

```

// X軸の傾きに応じて点灯する LED の数が変わる
int led1 = 4;
int led2 = 5;
int led3 = 6;
int led4 = 7;
int led5 = 8;
int led6 = 9;
int led7 = 10;
int led8 = 11;
int led9 = 12;
int LED_PIN = 13;
void setup()
{
  // シリアルモニターの初期化をする
  Serial.begin(9600);
  pinMode(led1, OUTPUT);
  pinMode(led2, OUTPUT);
  pinMode(led3, OUTPUT);
  pinMode(led4, OUTPUT);
  pinMode(led5, OUTPUT);
  pinMode(led6, OUTPUT);
  pinMode(led7, OUTPUT);
  pinMode(led8, OUTPUT);
  pinMode(led9, OUTPUT);
  pinMode(LED_PIN, OUTPUT);
}
void loop() {

  int i;
  long x, y, z;
  //50回センサ値を読み込んで平均を算出
  x = y = z = 0;
  for (i = 0 ; i < 50 ; i++) {
    x = x + analogRead(3); // X軸
    y = y + analogRead(4); // Y軸
    z = z + analogRead(5); // Z軸
  }
  x = x / 50 ;
  y = y / 50 ;
  z = z / 50 ;
}

```

```
int rotateX = (x - 280) / 2.56 - 90; //角度を求める式
int rotateY = (y - 264) / 2.56 - 90;
Serial.print("X:");
Serial.print(x);
Serial.print(" ");
Serial.print(rotateX);
Serial.print(" Y:");
Serial.print(y);
Serial.print(" ");
Serial.println(rotateY);
```

```
switch (rotateX) {
  case 0:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    digitalWrite(led6, LOW);
    digitalWrite(led7, LOW);
    digitalWrite(led8, LOW);
    digitalWrite(led9, LOW);
    break;
  case 10:
    digitalWrite(led1, HIGH);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    digitalWrite(led6, LOW);
    digitalWrite(led7, LOW);
    digitalWrite(led8, LOW);
    digitalWrite(led9, LOW);
    break;
  case 20:
    digitalWrite(led1, HIGH);
    digitalWrite(led2, HIGH);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
```

```
digitalWrite(led5, LOW);
digitalWrite(led6, LOW);
digitalWrite(led7, LOW);
digitalWrite(led8, LOW);
digitalWrite(led9, LOW);
break;
case 30:
digitalWrite(led1, HIGH);
digitalWrite(led2, HIGH);
digitalWrite(led3, HIGH);
digitalWrite(led4, LOW);
digitalWrite(led5, LOW);
digitalWrite(led6, LOW);
digitalWrite(led7, LOW);
digitalWrite(led8, LOW);
digitalWrite(led9, LOW);
break;
case 40:
digitalWrite(led1, HIGH);
digitalWrite(led2, HIGH);
digitalWrite(led3, HIGH);
digitalWrite(led4, HIGH);
digitalWrite(led5, LOW);
digitalWrite(led6, LOW);
digitalWrite(led7, LOW);
digitalWrite(led8, LOW);
digitalWrite(led9, LOW);
break;
case 50:
digitalWrite(led1, HIGH);
digitalWrite(led2, HIGH);
digitalWrite(led3, HIGH);
digitalWrite(led4, HIGH);
digitalWrite(led5, HIGH);
digitalWrite(led6, LOW);
digitalWrite(led7, LOW);
digitalWrite(led8, LOW);
digitalWrite(led9, LOW);
break;
case 60:
```

```
digitalWrite(led1, HIGH);  
digitalWrite(led2, HIGH);  
digitalWrite(led3, HIGH);  
digitalWrite(led4, HIGH);  
digitalWrite(led5, HIGH);  
digitalWrite(led6, HIGH);  
digitalWrite(led7, LOW);  
digitalWrite(led8, LOW);  
digitalWrite(led9, LOW);  
break;
```

case 70:

```
digitalWrite(led1, HIGH);  
digitalWrite(led2, HIGH);  
digitalWrite(led3, HIGH);  
digitalWrite(led4, HIGH);  
digitalWrite(led5, HIGH);  
digitalWrite(led6, HIGH);  
digitalWrite(led7, HIGH);  
digitalWrite(led8, LOW);  
digitalWrite(led9, LOW);  
break;
```

case 80:

```
digitalWrite(led1, HIGH);  
digitalWrite(led2, HIGH);  
digitalWrite(led3, HIGH);  
digitalWrite(led4, HIGH);  
digitalWrite(led5, HIGH);  
digitalWrite(led6, HIGH);  
digitalWrite(led7, HIGH);  
digitalWrite(led8, HIGH);  
digitalWrite(led9, LOW);  
break;
```

case 90:

```
digitalWrite(led1, HIGH);  
digitalWrite(led2, HIGH);  
digitalWrite(led3, HIGH);  
digitalWrite(led4, HIGH);  
digitalWrite(led5, HIGH);  
digitalWrite(led6, HIGH);  
digitalWrite(led7, HIGH);
```

```
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
case -10:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    digitalWrite(led6, LOW);
    digitalWrite(led7, LOW);
    digitalWrite(led8, LOW);
    digitalWrite(led9, HIGH);
    break;
case -20:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    digitalWrite(led6, LOW);
    digitalWrite(led7, LOW);
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
case -30:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    digitalWrite(led6, LOW);
    digitalWrite(led7, HIGH);
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
case -40:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
```

```
    digitalWrite(led4, LOW);
    digitalWrite(led5, LOW);
    digitalWrite(led6, HIGH);
    digitalWrite(led7, HIGH);
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
case -50:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, LOW);
    digitalWrite(led5, HIGH);
    digitalWrite(led6, HIGH);
    digitalWrite(led7, HIGH);
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
case -60:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, LOW);
    digitalWrite(led4, HIGH);
    digitalWrite(led5, HIGH);
    digitalWrite(led6, HIGH);
    digitalWrite(led7, HIGH);
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
case -70:
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
    digitalWrite(led3, HIGH);
    digitalWrite(led4, HIGH);
    digitalWrite(led5, HIGH);
    digitalWrite(led6, HIGH);
    digitalWrite(led7, HIGH);
    digitalWrite(led8, HIGH);
    digitalWrite(led9, HIGH);
    break;
```

```
case -80:  
    digitalWrite(led1, LOW);  
    digitalWrite(led2, HIGH);  
    digitalWrite(led3, HIGH);  
    digitalWrite(led4, HIGH);  
    digitalWrite(led5, HIGH);  
    digitalWrite(led6, HIGH);  
    digitalWrite(led7, HIGH);  
    digitalWrite(led8, HIGH);  
    digitalWrite(led9, HIGH);  
    break;
```

```
case -90:  
    digitalWrite(led1, HIGH);  
    digitalWrite(led2, HIGH);  
    digitalWrite(led3, HIGH);  
    digitalWrite(led4, HIGH);  
    digitalWrite(led5, HIGH);  
    digitalWrite(led6, HIGH);  
    digitalWrite(led7, HIGH);  
    digitalWrite(led8, HIGH);  
    digitalWrite(led9, HIGH);  
    break;
```

```
}
```

```
}
```

```

//加速度センサの角度を求めるために使用する数値を測定するのに使う
void setup()
{
// シリアルモニターの初期化をする
Serial.begin(9600);
}
void loop()
{
long x , y , z ;
x = y = z = 0 ;
x = analogRead(3) ; // X 軸
y = analogRead(4) ; // Y 軸
z = analogRead(5) ; // Z 軸
Serial.print("X:");
Serial.print(x) ;
Serial.print(" Y:");
Serial.print(y) ;
Serial.print(" Z:");
Serial.println(z) ;
delay(50) ;
}

```

角度を求めるのに使用する計算式

(最大値-最小値) ÷ 180 = ①

(現在の数値-最小値) ÷ ① - 90

例

rotateX = (x - 280) / 2.56 - 90

測定した数値を角度を求める計算式で解いた値が表示される

```
//*****  
//加速度センサの値を取得するプログラム 2  
//*****  
void setup(){  
  // シリアルモニターの初期化をする  
  Serial.begin(9600);  
}  
void loop(){  
  int i;  
  long x,y,z;  
  //50回センサ値を読み込んで平均を算出  
  x=y=z=0;  
  for (i=0 ; i < 50 ; i++) {  
    x = x + analogRead(3); // X軸  
    y = y + analogRead(4); // Y軸  
    z = z + analogRead(5); // Z軸  
  }  
  x = x / 50;  
  y = y / 50;  
  z = z / 50;  
  int rotateX = (x-282)/2.54 - 90; //角度を求める式  
  int rotateY = (y-266)/2.54 - 90;  
  Serial.print("X:");  
  Serial.print(x);  
  Serial.print(" ");  
  Serial.print(rotateX);  
  Serial.print(" Y:");  
  Serial.print(y);  
  Serial.print(" ");  
  Serial.println(rotateY);  
  delay(50);  
}
```

角度を求めるのにしようする計算式

(最大値-最小値)÷180=①

(現在の数値-最小値) ÷ ①-90

例

rotateX = (x - 280) / 2.56 - 90