#define ledA1 2

#define ledA2 3

#define ledA3 4

#define ledB1 5

#define ledB2 6

#define ledB3 7

#define ledC1 8

#define ledC2 9

#define ledC3 10

#define ledD1 12

#define ledD2 11

#define ledD3 13

int a1, a2, b1, b2, c1, c2, d1, d2;

void setup() {

Serial.begin(9600);

pinMode(ledA1, OUTPUT);

pinMode(ledA2, OUTPUT);

pinMode(ledA3, OUTPUT);

pinMode(ledB1, OUTPUT);

pinMode(ledB2, OUTPUT);

pinMode(ledB3, OUTPUT);

pinMode(ledC1, OUTPUT);

pinMode(ledC2, OUTPUT);

pinMode(ledC3, OUTPUT);

pinMode(ledD1, OUTPUT);

pinMode(ledD2, OUTPUT);

pinMode(ledD3, OUTPUT);

}

void loop() {

readSensor();

if ((a1==1&&a2==1)&&(b1==0||b2==0)&&(c1==0||c2==0)&&(d1==0||d2==0))

{

roadAopen ();

}

else if ((a1==0&&a2==0)&&(b1==1||b2==1)&&(c1==0||c2==0)&&(d1==0||d2==0))

{

roadBopen ();

}

else if ((a1==0&&a2==0)&&(b1==0||b2==0)&&(c1==1||c2==1)&&(d1==0||d2==0))

{

roadCopen ();

}

else if ((a1==0&&a2==0)&&(b1==0||b2==0)&&(c1==0||c2==0)&&(d1==1||d2==1))

{

roadDopen ();

}

//////////////////////////////////////////////////////////////////////

if ((a1==1&&a2==1)&&(b1==1||b2==0)&&(c1==1||c2==0)&&(d1==1||d2==0))

{

roadAopen ();

}

else if ((a1==1&&a2==0)&&(b1==1||b2==1)&&(c1==1||c2==0)&&(d1==1||d2==0))

{

roadBopen ();

}

else if ((a1==1&&a2==0)&&(b1==1||b2==0)&&(c1==1||c2==1)&&(d1==1||d2==0))

{

roadCopen ();

}

else if ((a1==1&&a2==0)&&(b1==1||b2==0)&&(c1==1||c2==0)&&(d1==1||d2==1))

{

roadDopen ();

}

if ((a1==1&&a2==1)&&(b1==1||b2==1)&&(c1==1||c2==1)&&(d1==1||d2==1))

{

roadopen ();

}

else if ((a1==0&&a2==0)&&(b1==0||b2==0)&&(c1==0||c2==0)&&(d1==0||d2==0))

{

roadopen ();

}

}

void readSensor()

{

a1 = analogRead(A0);

a2 = analogRead(A1);

b1 = analogRead(A2);

b2 = analogRead(A3);

c1 = analogRead(A4);

c2 = analogRead(A5);

d1 = analogRead(A6);

d2 = analogRead(A7);

if (a1 < 800) a1 = 1; else a1 = 0; if (a2 < 800) a2 = 1; else a2 = 0;

if (b1 < 800) b1 = 1; else b1 = 0; if (b2 < 800) b2 = 1; else b2 = 0;

if (c1 < 800) c1 = 1; else c1 = 0; if (c2 < 800) c2 = 1; else c2 = 0;

if (d1 < 800) d1 = 1; else d1 = 0; if (d2 < 800) d2 = 1; else d2 = 0;

Serial.print(a1);

Serial.print("\t");

Serial.print(a2);

Serial.print("\t");

Serial.print(b1);

Serial.print("\t");

Serial.print(b2);

Serial.print("\t");

Serial.print(c1);

Serial.print("\t");

Serial.print(c2);

Serial.print("\t");

Serial.print(d1);

Serial.print("\t");

Serial.print(d2);

Serial.println("\t");

}

void roadAopen()

{

digitalWrite(ledA3, LOW);

digitalWrite(ledA2, HIGH);

delay(1000);

digitalWrite(ledA2, LOW);

digitalWrite(ledA1, HIGH);

digitalWrite(ledB3, HIGH);

digitalWrite(ledC3, HIGH);

digitalWrite(ledD3, HIGH);

delay(3000);

digitalWrite(ledA1, LOW);

readSensor();

}

void roadBopen()

{

digitalWrite(ledB3, LOW);

digitalWrite(ledB2, HIGH);

delay(1000);

digitalWrite(ledB2, LOW);

digitalWrite(ledB1, HIGH);

digitalWrite(ledA3, HIGH);

digitalWrite(ledC3, HIGH);

digitalWrite(ledD3, HIGH);

delay(3000);

digitalWrite(ledB1, LOW);

readSensor();

}

void roadCopen()

{

digitalWrite(ledC3, LOW);

digitalWrite(ledC2, HIGH);

delay(1000);

digitalWrite(ledC2, LOW);

digitalWrite(ledC1, HIGH);

digitalWrite(ledB3, HIGH);

digitalWrite(ledA3, HIGH);

digitalWrite(ledD3, HIGH);

delay(3000);

digitalWrite(ledC1, LOW);

readSensor();

}

void roadDopen()

{

digitalWrite(ledD3, LOW);

digitalWrite(ledD2, HIGH);

delay(1000);

digitalWrite(ledD2, LOW);

digitalWrite(ledD1, HIGH);

digitalWrite(ledB3, HIGH);

digitalWrite(ledC3, HIGH);

digitalWrite(ledA3, HIGH);

delay(3000);

digitalWrite(ledD1, LOW);

readSensor();

}

void roadopen()

{

digitalWrite(ledA3, LOW);

digitalWrite(ledA2, HIGH);

delay(1000);

digitalWrite(ledA2, LOW);

digitalWrite(ledA1, HIGH);

digitalWrite(ledB3, HIGH);

digitalWrite(ledC3, HIGH);

digitalWrite(ledD3, HIGH);

delay(3000);

digitalWrite(ledA1, LOW);

readSensor();

digitalWrite(ledB3, LOW);

digitalWrite(ledB2, HIGH);

delay(1000);

digitalWrite(ledB2, LOW);

digitalWrite(ledB1, HIGH);

digitalWrite(ledA3, HIGH);

digitalWrite(ledC3, HIGH);

digitalWrite(ledD3, HIGH);

delay(3000);

digitalWrite(ledB1, LOW);

readSensor();

digitalWrite(ledC3, LOW);

digitalWrite(ledC2, HIGH);

delay(1000);

digitalWrite(ledC2, LOW);

digitalWrite(ledC1, HIGH);

digitalWrite(ledB3, HIGH);

digitalWrite(ledA3, HIGH);

digitalWrite(ledD3, HIGH);

delay(3000);

digitalWrite(ledC1, LOW);

readSensor();

digitalWrite(ledD3, LOW);

digitalWrite(ledD2, HIGH);

delay(1000);

digitalWrite(ledD2, LOW);

digitalWrite(ledD1, HIGH);

digitalWrite(ledB3, HIGH);

digitalWrite(ledC3, HIGH);

digitalWrite(ledA3, HIGH);

delay(3000);

digitalWrite(ledD1, LOW);

readSensor();

}