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/*****
Project      : SARC Demo 2
Libraries    : None
Author       : Clive
Description  : LED + PIR + Ultrasonic Sensor Demo
*****/

int led = 3;
byte pirPin = 4;
byte echoPin = 7;
byte trigPin = 8;

int maximumRange = 200;
int minimumRange = 0;
long duration, distance;

void setup()
{
  Serial.begin(115200);
  pinMode(pirPin, INPUT);
  pinMode(led, OUTPUT);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
}

void loop()
{
  byte state = digitalRead(pirPin);

  if(state == 1)
  {
    Serial.println("Somebody is in the area!");
    digitalWrite(led, HIGH); //Turn on led
  }
  else
  {
    Serial.println("Nobody about..");
    digitalWrite(led, LOW); //Turn off led
  }

  /* The trigPin/echoPin cycle is used to determine the distance of the nearest
  object. */
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  /* Calculate the distance (in cm) from the sensor. */
  distance = duration/58.2;

  if (distance >= maximumRange || distance <= minimumRange)
  {
    Serial.println("Out of range");
  }
}

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else
{
  Serial.println("");
  Serial.print("Nearest object is ");
  Serial.print(distance);
  Serial.print(" cms");
  Serial.println("");
}

delay(3000);
}
```