

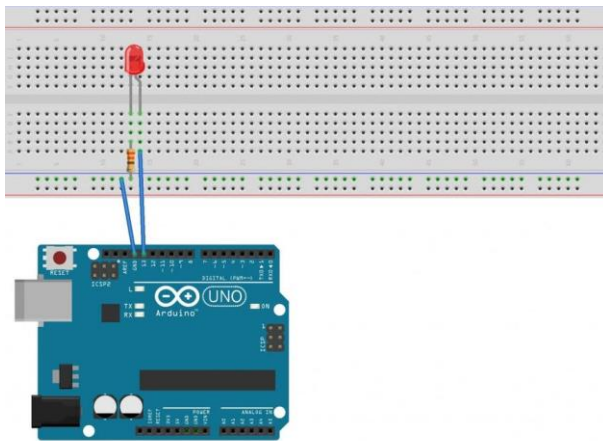
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CHAPTER 1 : Simple led blink project

Components Required

- 1 x Breadboard
- 1 x Arduino Uno
- 1 x LED
- 1 x 10k Resistor
- 2 x Jumper

Procedure



Code:

```
/*  
  
* TamilZorous info tech  
  
*/  
  
int led =9;  
  
void setup() {  
  
  pinMode(led, OUTPUT);  
  
}  
  
void loop() {  
  
  digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
```

```

delay(1000);           // wait for a second

digitalWrite(led, LOW); // turn the LED off by making the voltage LOW

delay(1000);           // wait for a second
}

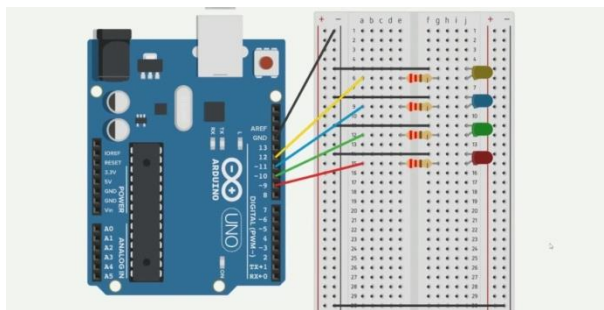
```

CHAPTER 2 : Multiple led blink project:

Components Required

- 1 x Breadboard
- 1 x Arduino Uno
- 4 x LED
- 4 x 10k Resistor
- 8 x Jumper

Procedure



Code:

```

/*
 * TamilZorous info tech
 */

int led1 =9;

int led2 =10;

int led3 =11;

int led4 =12;

void setup() {

  Serial.begin(9600);

```

```
pinMode(led1, OUTPUT);//pinout 9

pinMode(led2, OUTPUT);//pinout 10

pinMode(led3, OUTPUT);//pinout 11

pinMode(led4, OUTPUT);//pinout 12

}

void loop() {

  //led1

  digitalWrite(led1, HIGH); // turn the LED on (HIGH is the voltage level)

  delay(1000);           // wait for a second

  digitalWrite(led1, LOW); // turn the LED off by making the voltage LOW

  delay(1000);           // wait for a second

  //led2

  digitalWrite(led2, HIGH);

  delay(500);

  digitalWrite(led2, LOW);

  delay(500);

  //led3

  digitalWrite(led3, HIGH);

  delay(1000);

  digitalWrite(led3, LOW);

  delay(1000);

  //led4

  digitalWrite(led4, HIGH);

  delay(200);

  digitalWrite(led4, LOW);

  delay(200);

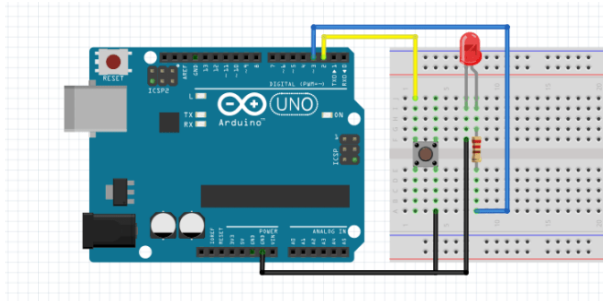
}
```

CHAPTER 3 : Push button used LED on and off

Components Required

- 1 × Breadboard
- 1 × Arduino Uno
- 1 × LED
- 1 × 10k Resistor
- 1 × Push button
- 2 × Jumper

Procedure



Code:

```
/*  
 * TamilZorous info tech  
 */  
  
#define led 3  
  
#define pushButton 2  
  
void setup() {  
  Serial.begin(9600);  
  
  pinMode(led, OUTPUT);  
  
  pinMode(pushButton, INPUT);  
}  
  
void loop() {  
  
  if (digitalRead(pushButton) == HIGH) {  
  
    digitalWrite(led, HIGH);  

```

```

}

else {

    digitalWrite(led, LOW);

}

}

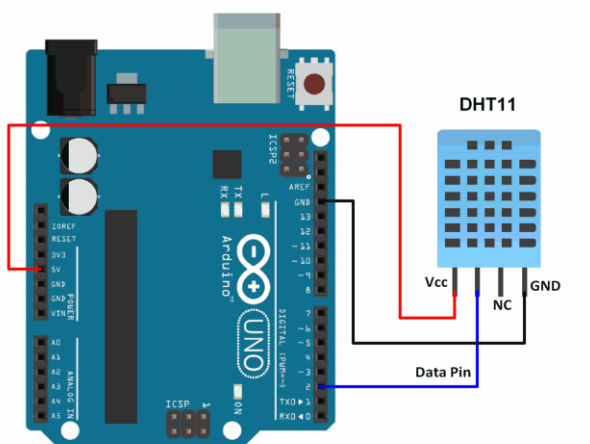
```

CHAPTER 4 : Humidity sensor used value get

Components Required

- 1 x Breadboard
- 1 x Arduino Uno R3
- 1 x DHT11
- 1 x 10K ohm resistor

Procedure:



Code:

```

/*
 * TamilZorous info tech
 */
#include "DHT.h"

#define DHT11PIN 5 //D1 input

#define DHT11TYPE DHT11

```

```

DHT dht11(DHT11PIN, DHT11TYPE);

void setupAP(void);

void setup() {

  Serial.begin(115200);           //Serial connection

  dht11.begin();

}

void loop() {

  float h11 = dht11.readHumidity();

  float t11 = dht11.readTemperature();

  if (isnan(t11) || isnan(h11)) {

    Serial.println("Failed to read from DHT #1");

  } else {

    Serial.print("Humidity 11: ");

    Serial.println(h11);

    //Serial.print(" %\t");

    Serial.print("Temperature 11: ");

    Serial.println(t11);

    Serial.println(" *C");

  }

  delay(1000);

}

```

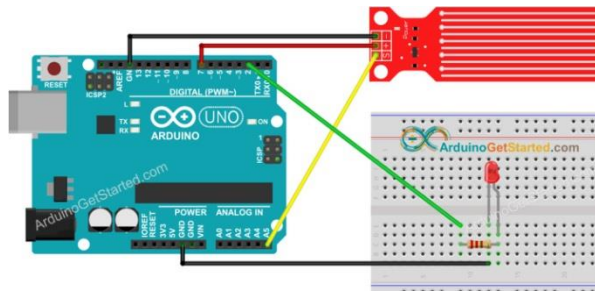
CHAPTER 5 : Water level sensor:

Components Required

- 1 × Breadboard
- 1 × Arduino Uno
- 1 × LED
- 1 × 10k Resistor

- 1 x Water level sensor
- 5 x Jumper

Procedure:



Code:

```
/*
 * TamilZorous info tech
 */

#define led 2

#define POWER_PIN 7

#define SIGNAL_PIN A5

#define THRESHOLD 300

int value = 0; // variable to store the sensor value

void setup() {
  Serial.begin(9600);

  pinMode(led, OUTPUT); // configure D2 pin as an OUTPUT
  pinMode(POWER_PIN, OUTPUT); // configure D7 pin as an OUTPUT
  digitalWrite(POWER_PIN, LOW); // turn the sensor OFF
  digitalWrite(led, LOW); // turn LED OFF
}
```



```

void loop() {

    digitalWrite(POWER_PIN, HIGH); // turn the sensor ON

    delay(10);           // wait 10 milliseconds

    value = analogRead(SIGNAL_PIN); // read the analog value from sensor

    digitalWrite(POWER_PIN, LOW); // turn the sensor OFF


    if (value > THRESHOLD) {

        Serial.print("The water is detected");

        digitalWrite(led, HIGH); // turn LED ON

    } else {

        digitalWrite(led, LOW); // turn LED OFF

    }

}

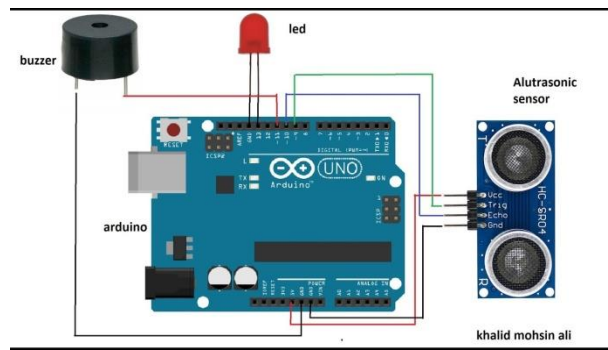
```

CHAPTER 6: Ultra sonic sensor:

Components Required

- 1 x Breadboard
- 1 x Arduino Uno
- 1 x Buzzer
- 1x led
- 1 x Ultra sonic sensor
- 8 x Jumper

Procedure:



Code:

```

/*
 * TamilZorous info tech
 */

#define echoPin 10 // attach pin D3 Arduino to pin Echo of HC-SR04
#define trigPin 9 //attach pin D10 Arduino to pin Trig of HC-SR04

int buzzer =11;//attach relays in to D5 of Arduino(DC Pump is connected to Arduino)

int redLED =13;

int duration, distance;

int i=0;

int maxnum=10;

int count=0;

void setup() {
  Serial.begin(9600);

  pinMode(trigPin, OUTPUT); // Sets the trigPin as an OUTPUT
  pinMode(echoPin, INPUT); // Sets the echoPin as an INPUT
  pinMode(buzzer, OUTPUT);// sets the relaypin as OUTPUT
  pinMode(redLED,OUTPUT);

```

```

}

void loop() {

// Clears the trigPin condition

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

// Sets the trigPin HIGH (ACTIVE) for 10 microseconds

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

duration = pulseIn(echoPin, HIGH);

// Calculating the distance

distance = duration * 0.034 / 2; // Speed of sound wave divided by 2 (go and back)


if((distance<10)&&(count<maxnum))
{

digitalWrite(buzzer, HIGH); //LOW for the relay to be on

delay(1000 ); //For how many milliseconds your Pump works for pumping the liquid

digitalWrite(buzzer, LOW); //HIGH for the relay to be off

delay(2500); //For how many milliseconds your Pump NOT works for pumping the liquid

count++;

Serial.print("distance :");

Serial.println( distance);

Serial.print("count :");

Serial.println( count);

}

else if(count == 10){

```

```
digitalWrite(redLED, HIGH); //LOW for the relay to be on

delay(1000 ); //redLED blink and alart

Serial.println( "Alert");

digitalWrite(redLED, LOW); //HIGH for the relay to be off

delay(500);

count=0;

//exit(0);

}

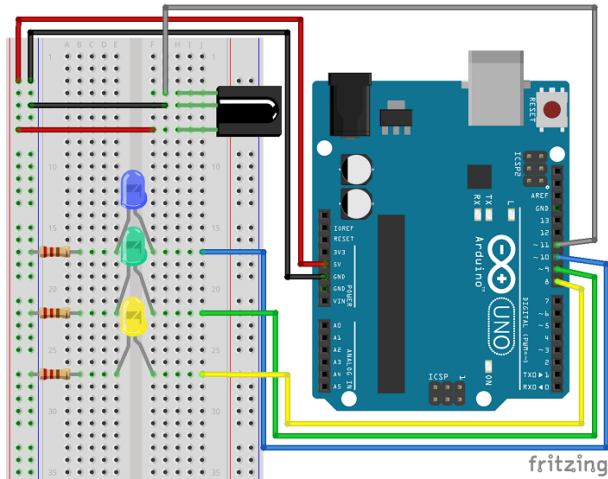
}
```

CHAPTER 7 :IR receiver and remote :

Components Required

- 1 × Breadboard
- 1 × Arduino Uno
- 1 × Remote
- 1 × IR receiver
- 3 × 10 k resistor
- 3× led
- 11 × Jumper

Procedure:



Code:

```

/*
 * TamilZorous info tech
 */
#include <IRremote.h>

int RECV_PIN = 11;

IRrecv irrecv(RECV_PIN);

decode_results results;

void setup()
{
  Serial.begin(9600);

  irrecv.enableIRIn(); // Start the receiver
}

void loop() {
  if (irrecv.decode(&results)) {
    Serial.println(results.value, HEX);

    irrecv.resume(); // Receive the next value
  }
}

```

```
    delay(100);  
}
```

Code:

```
/*  
 * TamilZorous info tech  
 */  
  
#include <IRremote.h>  
  
int IR_Recv = 11; //IR Receiver Pin 3  
  
int bluePin = 10;  
  
int greenPin = 9;  
  
int yellowPin = 8;  
  
IRrecv irrecv(IR_Recv);  
  
decode_results results;  
  
void setup(){  
  
    Serial.begin(9600); //starts serial communication  
  
    irrecv.enableIRIn(); // Starts the receiver  
  
    pinMode(bluePin, OUTPUT); // sets the digital pin as output  
  
    pinMode(greenPin, OUTPUT); // sets the digital pin as output  
  
    pinMode(yellowPin, OUTPUT); // sets the digital pin as output  
  
}  
  
void loop(){  
  
    //decodes the infrared input  
  
    if (irrecv.decode(&results)){  
  
        long int decCode = results.value;  
  
        Serial.println(results.value);  
  
        //switch case to use the selected remote control button
```

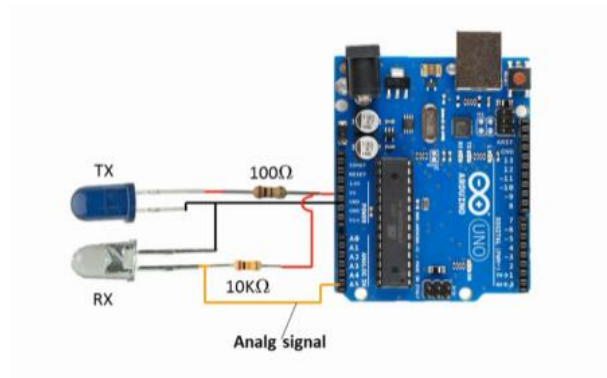
```
switch (results.value){  
  
  case 551520375: //when you press the 1 button  
  
    digitalWrite(bluePin, HIGH);  
  
    break;  
  
  case 551495895: //when you press the 4 button  
  
    digitalWrite(bluePin, LOW);  
  
    break;  
  
  case 551504055: //when you press the 2 button  
  
    digitalWrite(greenPin, HIGH);  
  
    break;  
  
  case 551528535: //when you press the 5 button  
  
    digitalWrite(greenPin, LOW);  
  
    break;  
  
  case 551536695: //when you press the 3 button  
  
    digitalWrite(yellowPin, HIGH);  
  
    break;  
  
  case 551512215: //when you press the 6 button  
  
    digitalWrite(yellowPin, LOW);  
  
    break;  
  
}  
  
irrecv.resume(); // Receives the next value from the button you press  
  
}  
  
delay(10);  
  
}
```

CHAPTER 8 :IR receiver and sender :

Components Required

- 1 × Breadboard
- 1 × Arduino Uno
- 1 × Sender
- 1 × IR receiver
- 1 × 10 k resistor
- 1× led
- 8 × Jumper

Procedure:



Code:

```
/*  
  
* TamilZorous info tech  
  
*/  
  
int analogPin = A5;  
  
int out = 13;  
  
int sensorValue = 0;  
  
void setup() {  
  
  Serial.begin(9600);  
  
  pinMode(out, OUTPUT);  
  
  pinMode(analogPin, INPUT);
```



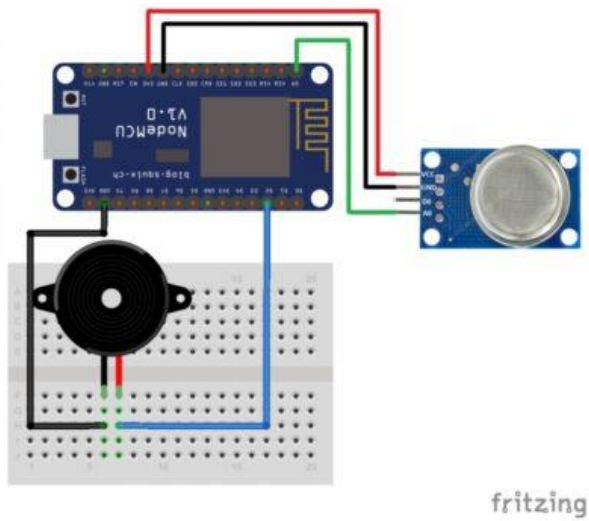
```
}  
  
void loop() {  
  
    sensorValue = analogRead(analogPin);  
  
  
    Serial.print("sensor =");  
  
    Serial.println(sensorValue);  
  
  
    delay(200);  
  
  
    if( sensorValue>700)  
    {  
        digitalWrite(out,1);  
    }  
    else  
    {  
        digitalWrite(out,0);  
    }  
}
```

CHAPTER 9 :MQ2 Sensor :

Components Required

- 1 x Breadboard
- 1 x NodeMCU
- 1 x MQ2
- 1 x Buzzer
- 5 x Jumper

Procedure:



Code:

```
/*  
 * TamilZorous info tech  
 */  
  
int buzzer = D2;  
  
int smokeA0 = A0;  
  
// Your threshold value. You might need to change it.  
int sensorThres = 600;  
  
void setup() {  
  pinMode(buzzer, OUTPUT);  
  pinMode(smokeA0, INPUT);  
  Serial.begin(9600);  
}  
  
void loop() {
```

```
int analogSensor = analogRead(smokeA0);

Serial.print("Pin A0: ");

Serial.println(analogSensor);

// Checks if it has reached the threshold value
if (analogSensor > sensorThres)
{
    tone(buzzer, 1000, 200);
}
else
{
    noTone(buzzer);
}

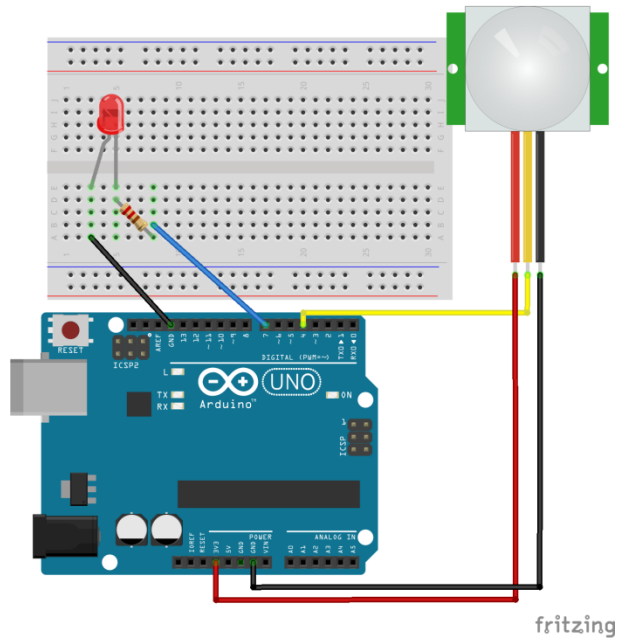
delay(100);
}
```

CHAPTER 10 : PIR Sensor

Components Required

- 1 × Breadboard
- 1 × Arduino Uno
- 1 × PIR Sensor
- 1 × LED
- 1 × 10k Resistor
- 5 × Jumper

Procedure



Code:

```
/*  
 * TamilZorous info tech  
 */  
  
int led = 13;      // the pin that the LED is attached to  
  
int sensor = 2;    // the pin that the sensor is attached to  
  
int state = LOW;   // by default, no motion detected  
  
int val = 0;       // variable to store the sensor status (value)  
  
void setup() {  
  pinMode(led, OUTPUT); // initialize LED as an output  
  pinMode(sensor, INPUT); // initialize sensor as an input  
  Serial.begin(9600);    // initialize serial  
}
```

```
void loop(){

  val = digitalRead(sensor); // read sensor value

  if (val == HIGH) {      // check if the sensor is HIGH

    digitalWrite(led, HIGH); // turn LED ON

    delay(500);

  }

  if (state == LOW) {

    Serial.println("Motion detected!");

    state = HIGH;    // update variable state to HIGH

  }

}

else {

  digitalWrite(led, LOW); // turn LED OFF

  delay(500);    // delay 200 milliseconds

}

if (state == HIGH){

  Serial.println("Motion stopped!");

  state = LOW;    // update variable state to LOW

}

}

}
```