//Led pin numbers as per ur circuit

int led = 3;

void setup() {

pinMode(led, OUTPUT);

}

void loop() {

normalFade();

delay(1000);

smoothFade();

delay(1000);

bounce();

delay(1000);

bounce2();

delay(3000);

}

void normalFade()

{

for(int i=0; i<255; i++)

{

analogWrite(led, i);

delay(2);

}

for(int i=255; i>=0; i--)

{

analogWrite(led, i);

delay(2);

}

}

void smoothFade()

{

for(int i=0;i<=180;i++)

{

analogWrite(led, 255 \* sin(radians(i)));

delay(7);

}

}

void bounce()

{

for(float j=0; j<255; j+=40)

{

for(int i=0; i<=180; i++)

{

analogWrite(led, (255 - j) \* sin(radians(i)));

delay(5);

//delay(5-3\*j/255);

}

}

}

void bounce2()

{

float brightness = 255;

float delayValue = 5;

for(float j=0; j<30; j++)

{

brightness -= brightness \* 0.15;

delayValue -= delayValue \* 0.1;

for(int i=0; i<=180; i++)

{

analogWrite(led, brightness \* sin(radians(i)));

delay(delayValue);

}

}

}

BUTTON: ON and OFF

void setup() {

pinMode(8,INPUT);

pinMode(13,OUTPUT);

Serial.begin(9600);

Serial.println("Hola!!");

// put your setup code here, to run once:

}

int prev=0;

int led=0;

void loop() {

int value=digitalRead(8);

if(value==1&&prev==0)

{

digitalWrite(13,led);

led=!led;

}

prev=value;

delay(100);

// put your main code here, to run repeatedly:

}

TRAFFIC

…….

LIGHT INTENSITY

void setup() {

Serial.begin(9600);

pinMode(13,OUTPUT);

pinMode(12,OUTPUT);

pinMode(8,OUTPUT);

}

void b1(int value)

{

if(value>=900&&value<=1023)

{digitalWrite(13,HIGH);

digitalWrite(12,HIGH);

digitalWrite(8,HIGH);

Serial.println("HIGH");

}

else if(value>=500&&value<=900)

{

digitalWrite(12,HIGH);

digitalWrite(8,HIGH);

digitalWrite(13,LOW);

Serial.println("MEDIUM");

}

else if(value<=500&&value>=300)

{

digitalWrite(12,LOW);

digitalWrite(8,HIGH);

digitalWrite(13,LOW);

Serial.println("LOW BRIGHT");

}

else

{

digitalWrite(12,LOW);

digitalWrite(8,LOW);

digitalWrite(13,LOW);

Serial.println("NO LIGHT");

}

}

void loop() {

int value=analogRead(A5);

Serial.println(value);

b1(value);

delay(100);

}

MOTOR:

int motorPin1 = 13;

int motorPin2 = 12;

int motorEnable = 11; //PWM

void setup(){

pinMode(motorPin1, OUTPUT);

pinMode(motorPin2, OUTPUT);

pinMode(motorEnable, OUTPUT);

analogWrite(motorEnable, 255);

}

void loop(){

digitalWrite(motorPin1, HIGH);

digitalWrite(motorPin2, LOW);

delay(1000);

digitalWrite(motorPin1, LOW);

digitalWrite(motorPin2, HIGH);

delay(1000);

}

TRAFFIC LIGHT

//Pin number as per ur circuits

int redLight = 13;

int orangeLight = 12;

int greenLight = 11;

int pushButton = 7;

int previousState = 0;

boolean isTrafficOpen = false;

void setup(){

pinMode(redLight, OUTPUT);

pinMode(orangeLight, OUTPUT);

pinMode(greenLight, OUTPUT);

pinMode(pushButton, INPUT);

digitalWrite(redLight, LOW);

digitalWrite(orangeLight, LOW);

digitalWrite(greenLight, HIGH);

}

void openTraffic(){

isTrafficOpen = true;

digitalWrite(redLight, LOW);

digitalWrite(orangeLight, HIGH);

delay(2000);

digitalWrite(orangeLight, LOW);

digitalWrite(greenLight, HIGH);

}

void closeTraffic(){

isTrafficOpen = false;

digitalWrite(greenLight, LOW);

digitalWrite(orangeLight, HIGH);

delay(2000);

digitalWrite(orangeLight, LOW);

digitalWrite(redLight, HIGH);

}

void loop()

{

int buttonState = digitalRead(pushButton);

if(buttonState == 1 && previousState == 0)

{

if(isTrafficOpen)

closeTraffic();

else openTraffic();

}

previousState = buttonState;

}

<http://192.168.1.3/3.INO>

BUZZER:

int pushButton = 12;

int buzzer = 3;

void setup() {

pinMode(pushButton, INPUT);

pinMode(buzzer, OUTPUT);

Serial.begin(9600);

}

long timeArray[100];

int arrayCount = 0;

int previousButtonState = 0;

unsigned long previousActionTime = -1;

void loop() {

int buttonState = digitalRead(pushButton);

digitalWrite(buzzer, buttonState);

if(buttonState != previousButtonState)//press or release

{

if(previousActionTime != -1)

timeArray[arrayCount++] = millis() - previousActionTime;

previousActionTime = millis();

}

previousButtonState = buttonState;

if(buttonState == 0 && (millis() - previousActionTime) > 3000)//idle for more than 3sec

{

for(int i=0; i<arrayCount; i+=2)

{

digitalWrite(buzzer, HIGH);

delay(timeArray[i]);

digitalWrite(buzzer, LOW);

delay(timeArray[i+1]);

}

arrayCount = 0;

previousActionTime = -1;

}

delay(10);

}

int motorPin1 = 13;

int motorPin2 = 12;

int motorEnable = 11; //PWM

void setup(){

pinMode(motorPin1, OUTPUT);

pinMode(motorPin2, OUTPUT);

pinMode(motorEnable, OUTPUT);

analogWrite(motorEnable, 255);

}

void loop(){

digitalWrite(motorPin1, HIGH);

digitalWrite(motorPin2, LOW);

delay(1000);

digitalWrite(motorPin1, LOW);

digitalWrite(motorPin2, HIGH);

delay(4000);

}

TOUCH DTETCTOR:

#include<Servo.h>

Servo myservo;

int servoPin=13;

void setup(){

Serial.begin(9600);

myservo.attach(servoPin);

}

void s()

{

for(int i=0;i<180;i++)

{

myservo.write(i);

delay(10);

}

}

void check(int value)

{

if(value>=0 && value<=200)

s();

// else

// {

// for(int i=180;i>=0;i--)

// {

// myservo.write(i);

// delay(10);

//

// }

// }

}

void loop(){

int value=analogRead(A0);

Serial.println(value);

check(value);

}

PING:

const int trigPin = 7;

const int echoPin = 8;

void setup() {

pinMode(trigPin, OUTPUT);

pinMode(echoPin, INPUT);

Serial.begin(9600);

}

void loop()

{

long duration, inches, cm;

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

digitalWrite(trigPin, HIGH);

delayMicroseconds(5);

digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);

// convert the time into a distance

inches = microsecondsToInches(duration);

cm = microsecondsToCentimeters(duration);

Serial.print(inches);

Serial.print("in, ");

Serial.print(cm);

Serial.print("cm");

Serial.println();

delay(100);

}

long microsecondsToInches(long microseconds)

{

return microseconds / 74 / 2;

}

long microsecondsToCentimeters(long microseconds)

{

return microseconds / 29 / 2;

}

int pirPin = 12;

void setup(){

Serial.begin(9600);

pinMode(pirPin, INPUT);

}

void loop()

{

int val = digitalRead(pirPin);

Serial.println(val);

}

PING and BUZZER

const int trigPin = 7;

const int echoPin = 8;

int buzzer=2;

void setup() {

pinMode(trigPin, OUTPUT);

pinMode(echoPin, INPUT);

Serial.begin(9600);

pinMode(13,OUTPUT);

pinMode(buzzer,OUTPUT);

pinMode(12,OUTPUT);

}

void loop()

{

long duration, inches, cm;

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

digitalWrite(trigPin, HIGH);

delayMicroseconds(5);

digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);

// convert the time into a distance

inches = microsecondsToInches(duration);

cm = microsecondsToCentimeters(duration);

Serial.print(inches);

Serial.print("in, ");

Serial.print(cm);

Serial.print("cm");

Serial.println();

if(inches<2)

{

digitalWrite(buzzer,HIGH);

digitalWrite(13,HIGH);

digitalWrite(12,HIGH);

delay(10);

}

else if(inches>2&&inches<5)

{

digitalWrite(buzzer,LOW);

digitalWrite(13,HIGH);

digitalWrite(12,HIGH);

delay(10);

}

else if(inches<9&&inches>5)

{

digitalWrite(buzzer,LOW);

digitalWrite(13,HIGH);

digitalWrite(12,LOW);

delay(10);

}

else

{

digitalWrite(buzzer,LOW);

digitalWrite(13,LOW);

digitalWrite(12,LOW);

delay(10);

}

}

long microsecondsToInches(long microseconds)

{

return microseconds / 74 / 2;

}

long microsecondsToCentimeters(long microseconds)

{

return microseconds / 29 / 2;

}

PIR:

int pirPin = 12;

void setup(){

Serial.begin(9600);

pinMode(pirPin, INPUT);

}

void loop()

{

int val = digitalRead(pirPin);

Serial.println(val);

}

JOYSTICK (Analog input)

TREASURE FINDER (1 LED)

#include "IMUGY85.h"

int i;

IMUGY85 imu;

double ax, ay, az, gx, gy, gz, roll, pitch, yaw;

void setup()

{

Serial.begin(9600);

imu.init();

}

void loop()

{

imu.update();

//printAccel();

//printGyro();

printRollPitchYaw();

double value=120;

double y=imu.getYaw();

if(y>=80&&y<value)

for(int i=180;i<255;i++)

{

analogWrite(10,i);

delay(5);

}

else if((y>=50&&y<=80)||(y<=200&&y>=160))

{

for(int i=100;i<180;i++){

analogWrite(10,i);

delay(5);}

}

else if((y>=0&&y<=50)||(y>=200&&y<=240))

{

for(int i=50;i<70;i++){

analogWrite(10,i);

delay(5);}

}

else if(y>value&&y<=160)

{

for(int i=180;i<255;i++){

analogWrite(10,i);

delay(5);}

}

else if(y>=240&&y<300)

{

for(int i=30;i<50;i++){

analogWrite(10,i);

delay(5);}

}

else if(y==300)

{

analogWrite(10,0);

delay(5);

}

else if(y==value)

{

analogWrite(10,255);

delay(5);

}

else

{

for(i=50;i>=0;i--)

{

analogWrite(10,i);

delay(5);

}

}

}

void printAccel()

{

imu.getAcceleration(&ax, &ay, &az);

Serial.print(ax);Serial.print("\t");

Serial.print(ay);Serial.print("\t");

Serial.print(az);Serial.print("\t");

Serial.println();

}

void printGyro()

{

imu.getGyro(&gx, &gy, &gz);

Serial.print(gx);Serial.print("\t");

Serial.print(gy);Serial.print("\t");

Serial.print(gz);Serial.print("\t");

Serial.println();

}

void printRollPitchYaw()

{

roll = imu.getRoll();

pitch = imu.getPitch();

yaw = imu.getYaw();

Serial.print(pitch);Serial.print("\t");

Serial.print(roll);Serial.print("\t");

Serial.print(yaw);Serial.print("\t");

Serial.println();

}

1. Install ESP board in arduino by following these steps

* Start Arduino and open Preferences window.
* Enter <http://arduino.esp8266.com/stable/package_esp8266com_index.json>into Additional Board Manager URLs field.
* Open Boards Manager from Tools > Board menu and find esp8266 platform.
* Click install button.  
  Check this video if you have any doubts <https://s3.amazonaws.com/workshop17/espinstall.mp4>

2. Download the attached file

Attachments area

void setup()

{

Serial.begin(9600);

int in,out,c;

for(c=0,in=2,out=22;c<9,in<=10,out<=30;c++,in++)

{

pinMode(in,INPUT);

pinMode(out++,OUTPUT);

}

digitalWrite(13,LOW);

}

int pin,buttonpress[9];

int Random()

{

int i=random(9)+22;

Serial.println(i);

return i;

}

int s,v,p;

void loop()

{

digitalWrite(13,LOW);

pin=Random();

Serial.println("random"+String(pin));

glow(pin);

for(s=0,v=2;s<9,v<=10;s++,v++)

{

buttonpress[s]=digitalRead(v);

Serial.print(buttonpress[s]);Serial.print(",");

}

Serial.println();

for(int i=0,p=22;i<9,p<=30;i++,p++)

{

if((buttonpress[i]==1)&&(pin==p))

{

digitalWrite(13,HIGH);

delay(200);

digitalWrite(pin,LOW);

}

}

}

void glow(int pin)

{

int a[9]={22,23,24,25,26,27,28,29,30};

for(int i=0;i<9;i++)

{

if(a[i]==pin)

{

digitalWrite(a[i],HIGH);

delay(200);

}

else

{

digitalWrite(a[i],LOW);

delay(20);

}

}

}

NPTEL

Design n analysis of ALGOS

<https://onlinecourses.nptel.ac.in/noc17_cs27>