







2.You need to combine the selected blocks, as shown in the figure below.

LED Port 4 Set ON 3
Delay ms 1 1000
LED Port 7 Set ON
LED Port 4 Set OFF
Delay ms 1 200
LED Port 10 Set ON
LED Port 7. Set OFF
Delay (ms ) 1000
LED Port 10 Set OFF

3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

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4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.



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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.

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P Bluetooth Serial Port (COM16)								
P Blueto	oth Serial Por	t (COM17	7)					
- Blueton	th Serial Por	t (COM18	9					
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6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.

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avrdude avrdude avrdude Upload	: verifying : 2492 by done. Th success!	tes of fla nank you.	sh verified						

7. After the code is uploaded, we can see that the red light is on for 1 second, the yellow light is on for 0.2 seconds, and the green light is on for 1 second, as shown in the figure below.

YVHBOOM





## 6- Answering machine

You need to follow the steps below to build blocks.



Arduino UNO board \*1

USB cable \*1

LED\*3 (Color random)

220Ω Resistor \*3

10kΩ Resistor \*3

Key switch \*3

Breadboard \*1

Dupont line \*1bunch

#### Actual object connection diagram:

We need to connect the circuit as shown in the figure below.





#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2. You need to combine the selected blocks, as shown in the figure below.





3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.





5.After the code is uploaded, when different buttons are pressed, the LED lights of different colors will be turned on and the LED lights will be extinguished when the button is released, as shown in the figure below.





## 7.1- Active buzzer

You need to follow the steps below to build blocks.

Math	
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💡 Logic	
🔎 SerialPort	Delay ms 200
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🧳 Sensor	Diazer in Fort of Set No Deep
Actuator	
Monitor	Delay ms 200
🚭 Variables	
🗠 Functions	
▼ YahBoom	
Arduino_ARSenser	
▼ Arduino_ARCar	

List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

220Ω Resistor \*1

Active buzzer \*1

Breadboard \*1

Dupont line \*1bunch

Actual object connection diagram:

We need to connect the circuit as shown in the figure below.

Note: The active buzzer has positive and negative electrode. The actual object diagram below shows that the buzzer has positive and negative marks.




		Passive buzzer
Negative electrode	T	
220 <sup>Q</sup> Resistor	Pos	itive electrode object is tagged with +
dupont line	<u> </u>	<u> </u>
		Breadboard
		Arduino UNO board
	B	
		III II

Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.





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		✓ Beep
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2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

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4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.



Buz Dela Buz Dela	zer ıy ms zer		Po Po DO	rt () 8	Se Se Se Se	et Beep	eep T		
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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.

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1.494.15070357/





6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.





4. After the code is uploaded, we can hear the buzzer sound every 0.2 seconds. As shown in the following figure.





# 7.2- Passive buzzer music

You need to follow the steps below to build blocks.



#### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

220Ω Resistor \*1

Passive buzzer \*1

Breadboard \*1

Dupont line \*1bunch

Actual object connection diagram:

We need to connect the circuit as shown in the figure below.

Note: The passive buzzer has positive and negative electrode. The actual object diagram below shows that the buzzer has positive and negative marks.





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*****************		····· Positiv	e electrode
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#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.



Jpload		
Jbi		

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.



5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.





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6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



7. After the code is uploaded, you can hear the buzzer is playing music.



# 8- PWM dimming

You need to follow the steps below to build blocks.

Blocks	Code	$\subset qry right \equiv 55$	inty $\operatorname{Term}(\underline{g}(W, G))$ under here where	animal /
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C Monitor				
🕙 Variables				
In Functions				
▼ YahBoom				

### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

LED\*1 (color random)

220Ω resistor \*1

Breadboard \*1

Dupont line \*1 bunch

## Actual object wiring diagram:





#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.







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er Sensor			
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Ch is a second			
Variables			
+* Functions			

2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

<[] ()							$\forall \wedge$	HBOOM
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload

4. After the compilation is completed, the word "**Compile success!**" will appear in the lower left corner, indicating that you have successfully compiled the program.

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anager	-	Q	Compile	U	oload	Arduino/C	lenu/no	
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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and **Arduino/Genuino Uno.** As shown in the figure below.



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#田口经傳活的文件。D-YabBoom/mixty@uld/core/WMath.com.o	## 313(#(39)7(2) D1) VabRoom) mitch-Suild) core W	dath con o					_
NET COMPONENT TALE IN STRUCTURE PROVIDE DE CONTRE	使用已经编译的文件: D:\YahBoom\mixiyBuild\core\ma	lin.cpp.o					
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Linking everything together... "D'\YahBoom\arduino-1.8.2\hardware\tools\avr/bin/avr-ocr" -Os -n -fito -fuse-linker-plunin -WI --or-sections -mmcuisatmeoa328n -n "mixivBuild/te

6. After the selection is completed, you need to click "**Upload**" to upload the code to the Arduino UNO board. When the word "**Upload success**" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.

New	Open	Save	Save as	Export	Import	Manager	Compile	Upload	Arduinc
使用已经经使用日已经 使使用日已已经 Linking "D:\Yahil "D:\Yahil "D:\Yahil "D:\Yahil "D:\Yahil "D:\Yahil "D:\Yahil "D:\Yahil	编译的文件 编译的文件 编译的文件 编译的文件 编译的文件 soom\ardi Boom\ardi Boom\ardi Boom\ardi Boom\ardi 7 1030 字 success!	: D.\Ya : D. Ya : D.\Ya : D.\	hBoom\mii hBoom\mii hBoom\mii hBoom\mii hBoom\mii r 2\hardwa 2\hardwa 17 (3%) 程J 的动态内存,	xlyBuild\c xlyBuild\c xlyBuild\c xlyBuild\c xlyBuild\c xlyBuild\c xlyBuild\c re\tools\a re\tools\a re\tools\a ?存储空间 余留2039	ore\WMat ore\WStri ore\abi.cp ore\main ore\new.c ore\core. wr/bin/av wr/bin/av wr/bin/av o最大为: 空节局部	th.cpp.o ng.cpp.o .cpp.o cpp.o a //-gcc" -Os -g //-objcopy" -O 32256 字节。 变量。最大为204	-fito -fuse-linker- hex -J .eeprom ihex -R .eeprom "i 8字节。	plugin –WI,– set–section–f mixlyBuild/te	-gc-sectio lags = .eep stArduino
upload	Compile	() M6 "D \	Jpload	Arduino, i	Senoino U o/testArd	nia			



7.After the code is uploaded, we can see that the LED slowly cycles from dark to light to dark, and it keeps looping. As shown in the figure below.





# 9- Light controlled sound

You need to follow the steps below to build blocks.

=	In/Out	14							
-	Control								
0	Math	0	if Photose	asitive sensor		PIN# A0 *			
T	Text				August and				
۲.,	Lists	de		10000	- Design of		and the	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	- Contracting
•	Logic		Buzzer	<b>D</b>	6 * 11	equency(0~255 Hz)	200	Delay Time(ms)	10000
1	SerialPort		<u> </u>						
×	Communicate								
3	Sensor								
0	Actuator								
	Monitor								

List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

Photosensitive resistor \*1

Active buzzer \*1

Breadboard \*1

Dupont line \*1bunch

Actual object connection diagram:

We need to connect the circuit as shown in the figure below.

*****		Active buzzer
Negative electrod		Positive electrode The object tagged with
		@
	a na ala i	Photosensitive resisto
dupont line		Breadboard
		Arduine UNO board
	The Arguing	

Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2. You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.

	Compiling							
					Cancel			
ensitive	sensor		PD	N# 🚺 A	V0 🔺			
A	Port	6*	Freque	ney(0~2	55 Hz)	200		
-	1994.	-	(passer)	( non-sec	10-10-1			
raries\libr	aries: C:\U	sers\Admi	nistrator\D	ocuments	\Arduino\I	braries\1		
		(2)					110	
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload
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5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.



·····································						
文件(F) 播作(A) 查看(V) 帮助(H)						
¢ ●   □   <mark>0</mark> □   ≪						
A 🚠 Xiaozhen						
● Car IDE ATA/ATAPI 控制器						
💿 🔮 Jungo Connectivity						
医 医 國家 动脉						
▲ 「管 第日 (COM 和 LPT)						
- 17 Bluetooth Serial Port (COM15)						
- 1 Bluetooth Serial Port (COM16)						
- 🐨 Bluetooth Sevial Port (COM17)						
Bluetooth Serial Port (COM18)						
- 1 Bluetooth Serial Port (COM19)						
- Port (COM20)						
Bluetooth Serial Port (COM21)						
- 1 Bluetooth Serial Port (COM22)						
Port (COM23)						
명 USB-SERIAL CH340 (COM6)						
🕞 🚰 计算机						
The second	Control In	Protect I	Carthurse of Baselines Lines	- 21	COME	
neve open ome oceas coponi ampori esenager	Cosmpile	Matonia	wround) Genuino Ono		COMO	
来使用1 D \YahBoom\arduino-1.8.2\libraries\RobotiRremote						
使用库 YahBoom 在文件夹: D \YahBoom\arduino-1.8.2\libraries\YahBoo	m (legacy)					
使用庫 IRremote 在文件実: C.\Users\Administrator\Documents\Arduino\	libraries\IRremote (	(legacy)				
與國家用J 2390 子节, 凸用J (72) 程序仔癀呈周。 載天月 32220 子节。 全國委任使用了380空节, (1800前法亦內存, 余留1659空节局務委員, 最大为2	048宝带。					
Compile success!	2.1.1.1.1.1					

6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.





7. After the code is uploaded. When the photoresistor receives illumination, you can hear the buzzer sound. When the light is removed, the buzzer does not sound. The reason for this phenomenon is that the light change the resistance of the photoresistor.





# **10- Sensible heat light**

You need to follow the steps below to build blocks.



### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

Negative temperature coefficient Thermistor\*1

220Ω resistor \*1

10kΩ resistor \*1

LED \*1

Breadboard \*1

Dupont line \*1 bunch

#### Actual object connection diagram :

We need to connect the circuit as shown in the figure below.





#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.







Blocks	Code	Copyrig
In/Out	Declare Sitem	as ante value 1
Control		
🕣 Math	Dint C	
T Text	(m) -	
Lists	D Wal	
💡 Logic		
🕖 SerialPort		
Communicate		In Dert sta
🤌 Sensor		
Actuator		
Monitor		
🔇 Variables	21	
E. Functions	(C) +	

2.You need to combine the selected blocks, as shown in the figure below.

Serial * band rate 1 9600	
Declare (val) as long value	hermosensitive sensor
Thermosensitive sensor	PIN# 0 AO -
val 450 - Val	
do val 0	
AnalogWrite PIN# 11 value	wal
Serial v printin val	
Delay ms	

3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

New Open Save Save as Export Import Manager Compile	
and a second instruction instruction instruction instruction instruction in the second second in the second s	Jpload
	Jpload

4. After the compilation is completed, the word "**Compile success**!" will appear in the lower left corner, indicating that you have successfully compiled the program.



Constraint							
The			Cancel				
450	3						
Vrite PIN# 0 11	value	(val					
1.8.2\bardware\ar	Compile	Upload	Armino/	entinto Uno			
		0.050					
New Open	Save	Save as E	xport Impo	rt Manager		Compile	Upload
"D:\YahBoom\a "D:\YahBoom\a 项目使用了 2576 全局变里使用了 1 Compile succes	rduino-1.8.7 rduino-1.8.7 字节,占用 90字节,(9% s!	?\hardware\ ?\hardware\ ?(7%)程序存 》的动态内存,	tools\avr/bin tools\avr/bin F储空间。最大: 余留1858字节	/avr-objcopy /avr-objcopy 均 32256 字节 問部交里。最	" -O ihex -j . " -O ihex -R 。 大为2048字节	eeprom –-set-sec eeprom "mixly8u to	tion-flags=. IId/testArdu

5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and **Arduino/Genuino Uno.** As shown in the figure below.



6. After the selection is completed, you need to click "**Upload**" to upload the code to the Arduino UNO board. When the word "**Upload success**" appears in the lower left corner,



the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.

	Open			Export Import		Corr	ipile Uph	bad	Arduino/Genuino Uno	)	COME	-
使用已约 Linking 'D:\Yah 'D:\Yah 'D:\Yah 項目使用 全局容量 Compile	續译的文片 everythin Boom\ard Boom\ard Boom\ard 17 926字 使用了9字 t success!	#: D\Yal g togethe uino-1.8 uino-1.8 幣,占用了 幣,占用了 幣,(0%)	iBoom\mixi\ r 2\hardware 2\hardware 2\hardware 7 (2% 程序存 9(由态内存, 5	/Build\core\core. \tools\avr/bin/av \tools\avr/bin/av \tools\avr/bin/av discal=最大为 32 X協2039字节局部	4 r-gct" -Os -g r-objcopy"-O r-objcopy"-O (256 字性。 定量。最大为20	g -fito -fuse-li ihex -j eepro ihex -R eepr 48字节×	nker-plugin -W mset-sectio om *mixtyBuild,	l,gc-t n-flags /testArc	sections -mincu-atmega32 «.eeprom-alloc,loadno- duino.ino.elf" "mixtyBuild/te	8p -oʻ change IstArdui	'mixtyBuild -warnings no.ino.hex	i/testA chai
Nev	v   d	Open	Save	Save as	Export	Import	Manager		Con	npile		Upic
Read avrd avrd avrd	ting   # ude: ve ude: 2 ude do	erifying 576 by one. T	tes of fl hank you	ash verified	****	******	*****	****	###   100% 0.32s			

4. After the code is uploaded. When we do not heat the thermistor, the LED extinguish. When we heat the thermistor, the LED will bright, and the brightness of the LED will change with the change of the heat of the thermistor. At the same time, we can open the serial port monitor, and we can also see the change of resistance of photoresistor, as shown in the following figure.





# 11-8x8 lattice

You need to follow the steps below to build blocks.

A DATE	0.000			-		-		
In Out								
Control								
🗿 Math								
Text								
Inti	LED ALLMINT	terter second						
Logic		¢.	Panen	L HITLY	1 2013	ihie	LedAr	my:
SecialPort								
Communicate						2		
<sup>b</sup> Sensor			2					
Actustor			22			2	88	
J Monitor					ž	н		
Variables					ø			i.
- Functions								

#### Introduction of 8x8 dot matrix:

The 8x8 lattice is composed of 64 LED, and each LED is placed at the intersection of line and line. When one line is high level(1) and a column is low level(0), the corresponding diode will be bright. If you want to light up the first line, the ninth pin need to high level, and (13, 3, 4, 10, 6, 11, 15, 16) these pins are low level. If you want to light up the first column, the thirteenth pin need low level, and (9, 14, 8, 12, 1, 7, 2, 5) these pins are low level.

Pin identification as shown in the two figures below



#### List of components required for the experiment:

Arduino UNO board \*1 USB cable \*1 220Ω resistor \*8 8x8 dot matrixLED\*1 Breadboard \*1 dupont line \*1bunch

#### Actual object connection diagram :

We need to connect the circuit as shown in the figure below.



### Steps of experiment:

1.You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2.You need to combine the selected blocks, as shown in the figure below.





3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

			1.2				_	
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload

4. After the compilation is completed, the word "**Compile success!**" will appear in the lower left corner, indicating that you have successfully compiled the program.

Comp	oiling		-	Canad	Tay ray	1		
			j.	Can	cel			
1	111	11	<b>V</b> V					
		V 0	8 🗸	11	//			
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	an.			A Course	NULL AND ADDRESS OF	Second second		
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hachine	-hardware	e D:\YahB	oom\arduli	10-1.8.2\	hardware -	tools D:\\		
New	Open	Save	Save as	Export	Import	Manager	Compile	Un
								Card a



5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and **Arduino/Genuino Uno.** As shown in the figure below.



2. 设备管理器				
文件(F) 操作(A) 查看(V) 帮助(H)				
** • [ m ] 🖬 m   44				
🖌 🔤 Xiaozhen				
▶ Call IDE ATA/ATAPI 控制器				
Aungo Connectivity				
□ 处理時				
2 二				
本型 調口 (COM 和 LPT)				
- P Bluetooth Serial Port (COM15)				
Bluetooth Serial Port (COM16)				
- P Bluetooth Serial Port (COM17)				
- TP Bluetooth Serial Port (COM18)				
Port (COM19)				
- Bluetooth Serial Port (COM20)				
- Port (COM22)				
Paluetooth Serial Port (COM23)				
USB-SERIAL CH340 (COM6)				
- "曾 通信跳口 (COM1)				
▶ 1乗 计算机				
internet income internet statement internets i	And in case of the local division of the	ALC: NO.		 
New Open Save Save as Export Import Manager	Compile	Upload	Arduino/Genuino Uno	COM6 -
末使用1 U (YahBoom\arduino-1.8.2\libraries\firmware_online15.0/15 未使用1 D (YahBoom) arduino-1.8.2\libraries\SobotExempts				
使用版 YahBoom 在文件夹: D \YahBoom\arduino-1.8.2\libraries\YahBoom	(legacy)			
使用库 IRremote 在文件类: C.\Users\Administrator\Documents\Arduino\lit	araries\iRremote	(legacy)		
※回変用 J 2390 子市, 西南 J (7月 桂永仔額空間。 載大月 32230 子市。 全国変量使用 7 389空节,(1880)338内存。余留1659空节島部変量。最大为200	18371			
Compile successi	1999-1999-1999-1999-1999-1999-1999-199			

6. After the selection is completed, you need to click "**Upload**" to upload the code to the Arduino UNO board. When the word "**Upload success**" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



7. After the code is uploaded.We can see that the word "中" is displayed on the 8\*8 dot matrix.



# **12-Tilt switch**

You need to follow the steps below to build blocks.

Lists	LED Port ST Set OFF
<ul> <li>SerialPort</li> <li>Communicate</li> </ul>	if Tilt switch Port (AST Tilt T
<ul> <li>Sensor</li> <li>Actuator</li> <li>Monitor</li> </ul>	de LED Port Set ON T
Variables	

List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

 $220\Omega$  resistor \*1

 $10k\Omega$  resistor \*1

Tilt switch \*1

Breadboard \*1

Dupont line \*1 bunch

## Actual object connection diagram :

We need to connect the circuit as shown in the figure below.







#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2. You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

< ( ) ×							_	YVF	DM
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload	

4. After the compilation is completed, the word "**Compile success!**" will appear in the lower left corner, indicating that you have successfully compiled the program.

	Compilin	9	-		Cancel			
do	LED	<b>†††</b>	Port	8*	er ON S			
atter	9	Q con	igale	Uplead	(Links	a/j====		
				/testArdu	ino ino"			
ildv	erify "D:\Y	ahBoom/t	estArduino	100304144				
uildv New	erify "D.\Y Open	ahBoom/t Save	Save as	Export	Import	Manager	Compile	Upload

5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and **Arduino/Genuino Uno.** As shown in the figure below.



I



6. After the selection is completed, you need to click "**Upload**" to upload the code to the Arduino UNO board. When the word "**Upload success**" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



7.After the code is uploaded. The LED lights up when the ball switch is in the horizontal position, and the LED turns off when we put the ball switch in the tilt position. At the same time, we can open the serial port monitor, we can also see the change of the voltage value at both ends of the ball switch, as shown in the figure below.





# 13- Fire alarm

You need to follow the steps below to build blocks.

Control	
3 Math	Declare item as into value Flame sensor PIN# A5*
T Text	
Lists	Buzzer Port 8 Set No Beep
📍 Logic	
💉 SerialPort	item Flame sensor
Communicate	
🥜 Sensor	
🍳 Actuator	item item 50
Dimitor	🖸 if 🛛 (item) 😂 0
🖪 Variables	do Buzzer Port S. Set Beep
D. Functions	
▼ YahBoom	
Arduino_ARSenser	Senar printe tient
▼ Arduino ARCar	

### List of components required for the experiment:

Arduino UNO board \*1

USB cable \*1

220Ω resistor \*1

10kΩ resistor \*1

Tilt switch \*1

Breadboard \*1

Dupont line \*1 bunch

## Actual object connection diagram :

We need to connect the circuit as shown in the figure below.





#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.





Serial baud rate	9600
YahBoom Arduino_ARSenser Sensor	Thermosensitive sensor PIN# (A0.)
<ul> <li>Display</li> <li>Music</li> <li>Motor</li> </ul>	Flame sensor
Monitor Variables Functions	Buzzer Port b 0 * Set Beep *
YahBoom     Arduino_ARSenser     Sensor     Disclay	Port DO Party England
Muire	

2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.
< (							_	YVH9	
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload	
	open		3476 63	Capon	mport	miniager	compile	opidad	

4. After the compilation is completed, the word "**Compile success!**" will appear in the lower left corner, indicating that you have successfully compiled the program.

😟 1f	item						
do	Buzzer	8	Port    8 •	Set Bee	ep *		
Serial	🖸 printin	item					
		-					
	100	TWATE .	Internal I	A COUNTRY INC			
oraries: braries:	C \Users\A C \Users\A	ummistrato dministrato	n Documents In Documents	(Aroumo()) \Arduino\li	oraries\nora	ines iries	
oraries. braries:	C:\Users\A	ommstrato dministrato	n Documents	\Arouno\n \Arduno\li	oraries (nora braries (libra	iries Iries	 





New Over Save Save S Experi 使用目出現活的文件: D'\YahBoom\mixiyBuild\c Linking everything together 'D'\YahBoom\arduino-1.8.2\hardware\tools\a 'D'\YahBoom\arduino-1.8.2\hardware\tools\a IE世界目 926 字形, 占用了 (2%) 程序存储空间- 全局空壁使用了 92节 外, 占用了 (2%) 程序存储空间- 全局空壁使用了 92节 外, (0%)的总内符, 余留2035 Compile success!	ore\core a wr/bin/avr-got" -Os -g -ft wr/bin/avr-objcopy" -O iher #大为 32256 字州。 中大为 32056 字州。 文字书局御安留。最大为 32048 字 Cancel	Compile o -fuse-linker-pi - J. eepromse - R. eeprom *mi	Upline ugin -Wi,gc-secti t-section-flags = ce xiyBuild/testArduin	lons -mincu=atmega prom=alloc,Soadn o.ino.elf" "mixtyBuild	<ul> <li>COM6</li> <li>e328p -o "mixiyBuildj no-change-warnings - l/testArduino.ino.hex"</li> </ul>
FREE好第語的文件: D:\YahBoom\imixiyBuild\to Initing evenything together D:\YahBoom\anduino-1.8.2\hardware\tools\a D:\YahBoom\anduino-1.8.2\hardware\tools\a 同時間了926 字形。由了 (2Ne程序軸空音) 同時間了926 字形。由于 (2Ne程序軸空音) 同時間了92节 外、(0NgSb态的符符,余留2035 ompile success! Uploading item item = 50 do Estimate 0 Fitem > 0 Fitem Port Serial product item	ore\core a wr/bin/avr-got" -Os -g -fit wr/bin/avr-objcopy" -O ihe wr/bin/avr-objcopy" -O ine 最大为 32256 字师。 中大为 32056 字师。 Cancel	o -fuse-linker-pi :-j.eepromse :-R.eeprom *mi	ugin -WI,gc-secti t-section-flags = ce xiyBuild/testArduin	ions -mmcu=atmega prom=alioc.loadn o.ino.elP "mixtyBuild	k328p –o "mixtyBuild) io-change-warnings l/testArduino.ino.hex"
do Buzzer Port	8 Set Beep				
Campile 🚯 Upt	ed Materia				
2\naroware\arouno\avr 8.2\hardware\arduino\avr New Open Save Save as	Export Import N	lanager	c	ompile U	pload

7.After the code is uploaded. When there is no fire source approaching, the circuit is normal. When there is a fire source approaching, the buzzer will make a sound to indicate the alarm. We can also open the serial monitor to observe view the simulated voltage values, as shown in the figure below.





# 14-Nixie tube

Follow the steps to splice the building blocks :



#### Introduction to digital tube:

Nixie tube is a semiconductor luminescent device, its basic unit is a light-emitting diode. It is divided into 7-segment Nixie tube and 8-segment Nixie tube. 8-segment Nixie tube more than 7-segment Nixie tube a light-emitting diode unit (more than a decimal point), this experiment we use the 8-segment Nixie tube. The actual object is shown below.



According to the light-emitting diode unit connection mode, it is divided into anode Nixie tubes and cathode Nixie tubes.

Anode Nixie tubes that connects the anodes of all light-emitting diodes together to form a common anode (COM). The common pole (COM) shall be connected to +5V when the common anode digital tube is applied. When the cathode of a certain field of light-emitting diode is low, the corresponding field will be light up. When the cathode of a field is high, the field does not light up.

Cathode Nixie tubes that connects the cathodes of all light-emitting diodes together to form a common cathode (COM). The common pole COM shall be connected to GND when the common cathode digital tube is applied. When the anode of a certain field of light-emitting diode is high , the corresponding field will be light up. When the anode of a field is low, the field does not light up.

#### List of components required for the experiment:

Arduino UNO board \*1 USB cable \*1 220Ω resistor \*8 8-segment digital tube \*1 Breadboard \*1



Dupont line \*1bunch

### Actual object connection diagram :

We need to connect the circuit as shown in the figure below.



### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2.You need to combine the selected blocks, as shown in the figure below.



## YAHBOOM

3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

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4. After the compilation is completed, the word "**Compile success**!" will appear in the lower left corner, indicating that you have successfully compiled the program.

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7. After the code is uploaded. We can see that the number 7 is displayed on the Nixie tube.





# **15- Four bit nixie tube**

You need to follow the steps below to build blocks.

Blocks	Code	Copyright $\otimes$ Mixly Team(j) BNU maker bun edu en
In/Out		
Control		
Math	Digital tube	Display number (1234)
T Text		
Lists		
P Logic		
🔌 SerialPort		
V Communicate		
🤌 Sensor		
🍳 Actuator		
Monitor		
A Variables		

#### Introduction to digital tube:

Nixie tube is a semiconductor luminescent device, its basic unit is a light-emitting diode. According to the number of digital tube is divided into 7-segment Nixie tube and 8segment Nixie tube. 8-segment Nixie tube more than 7-segment Nixie tube a lightemitting diode unit (more than a decimal point), this experiment use the8segment Nixie tube.The actual object is shown below.



According to the light-emitting diode unit connection mode, it is divided into anode Nixie tubes and cathode Nixie tubes.

Anode Nixie tubes that connects the anodes of all light-emitting diodes together to form a common anode (COM). The common pole COM shall be connected to +5V when the common anode digital tube is applied. When the cathode of a certain field of light-emitting diode is low, the corresponding field will be light up. When the cathode of a field is high, the field does not light up.

Cathode Nixie tubes that connects the cathodes of all light-emitting diodes together to form a common cathode (COM). The common pole COM shall be connected to GND when the common cathode digital tube is applied. When the anode of a certain field of light-emitting diode is high , the corresponding field will be light up. When the anode of a field is low, the field does not light up.

List of components required for the experiment:



Arduino UNO board \*1

USB cable \*1

220Ω resistor \*8

4bit 8-segment digital tube \*1

Breadboard \*1

dupont line \*1bunch

#### Actual object connection diagram :

We need to connect the circuit as shown in the figure below.



#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.





2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

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lew	Open	Save	Save as	Export	Import	Manager	Compile	Upload	

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.







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7. After the code is uploaded. We can see that the number "1234" is displayed on the Nixie tube.



# **16-Servo control**

You need to follow the steps below to build blocks.



#### About the servo :

The actual object is shown below. Servo rotation angle is by adjusting the duty ratios of PWM (pulse width modulation) signal. The standard PWM (pulse width modulation) signal has a fixed period of 20ms (50Hz). Theoretically, pulse width distribution should be between 1 ms to 2 ms, but in fact between pulse width can be 0.5 ms and 2.5 ms. Pulse width and the servo rotation angle  $0^{\circ} \sim 180^{\circ}$  corresponds, as shown in the figure below.



Servo have many specifications, but all of the servo possess external three lines, with brown, red, orange, three kinds of color to distinguish. Due to brand is different, color is different, brown for the grounding line, red for positive line, orange for signal lines.

Note: Due to brand is different, for the same signal, different brands of servo rotation angle will be different.

List of components required for the experiment:

Arduino UNO board \*1



USB cable \*1

Servo \*1

Dupont line \*1 bunch

Actual object connection diagram :

We need to connect the circuit as shown in the figure below.



#### Steps of experiment:

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.





2.You need to combine the selected blocks, as shown in the figure below.



3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

				-				
New	Open	Save	Save as	Export	Import	Manager	Compile	Upload

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.



arries\libraries: C:\Users\Administrator\Documents\Arduino\libraries\libraries





5. In the menu bar of Mixly, we need to select the port that the serial number displayed by the device manager (for exmaple:COM6) and Arduino/Genuino Uno. As shown in the figure below.

· 设备管理器						
文件(F) 操作(A) 查看(V) 帮助(H)						
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/ Xiaozhen						
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A 🏆 (AD (COM TO LPT)						
- P Bluetooth Serial Port (COM15)						
- Bluetooth Serial Port (COM16)						
- Pluetooth Serial Port (COM17)						
- IP Bluetooth Serial Port (COM18)						
- Pluetooth Serial Port (COM19)						
Bluetooth Serial Port (COM20)						
- P Bluetooth Serial Port (COM21)						
- I Bluetooth Serial Port (COM22)						
P Bluetooth Serial Port (COM23)						
USB-SERIAL CH340 (COM6)						
- ''' 通信跳口 (COM1)						
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6. After the selection is completed, you need to click "Upload" to upload the code to the Arduino UNO board. When the word "Upload success" appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.



Reading   ###################################		Compil
vrdude: verifying vrdude: 2110 bytes of flash verified		00% 0.264
ivrdude: verifying ivrdude: 2110 bytes of flash verified	***************************************	JU% U.205
	ash verified	
wrdude done. Thank you.	1.	

7. After the code is uploaded, we can see that the servo is turned to the angle set in the code.





# **17-IR control**

You need to follow the steps below to build blocks.

In Out	
Control	
🕤 Math	Serial build rate 9600
T Text	LED Port 1010 Set OFF
📕 Lista	
📍 Logic	
🕖 SerialPoet	Bannate Port 11 Kecerve minared agaal 11
Communicate	
🤌 Sensor	do LED Port 10 . Set ON?
S Actuator	
💭 Monitor	Serial 7 printin 1 (2)
🚭 Variables	
IT Functions	

#### About the infrared remote control :

The signal from the IR remote controller is a series of binary pulse codes. In order to protect it from other infrared signals during wireless transmission. It is modulated on a specific carrier frequency ,and then transmitted by infrared emission sensor. The infrared receiving device need to filter out other waveform and receive the signal of the specific frequency and restore it to binary pulse code, this process is called demodulation.

The IR receiver sensor converts the optical signal emitted by the infrared emission sensor to a weak electrical signal. These signals are restored to the original encode by various circuits, finally outputs the signal to the control circuit.





List of components required for the experiment:

Arduino UNO board \*1 USB cable \*1 IR receiver sensor \*1 IR remote controller \*1 Breadboard \*1 Dupont line \*1 bunch Actual object connection diagram :



..... ..... ..... ..... ..... IR receiver sensor OUT VCC GND Dupont line ::::: :::: :: Breadboard . Arduino UNO board ..... \*\*\*\*\* ..... ..... ..... LED Negative electrode short pin . . . . . . Positive electrode long pin 220 Q Resistor .... .... .... .... .... ... ... . ... ..... ..... ..... dupont line Breadboard  $\odot$ UNO Arduino UNO board

We need to connect the circuit as shown in the figure below.

#### **Steps of experiment:**

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.







2.You need to combine the selected blocks, as shown in the figure below.





3.You need to you need to click "Compile". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

pile Upload
prie Oproad

4. After the compilation is completed, the word "Compile success!" will appear in the lower left corner, indicating that you have successfully compiled the program.













7. After the code is uploaded. When we press the butto"1" on the infrared remote controller, we can see that led light up.





# 18-1602LCD

You need to follow the steps below to build blocks.

- 272		
In/Out		
Control		-
Math	LCD1602	
T Text	Anna and a second	
Lista		
Logic	Show first line:	44 hello 22
🕖 SerialPort	Show second line:	🧉 yahboom arduino 🥲
Communicate		
💣 Sensor		

## Introduction of 1602 :

Actuator

The actual object is shown below.



### Main specification of 1602LCD:

Display capacity: 16 x 2 characters; Working current: 2.0mA Operating voltage: 5.0v Size of character: 2.95 \* 4.35 (W \* H) mm. **1602 possess 16 pins:** Pin 1: VSS is ground power Pin 2: VDD is connected to 5V positive power supply Pin 3: V0 is the LCD contrast adjustment pin, which can be adjusted by a 10K adjustable resistor.

Pin 4: RS is the register selection pin, data register is selected at high voltage and instruction register is selected at low voltage.

Pin 5: R/W is the signal line for reading and writing. Reading operation is carried out at high level and writing operation is carried out at low level.

Pin 6: E pin is the enable pin. When this pin changes from high level to low level, the LCD module executes the command.

Pin 7 ~ Pin 14: D0 ~ D7 is 8-bit two-way data line.

Pin 15: power positive pole of backlight.

Pin 16: power negative pole of backlight.

### Actual object connection diagram :





We need to connect the circuit as shown in the figure below.

#### **Steps of experiment:**

1. You need to choose the building blocks which you need for this experiment, as shown in the figure below.



2. You need to combine the selected blocks, as shown in the figure below.





3.You need to you need to click "**Compile**". and wait for the completion of the compiler, the following box will prompt the compiler successfully, if prompt the compile failure is the problem of building block splicing.

4. After the compilation is completed, the word "**Compile success!**" will appear in the lower left corner, indicating that you have successfully compiled the program.

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7. After the code is uploaded. We can see that the hello yahboom arduino is shown on the LCD1602.

