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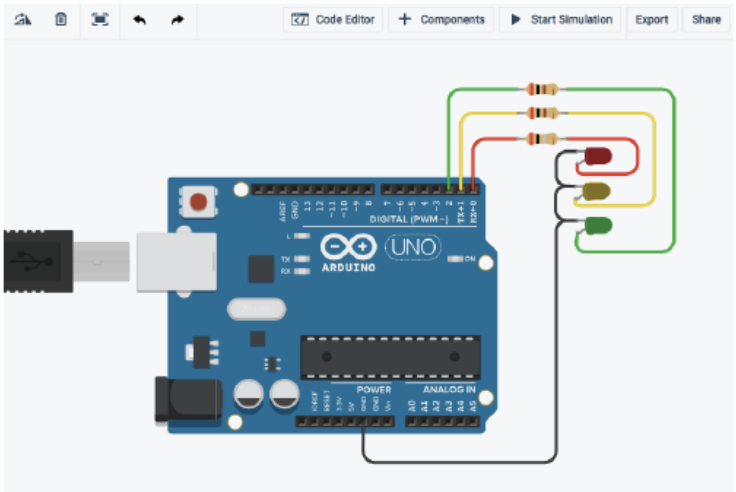
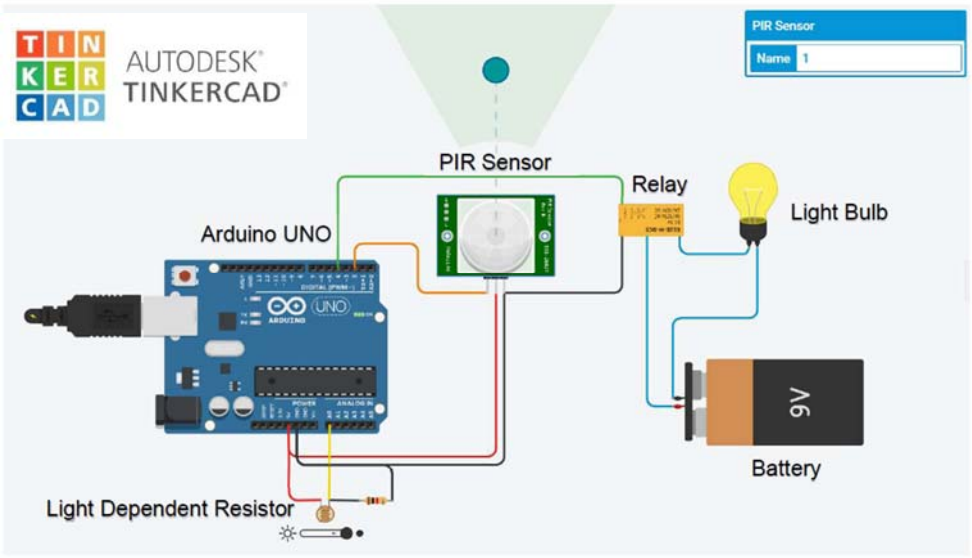
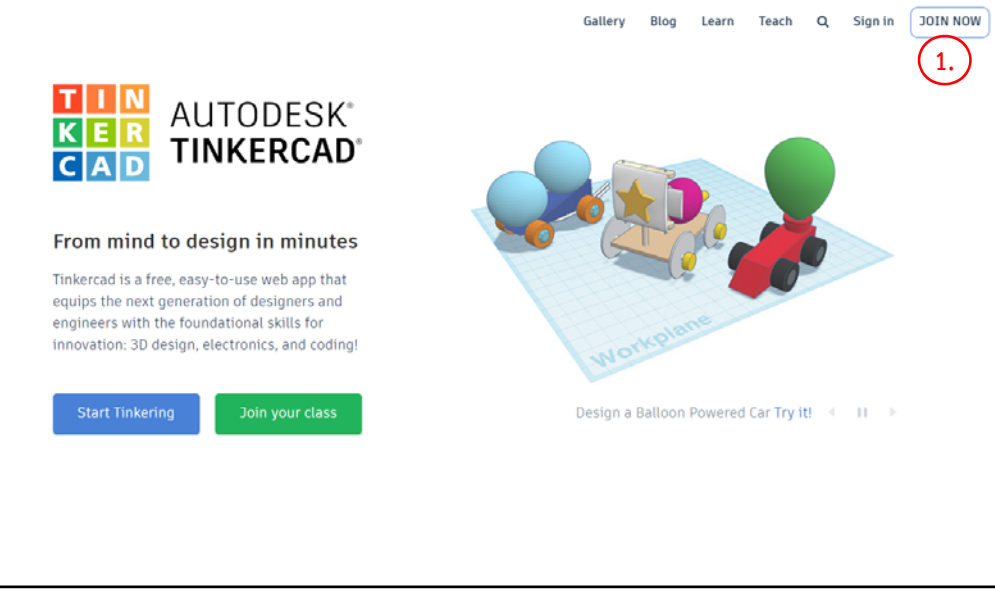
อ.อัษฎง ภูวรักษ์ asdongph@gmail.com

Arduino simulator: Tinkercad.com




AUTODESK
TINKERCAD
PIR Sensor
Name 1
PIR Sensor
Relay
Light Bulb
Arduino UNO
9V
Battery
Light Dependent Resistor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1.
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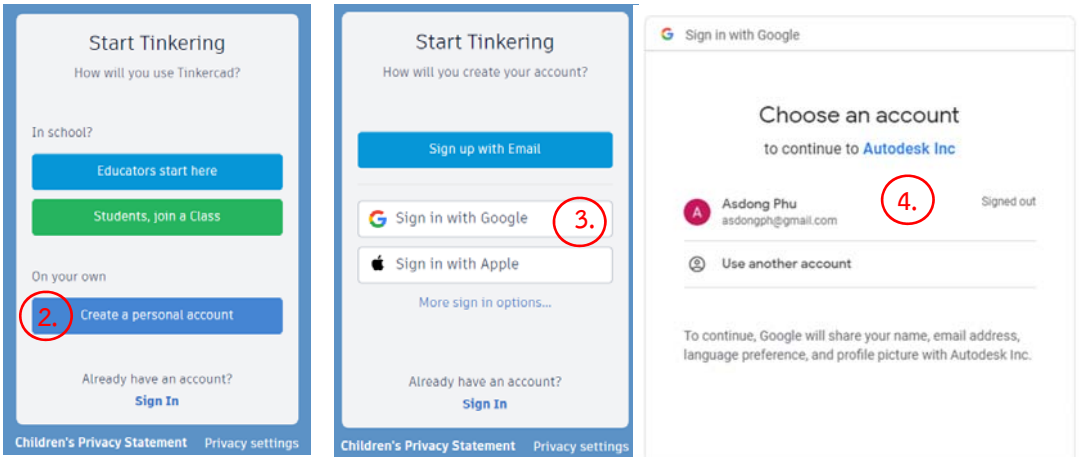
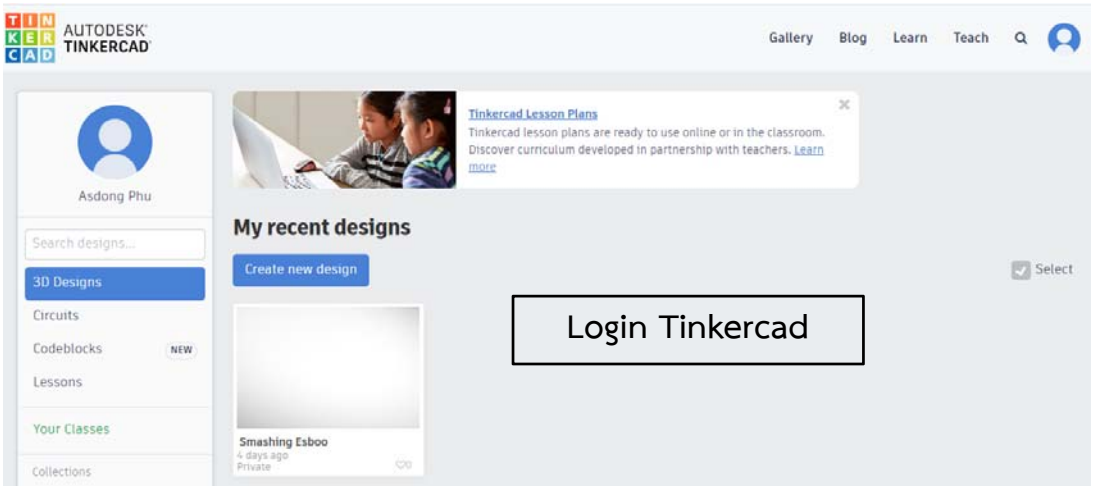
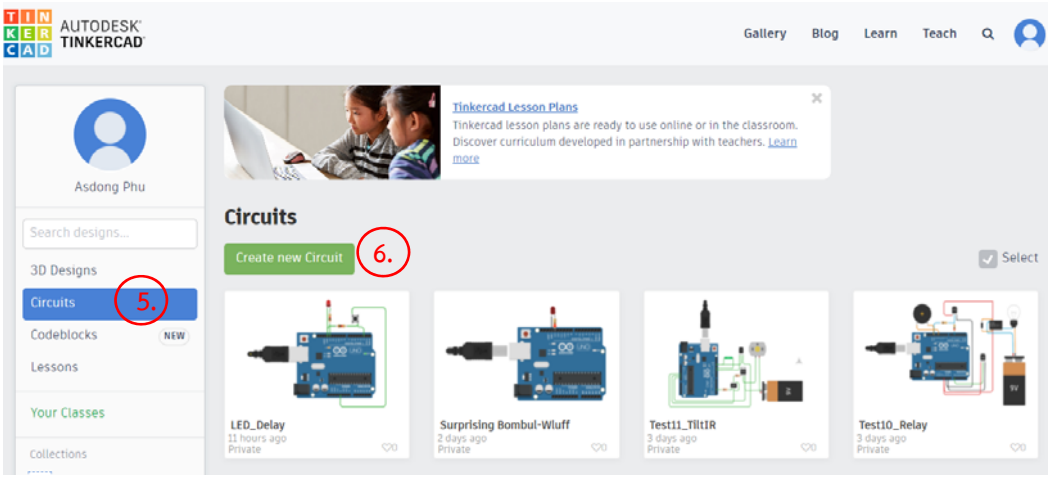


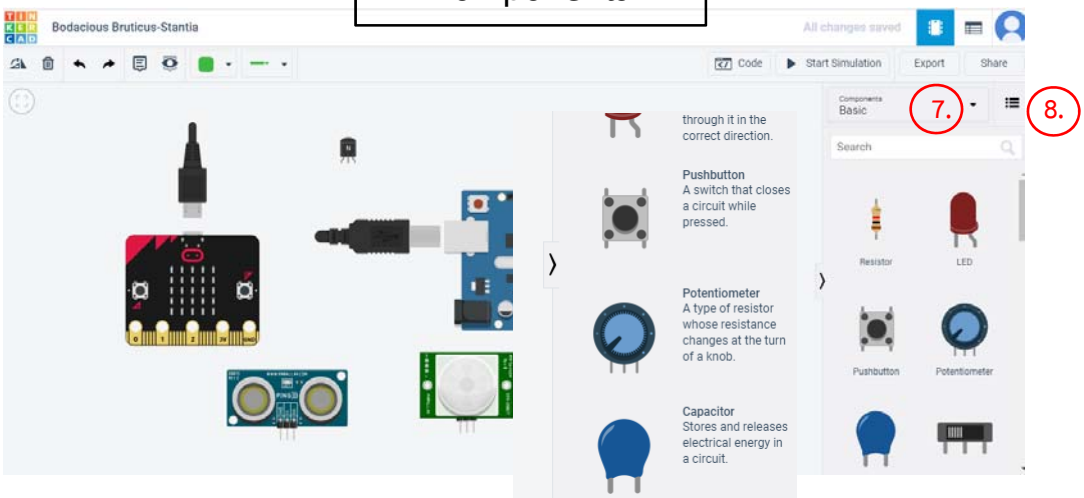
Login Tinkercad

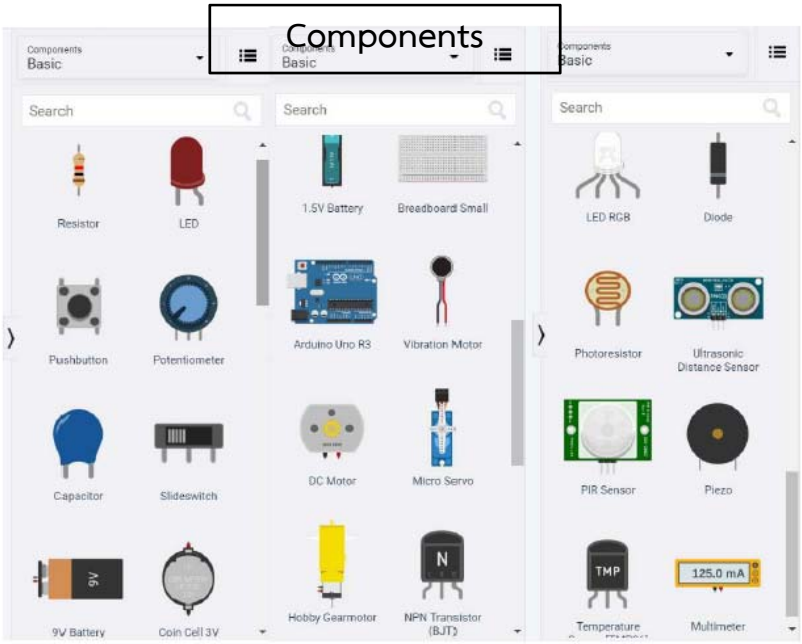


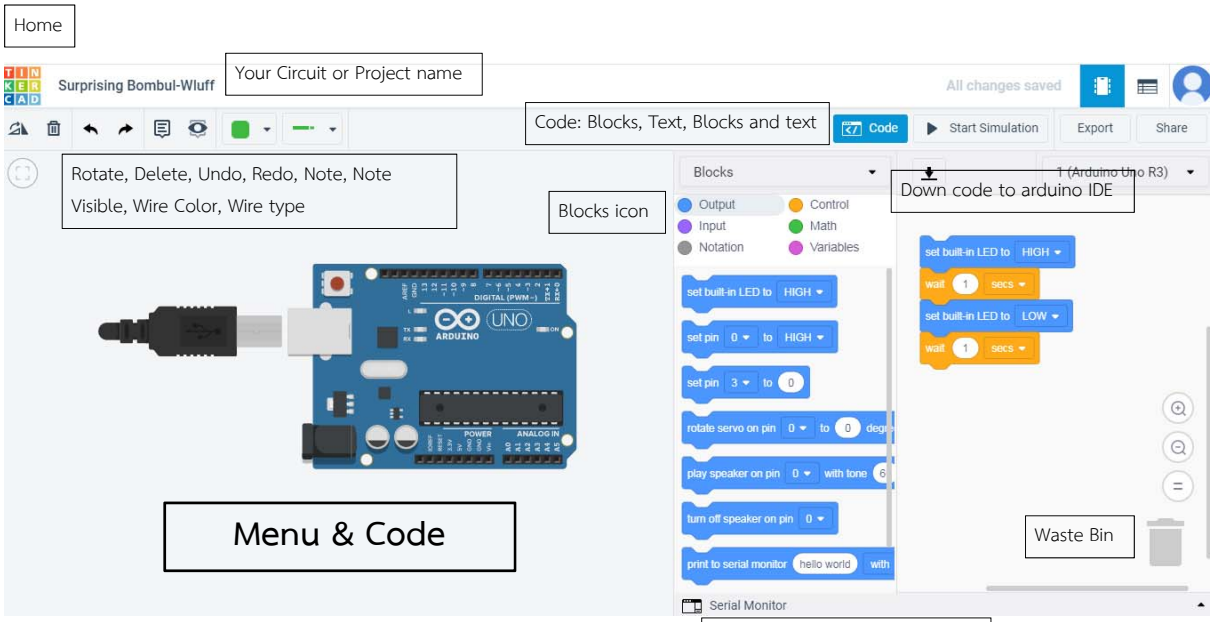
Create New Circuit project

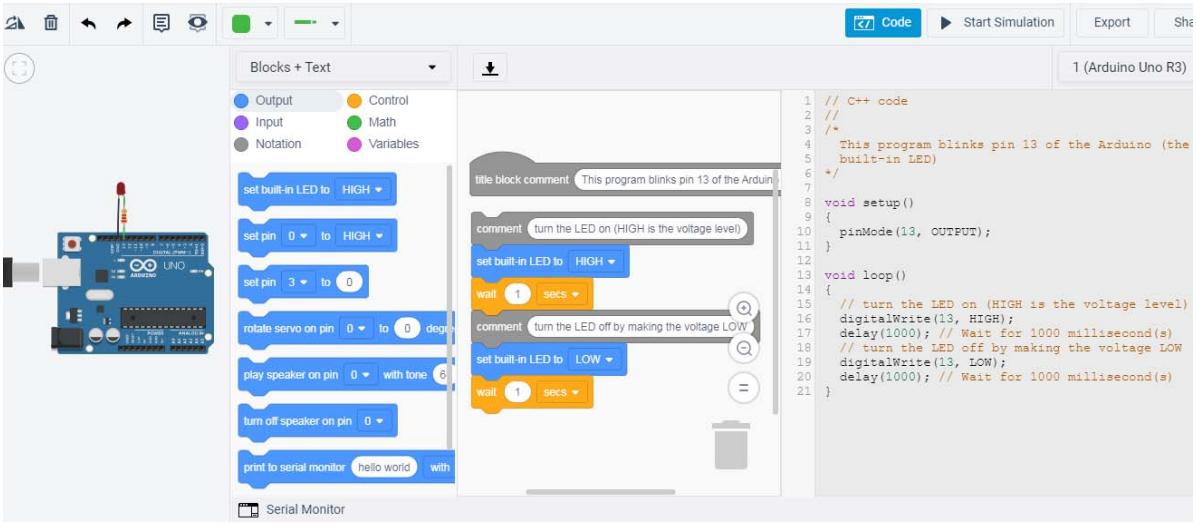


Components

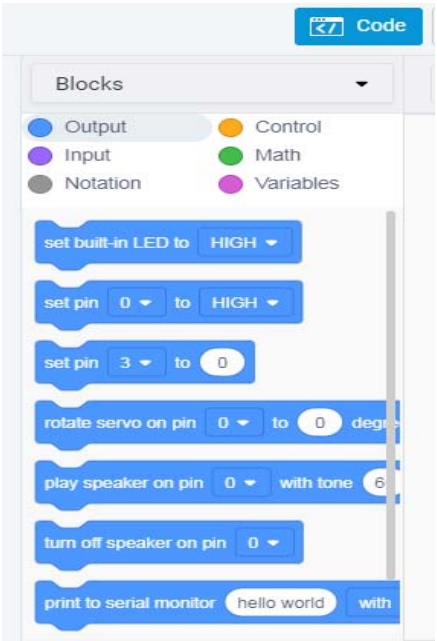



Components
Basic
Search
Resistor
LED
1.5V Battery
Breadboard Small
LED RGB
Diode
Pushbutton
Potentiometer
Arduino Uno R3
Vibration Motor
Photoresistor
Ultrasonic Distance Sensor
Capacitor
Slideswitch
DC Motor
Micro Servo
PIR Sensor
Piezo
9V Battery
Coin Cell 3V
Hobby Gearmotor
NPN Transistor (BJT)
Temperature
Multimeter


Home
Surprising Bombul-Wluff
Your Circuit or Project name
All changes saved
Code: Blocks, Text, Blocks and text
Code
Start Simulation
Export
Share
Rotate, Delete, Undo, Redo, Note, Note
Visible, Wire Color, Wire type
Blocks icon
Down code to arduino IDE
Blocks
1 (Arduino Uno R3)
Output
Input
Notation
Control
Math
Variables
set built-in LED to HIGH
wait 1 secs
set built-in LED to LOW
set pin 0 to HIGH
set pin 3 to 0
rotate servo on pin 0 to 0
play speaker on pin 0 with tone
turn off speaker on pin 0
print to serial monitor hello world with
Menu & Code
Waste Bin
Serial Monitor
Serial Monitor for debug program



Blink 1 on pin13



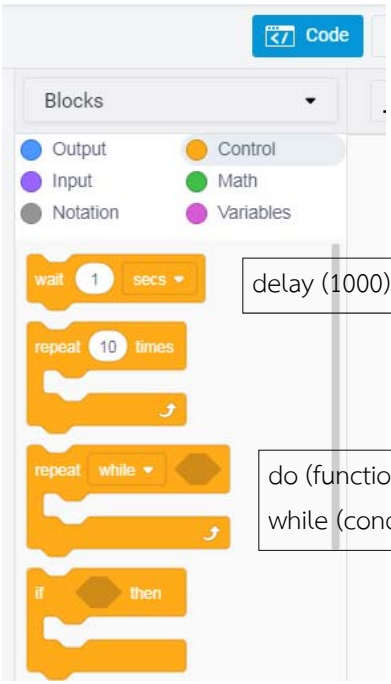
ตั้ง LED บนบอร์ด หรือขา13 เป็น Logic 1

ตั้งพอร์ต0 เป็น Logic 1

ส่งค่าออกพอร์ต3 เป็นตัวเลข 0 ใช้กับขาPWM 3,5,6,9,10,11

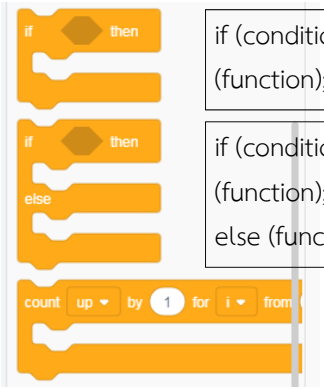
ตั้งพอร์ตและองศาการหมุนของServo Motor

พิมพ์ค่าออก Serial Monitor



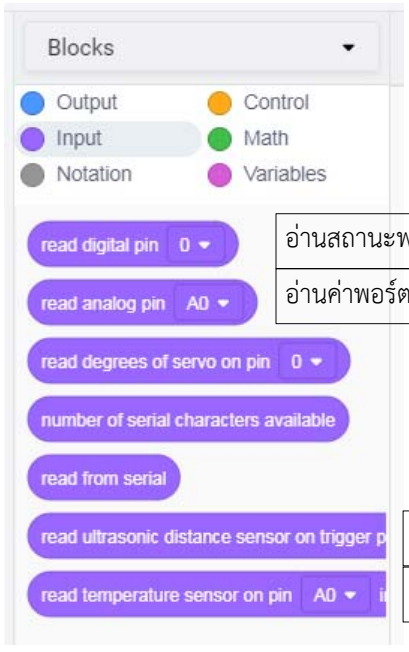
delay (1000);

do (function)
while (condition);

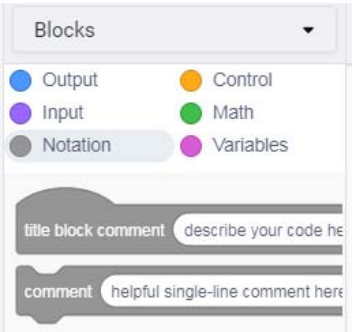


if (condition) {
(function); }

if (condition) {
(function); }
else (function);



เป็นtextหรือคำอธิบายโปรแกรม ไม่มีการคำนวณ

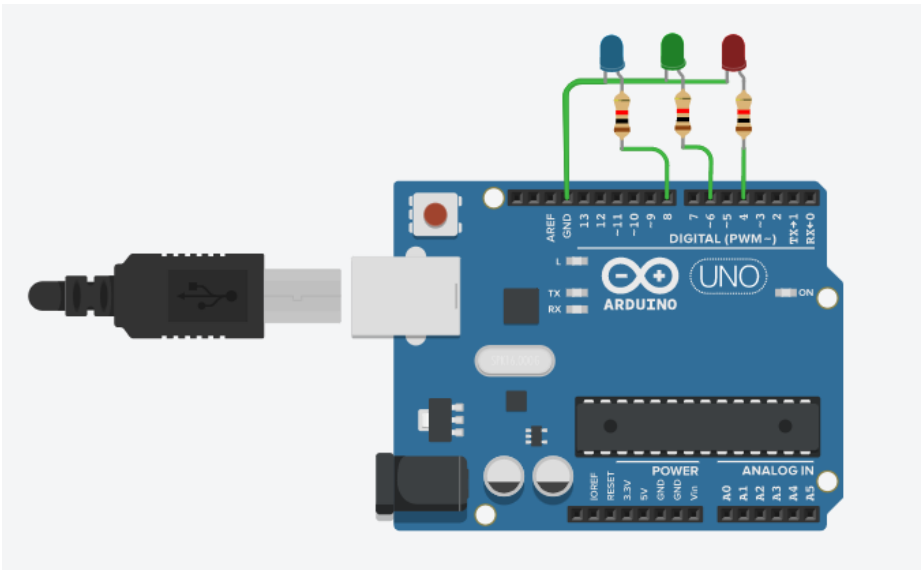


อ่านสถานะพอร์ตดิจิทัล ได้ค่า0 หรือ1

อ่านค่าพอร์ตอะนาล็อค ได้ค่า 0-1023

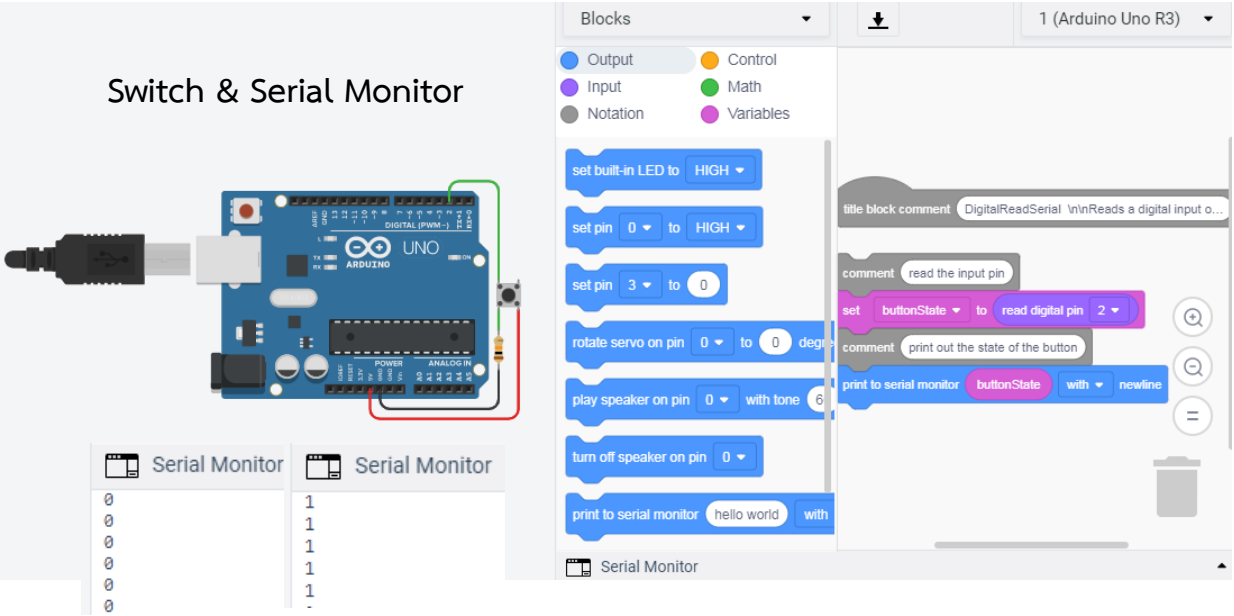
อ่านพอร์ตดิจิทัลจากเซนเซอร์ ultrasonic

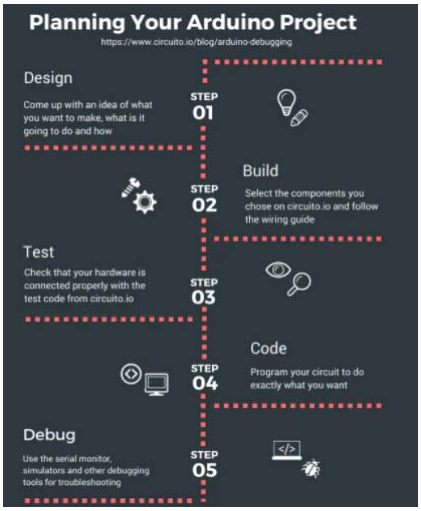
อ่านค่าพอร์ตอะนาล็อคA0 จากเซนเซอร์อุณหภูมิ องศา C



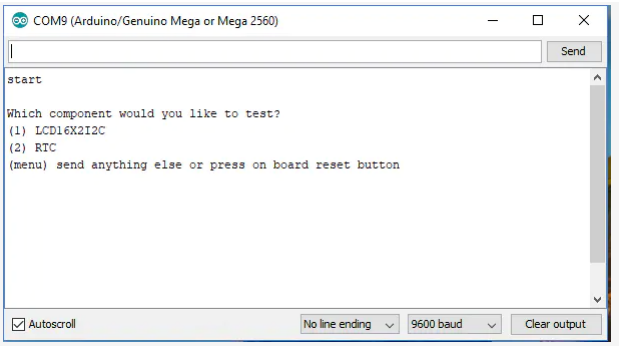
Test_Blink 3 on pin4,6,8

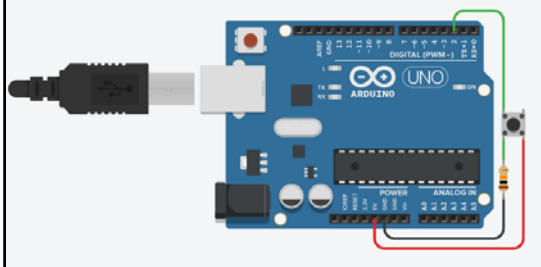
Switch & Serial Monitor



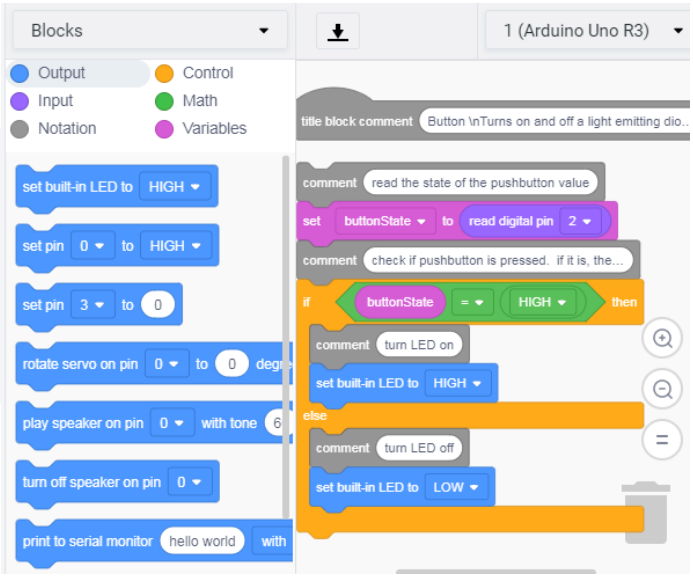


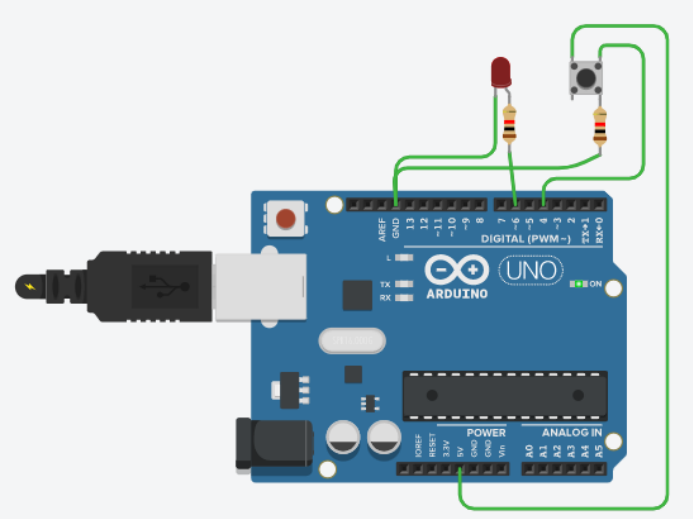
Why to debug Program ?



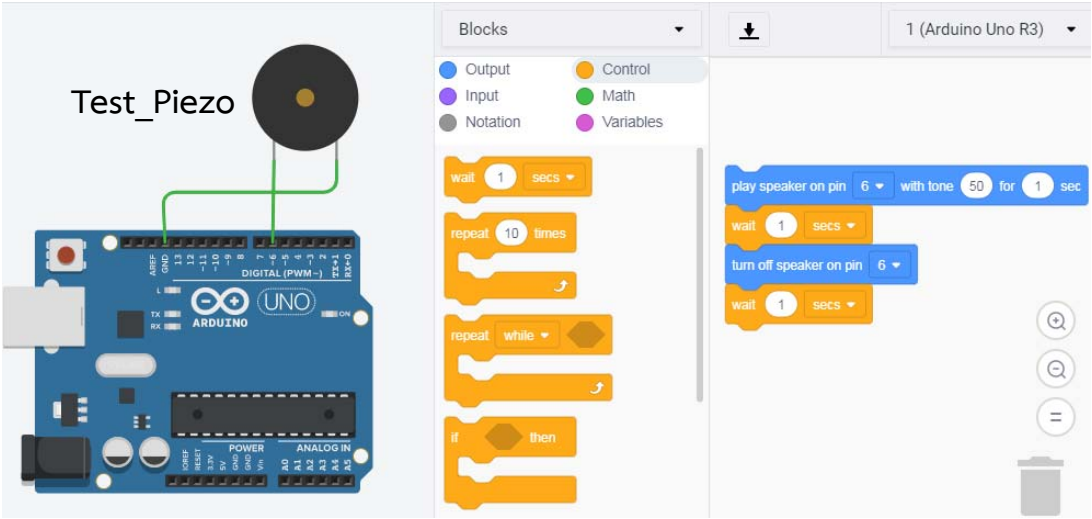


Toggle Switch

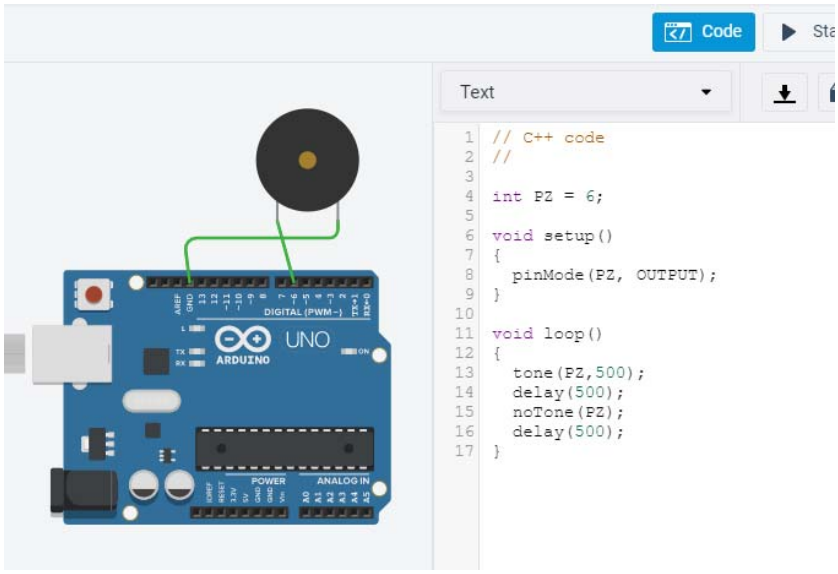




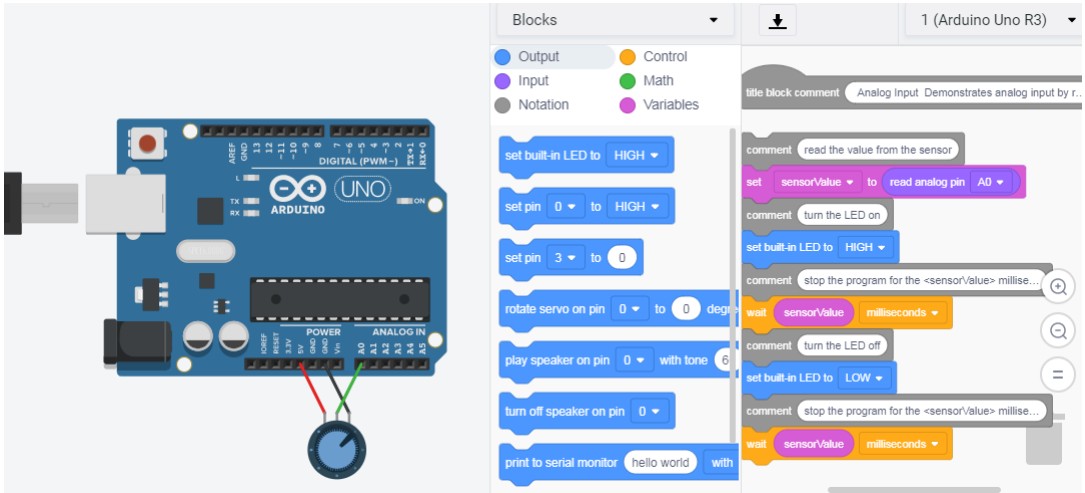
Test_LED_on&off



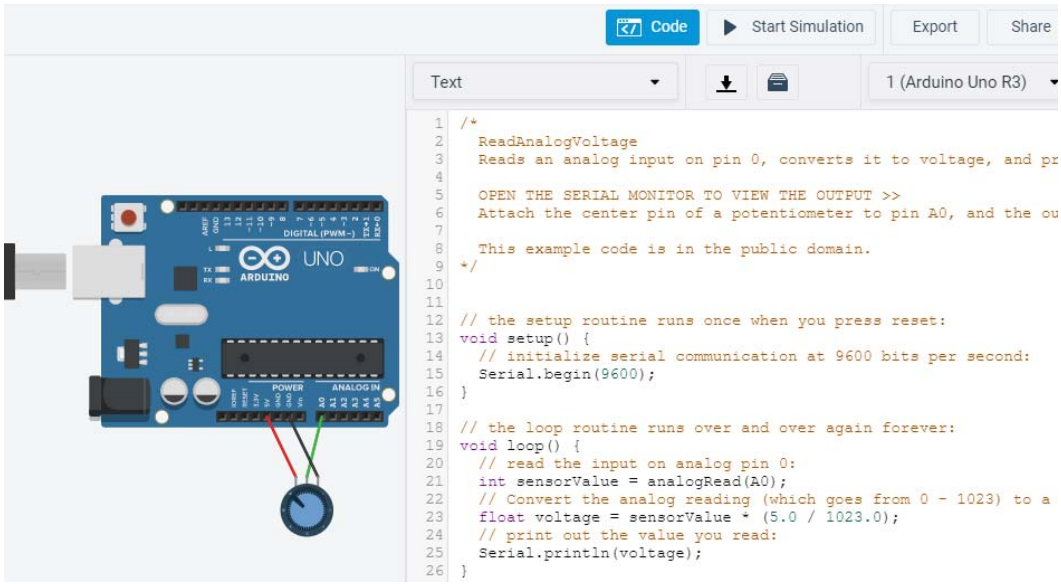
Piezo_on&off



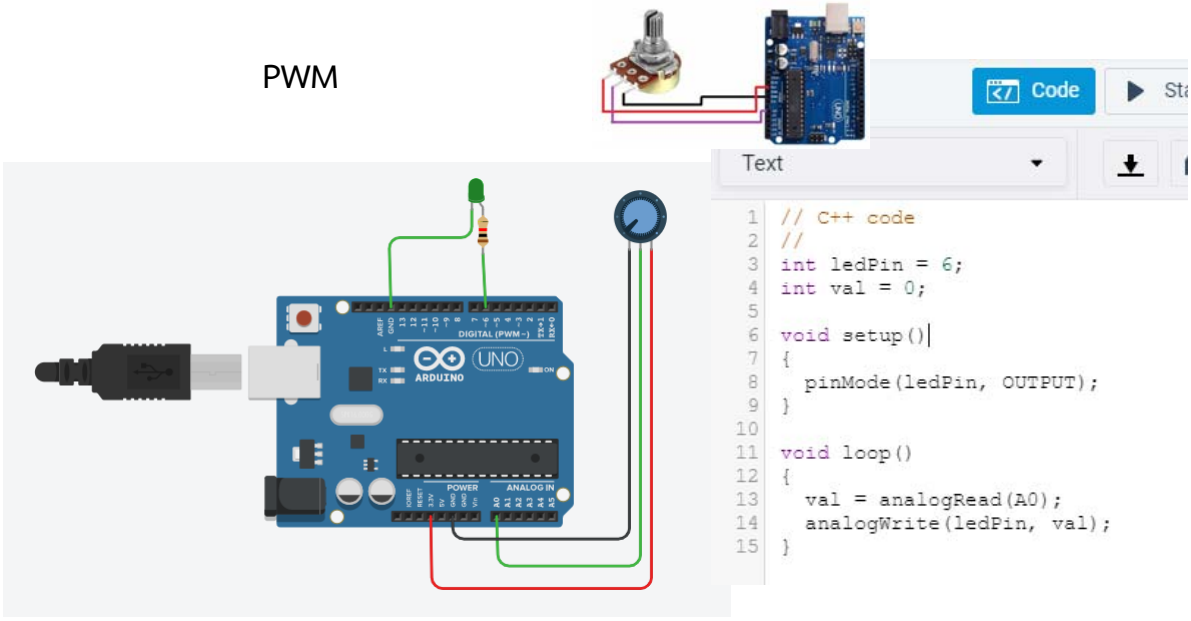
analogRead (Sample)

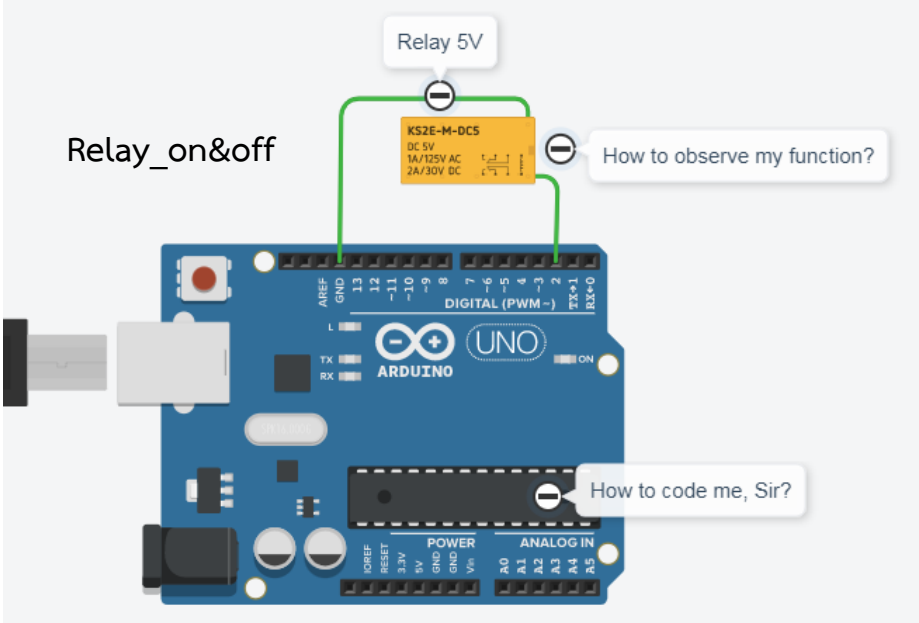


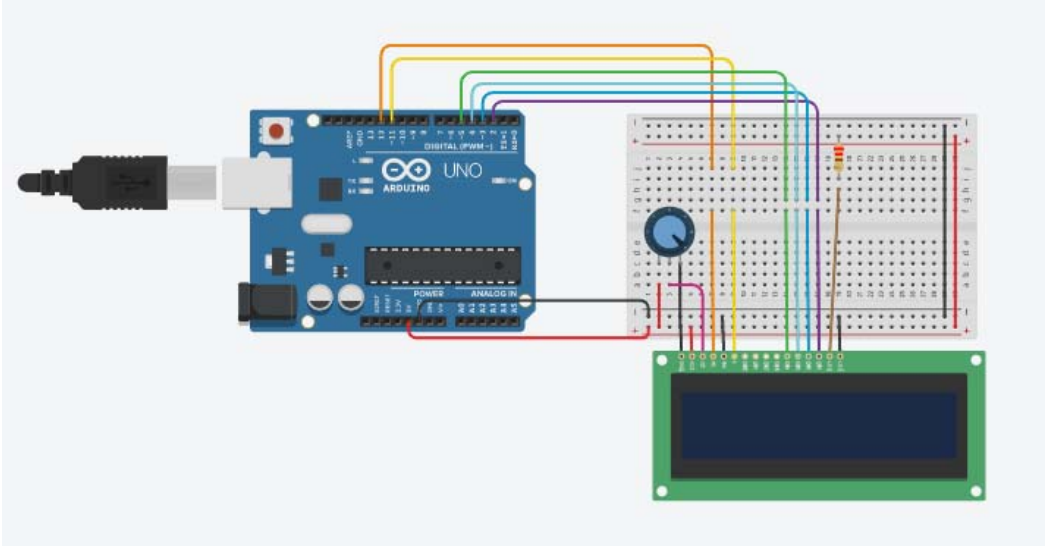
analogRead (Sample)



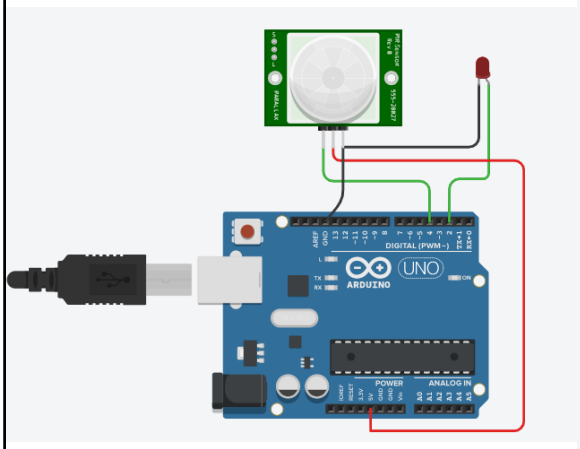
PWM





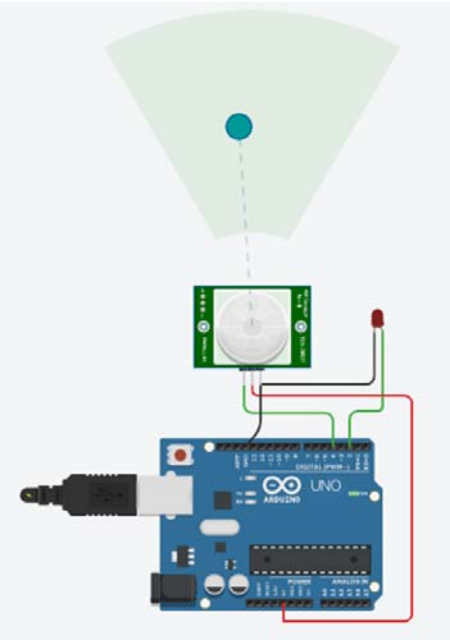


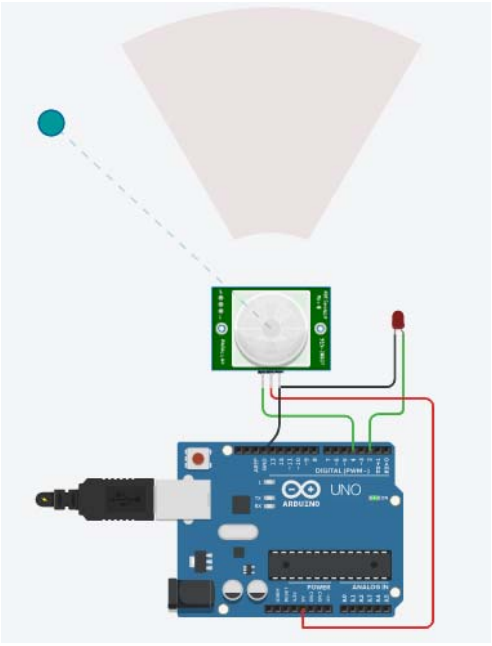
LCD ”Hello World” (sample)



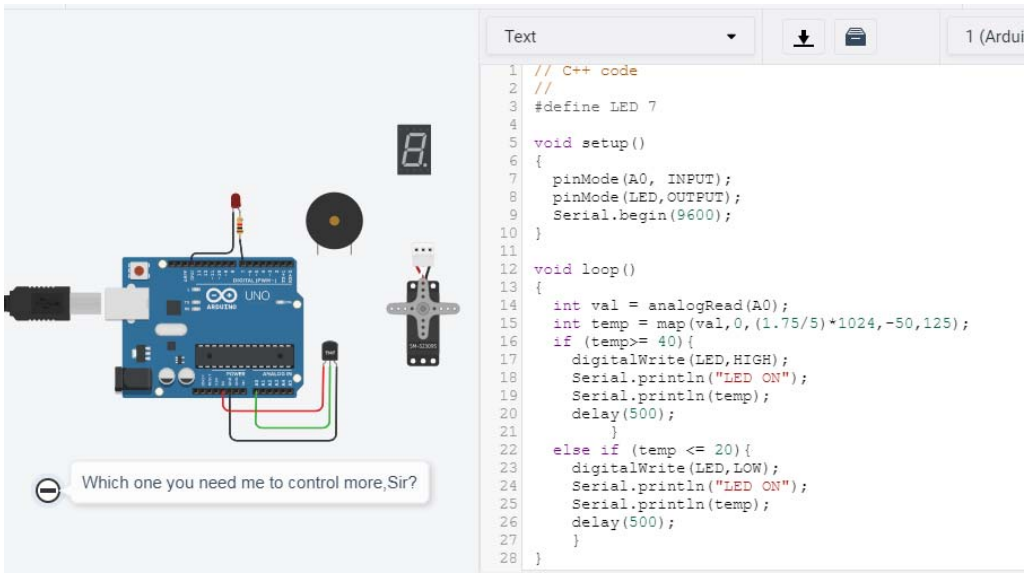

```
Text                                                    1 (Arduino Uno R3)

int pirPin = 4;
int ledPin = 2;
bool val=0;

void setup(){

  Serial.begin(9600);
  pinMode(pirPin,INPUT);
  pinMode(ledPin,OUTPUT);
}

void loop(){

  val = digitalRead(pirPin);//low = no motion, high = motion
  if (val == HIGH)
   {
    digitalWrite(ledPin, HIGH);
    Serial.println("Motion deteched");
    delay(1000);
   }
  else
   {
    digitalWrite(ledPin, LOW);
    Serial.println("No motion detected");
    delay(1000);
   }
}
```

PIR



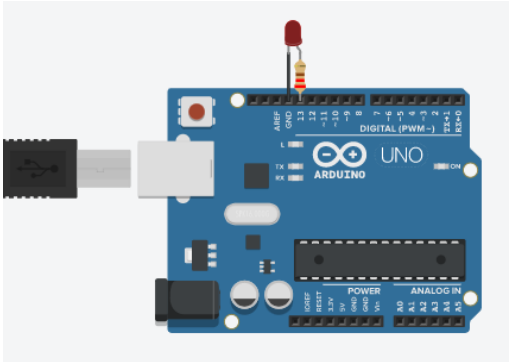


TMP36_LED

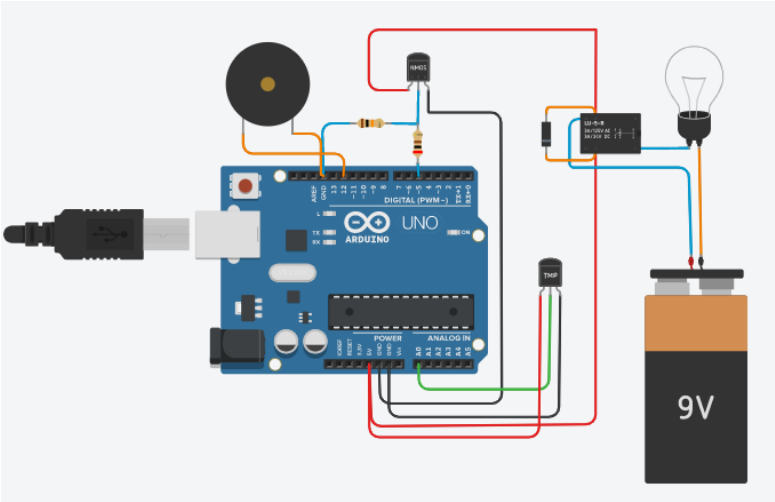



```
// C++ code
//
#define LED 7

void setup()
{
  pinMode(A0, INPUT);
  pinMode(LED,OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  int val = analogRead(A0);
  int temp = map(val,0,(1.75/5)*1024,-50,125);
  if (temp>= 40){
    digitalWrite(LED,HIGH);
    Serial.println("LED ON");
    Serial.println(temp);
    delay(500);
        }
  else if (temp <= 20){
    digitalWrite(LED,LOW);
    Serial.println("LED ON");
    Serial.println(temp);
    delay(500);
    }
}
```

Blink without delay



```
const int ledPin =  LED_BUILTIN;  // the number of the LED pin Variables will change :
int ledState = LOW;   // ledState used to set the LED
// Generally, you should use "unsigned long" for variables that hold time
// The value will quickly become too large for an int to store
unsigned long previousMillis = 0;   // will store last time LED was updated
const long interval = 1000;           // interval at which to blink (milliseconds)
void setup() {
pinMode(ledPin, OUTPUT);
}
void loop() {
unsigned long currentMillis = millis();
  if (currentMillis - previousMillis >= interval) {
    // save the last time you blinked the LED
    previousMillis = currentMillis;
    // if the LED is off turn it on and vice-versa:
    if (ledState == LOW) { ledState = HIGH; }
    else { ledState = LOW; }
    // set the LED with the ledState of the variable:
    digitalWrite(ledPin, ledState);
  }
}
```



Try: Relay based on Temp

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