Microcontroller Design



DR. Shaymaa Akram Yousif



Single LED with button

By: Sannar Aamer Adian Hussein

1. Open Proteus and add Arduino UNO from library.

2. Add a LED.

C			Pick Devices				?	×
5			Meswords:	Showing local results: 1	Preview			
			led Match whole words?	Device	Library	Description	Schematic Model [LE	EDA]
‡ 	ARDUINO UNO BUTTON		Show only parts with models?	LED LED-BARGRAPH LED-BARGRAPH-R	DEVICE DISPLAY DISPLAY	Generic light emitting diode (LED) Green LED Bargraph Display Red LED Bargraph Display		> DA]
-	LED-GREEN RES SIMULINO UNO	(All Categories) Analog ICs Diodes Electromechanical Inductors Microprocessor ICs Sub-categories) Amplifiers Analog (SPICE) Bargraph Displays Decoders Display Drivers Manufacturer: (All Manufacturer)	(All Categories) Analog ICs Diodes Electromechanical	LED-BIBY LED-BIGY LED-BIRG LED-BIRY	ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ANALOG ANALOG ANALOG ANALOG ANALOG ANALOG DEVICE	Animated BI-Colour LED model (Blue/Yel Animated BI-Colour LED model (Green/A Animated BI-Colour LED model (Red/Gre Animated BI-Colour LED model (Red/Yell	Y)
			Inductors Microprocessor ICs	LED-BLUE LED-GREEN LED-GROVE-BARG LED-RED		Animated LED model (Blue) Animated LED model (Green) Grove 10 segment LED gauge bar. Animated LED model (Red)	PCB Preview	
			(All Sub-categories) A Amplifiers Analog (SPICE) Bargraph Displays Decoders Display Drivers	LED-YELLOW LM3914 LM3915 LM3916 LM566CN LMC835 LT1251		Animated LED model (Yellow) Linear Dot/Bar Display Driver (Drives LED: Logarithmic Dot/Bar Display Driver (Drive VU scaled Dot/Bar Display Driver (Drives I LM566C Voltage Controlled Oscillator. Digital-Controlled Graphic Equalizer 40MHz Video Fader and DC Gain Contro 40MHz Video Fader and DC Gain Contro Power I FD generic model		
			Manufacturer:	LT1256				
-			(Unspecified) Analog Devices Data Image DMS Microelectronics LTD	MATRIX-5X7-BLUE MATRIX-5X7-GREEN MATRIX-5X7-ORA	DISPLAY DISPLAY DISPLAY	5x7 Blue LED Dot Matrix Display 5x7 Green LED Dot Matrix Display 5x7 Orange I FD Dot Matrix Display		
		HANTRONIX	HANTRONIX	SamacSys	Found more r	results at 'Component Search Engine', press to view	ОК	Cancel

3. Add a ground .



4. Add a button.

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5		Keywords:	Showing loca	Preview					
	••••	button	Device	Library	Description		Analogue Primiti	ive [RTSWI	тсн 📃
+		Match whole worde?	BUTTON	ACTIVE	SPST Push Button				_
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	BUTTON	Category:					_	-	
	LED-GREEN	(All Categories)						<u> </u>	
	RES SIMULINO LINO	Microprocessor ICs					-0	<u> </u>	
		Switches & Relays							
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5. Add DC generator (5v).



6. Add resistors (10k).

Pick Devices							?	×
Keywords:		Showing local res	ults: 144			Preview		
resistor Match whole words?		Device	Library	Stock Code	Description ^	Analogue Primitiv	e (RESI	STOR]
		MINRES100K	RESISTORS	M100K	100K 0.6W Resistor (Maplin Sto			
Show only parts with models?	Show only parts with models?		RESISTORS	M100R	100R 0.6W Resistor (Maplin Sto			
Show only parts with hodels?		MINRES10K	RESISTORS	M10K	10K 0.6W Resistor (Maplin Stor			
Category:		MINRES10M	RESISTORS	M10M	10M 0.6W Resistor (Maplin Stc			
(All Categories)	^	MINRES10R	RESISTORS	M10R	10R 0.6W Resistor (Maplin Stor	_		-
Analog ICs		MINRES110K	RESISTORS	M110K	110K 0.6W Resistor (Maplin Sto			
Miscellaneous		MINRES110R	RESISTORS	M110R	110R 0.6W Resistor (Maplin Sto			
Modelling Primitives		MINRES11K	RESISTORS	M11K	11K 0.6W Resistor (Maplin Stor			
Resistors		MINRES11R	RESISTORS	M11R	11R 0.6W Resistor (Maplin Stor			
Transducers		MINRES120K	RESISTORS	M120K	120K 0.6W Resistor (Maplin Sto			
+ ···	*	MINRES120R	RESISTORS	M120R	120R 0.6W Resistor (Maplin Sto			
Sub-category:		MINRES12K	RESISTORS	M12K	12K 0.6W Resistor (Maplin Sto	PCB Preview		
(All Sub-categories)	^	MINRES12R	RESISTORS	M12R	12R 0.6W Resistor (Maplin Sto			
0.6W Metal Film		MINRES130K	RESISTORS	M130K	130K 0.6W Resistor (Maplin Sto			
10 Watt Wirewound		MINRES130R	RESISTORS	M130R	130R 0.6W Resistor (Maplin Sto	ф	4	
2 Watt Metal Film		MINRES13K	RESISTORS	M13K	13K 0.6W Resistor (Maplin Sto			
3 Watt Wirewound		MINRES13R	RESISTORS	M13R	13R 0.6W Resistor (Maplin Sto			
7 Watt Wirewound		MINRES150K	RESISTORS	M150K	150K 0.6W Resistor (Maplin Sto		4in	
4 112	×	MINRES150R	RESISTORS	M150R	150R 0.6W Resistor (Maplin Sto		o	
Manufacturer:		MINRES15K	RESISTORS	M15K	15K 0.6W Resistor (Maplin Sto	L		
(All Manufacturers)		MINRES15R	RESISTORS	M15R	15R 0.6W Resistor (Maplin Sto			
(Unspecified)		MINRES160K	RESISTORS	M160K	160K 0.6W Resistor (Maplin Sto	2	-27	
Bourns		MINRES160R	RESISTORS	M160R	160R 0.6W Resistor (Maplin Sto			
Epcos		MINRES16K	RESISTORS	M16K	16K 0.6W Resistor (Maplin Stor 🗡			
Linear Technology		<			>	RES40		-
Littelfuse							_	
LA P	۷	Samac	. Sy S Pound m	ore results at C	omponent search Engine, press to view	OK	Cano	tel

7. Connect the circuit as shown below.



Sketch

```
const int ledpin=12;
const int button=2;
int state =0;
void setup() {
  // put your setup code here, to run once:
pinMode(ledpin,OUTPUT);
pinMode(button, INPUT);
digitalWrite(ledpin,LOW);
}
void loop() {
 // put your main code here, to run repeatedly:
state=digitalRead(button);
if (state==1)
{
  digitalWrite(ledpin,HIGH);
}
else
{
  digitalWrite(ledpin,LOW);
}
}
```

Note: To run the code export the hex file to Proteus.