Digital Write/Read using LED

```
int led1=12;
void setup() {
  // put your setup code here, to run once:
pinMode(led1,OUTPUT);

}

void loop() {
  // put your main code here, to run repeatedly:
digitalWrite(12,HIGH);
delay(1000);
digitalWrite(12,LOW);
delay(1000);
}
```

Using switch to turn ON/OFF LED

```
int led1=12;
int switch1=10;
void setup(){
  // put your setup code here, to run once:
pinMode(switch1,INPUT);
pinMode(led1,OUTPUT);
}

void loop(){
  // put your main code here, to run repeatedly:
if (digitalRead(switch1)==HIGH)
{
  digitalWrite(led1,HIGH);

}else{
digitalWrite(led1,LOW);

}
}
```

EXP1-3

CODE-

```
void setup() {
  // put your setup code here, to run once:
Serial.begin(9600);

}

void loop() {
  // put your main code here, to run repeatedly:
int A=analogRead(A0);
Serial.println(A);
delay(1000);
float voltage=A*(5.0/1024.0);
Serial.println(voltage);
}
```

Temperature sensor

```
void setup() {
  // put your setup code here, to run once:
Serial.begin(9600);
}

void loop() {
  // put your main code here, to run repeatedly:
int val=analogRead(A0);
float tempC=(val*5.0*100)/1024;
float tempK=(tempC*9.0/5.0)+32.0;
Serial.print("temp:");
Serial.print(tempC);
Serial.print("\xc2\xB0");
Serial.println("C");
Serial.print(tempK);
Serial.println("\xc2\xB0");
delay(10000);
}
```

IR sensor

```
int irsensor1=2;
int led1=12;
void setup() {
  // put your setup code here, to run once:
pinMode(irsensor1,INPUT);
pinMode(led1,OUTPUT);
Serial.begin(9600);
}

void loop() {
  // put your main code here, to run repeatedly:
int sensorV=digitalRead(irsensor1);

if (sensorV== LOW)
{
  digitalWrite(led1, HIGH);
Serial.println("object detected!!");
}
else
{
digitalWrite(led1, LOW);
Serial.println("NO object detected");
}
delay(1000);
}
```

Ultrasonic sensor

```
int inpin=9;
int outpin=10;
int bpin=8;
long dur;
float dist;

void setup() {
  // put your setup code here, to run once:
pinMode(inpin,  OUTPUT);
pinMode(outpin,INPUT);
pinMode(bpin,OUTPUT);
Serial.begin(9600);
}

void loop() {
  // put your main code here, to run repeatedly:
digitalWrite(inpin, LOW);
delay(2);
digitalWrite(inpin, HIGH);
delay(5);
digitalWrite(inpin, LOW);

dur=pulseIn(outpin,HIGH);
dist=dur*0.034/2;

Serial.print("Distance:");
Serial.print(dist);
Serial.println(" cm");

if(dist<50)
{
  digitalWrite(bpin,HIGH);
  delay(100);

}
else{
  digitalWrite(bpin,LOW);
  delay(100);
}
}
```

Stepper motor

```
#include <Servo.h>

Servo myservo;
int value;
double angle;

void setup() {
  // put your setup code here, to run once:
Serial.begin(9600);
myservo.attach(9);
}

void loop() {
  // put your main code here, to run repeatedly:
value=analogRead(A0);
angle=map(value,0,1023,0,180);
Serial.println(angle);
myservo.write(angle);
delay(5000);
}
```

Stepper motor

```
#include <Servo.h>

Servo myservo;
int angle;
void setup() {
  // put your setup code here, to run once:
myservo.attach(9);
Serial.begin(9600);
}

void loop() {
  // put your main code here, to run repeatedly:
for (int angle=0;angle<=180;angle+=10)
{Serial.println(angle);
  myservo.write(angle);
  delay(1000);
}
for(int angle=180;angle>=0;angle-=10)
{Serial.println(angle);
  myservo.write(angle);
  delay(1000);
}
}
```

DC motor

```
int motorpin=9;
void setup() {
  // put your setup code here, to run once:
pinMode(motorpin,OUTPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
digitalWrite(motorpin,HIGH);
delay(5000);

digitalWrite(motorpin,LOW);
delay(5000);
}
```

DC motor at different speed

```
int motorpin=9;

void setup() {
  // put your setup code here, to run once:
pinMode(motorpin,OUTPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
analogWrite(motorpin,0);
delay(5000);

analogWrite(motorpin,128);
delay(5000);

analogWrite(motorpin,255);
delay(5000);
}
```

Bluetooth Model -1

```
#include<SoftwareSerial.h>
SoftwareSerial myserial(2,3);
void setup() {
Serial.begin(9600);
myserial.begin(9600);
}

void loop() {
if (myserial.available()){
Serial.println(myserial.readString());
}
}
```

Bluetooth Model-2

```
#include<SoftwareSerial.h>
SoftwareSerial bluetooth(2,3);
int LED=13;
int Data;

void setup() {
  // put your setup code here, to run once:
bluetooth.begin(9600);
Serial.begin(9600);
Serial.println("waiting for command...");
bluetooth.println("Send 1 to turn on the LED. Send 0 to turn off");
pinMode(LED,OUTPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
if(bluetooth.available()){
  Data=bluetooth.read();
  if(Data=='1'){
    digitalWrite(LED,1);
    Serial.println("LED on!");
    bluetooth.println("LED on!");
  }

  else if (Data=='0'){
    digitalWrite(LED,0);
    Serial.println("LED off!");
    bluetooth.println("LED off!");
  }
  else{;}
}
delay(100);
}
```