Task 3

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Aim:

Simulating an MQTT connection with a NodeMCU (ESP32). The connection should be with node-red and should be used for turning on and off the LED.

Share Link (Wokwi):

https://wokwi.com/projects/366591001748116481

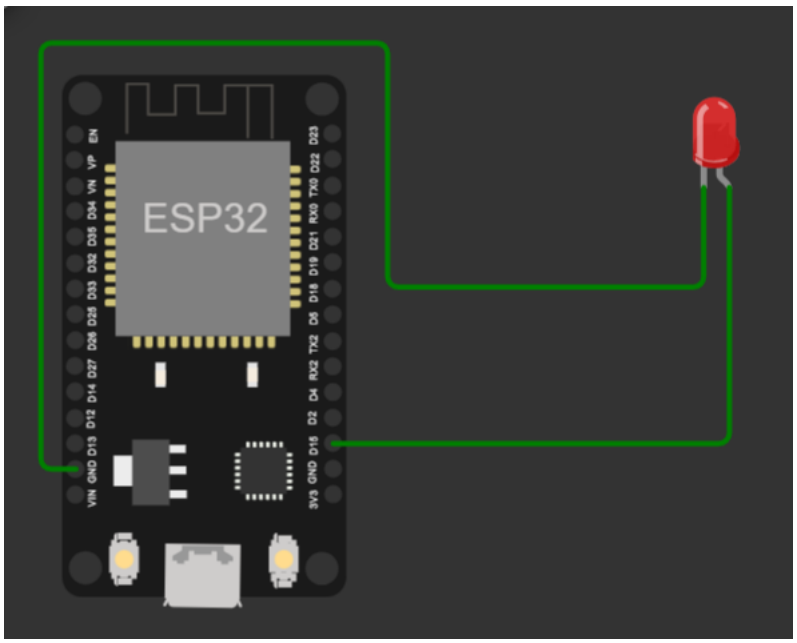
sketch.ino:

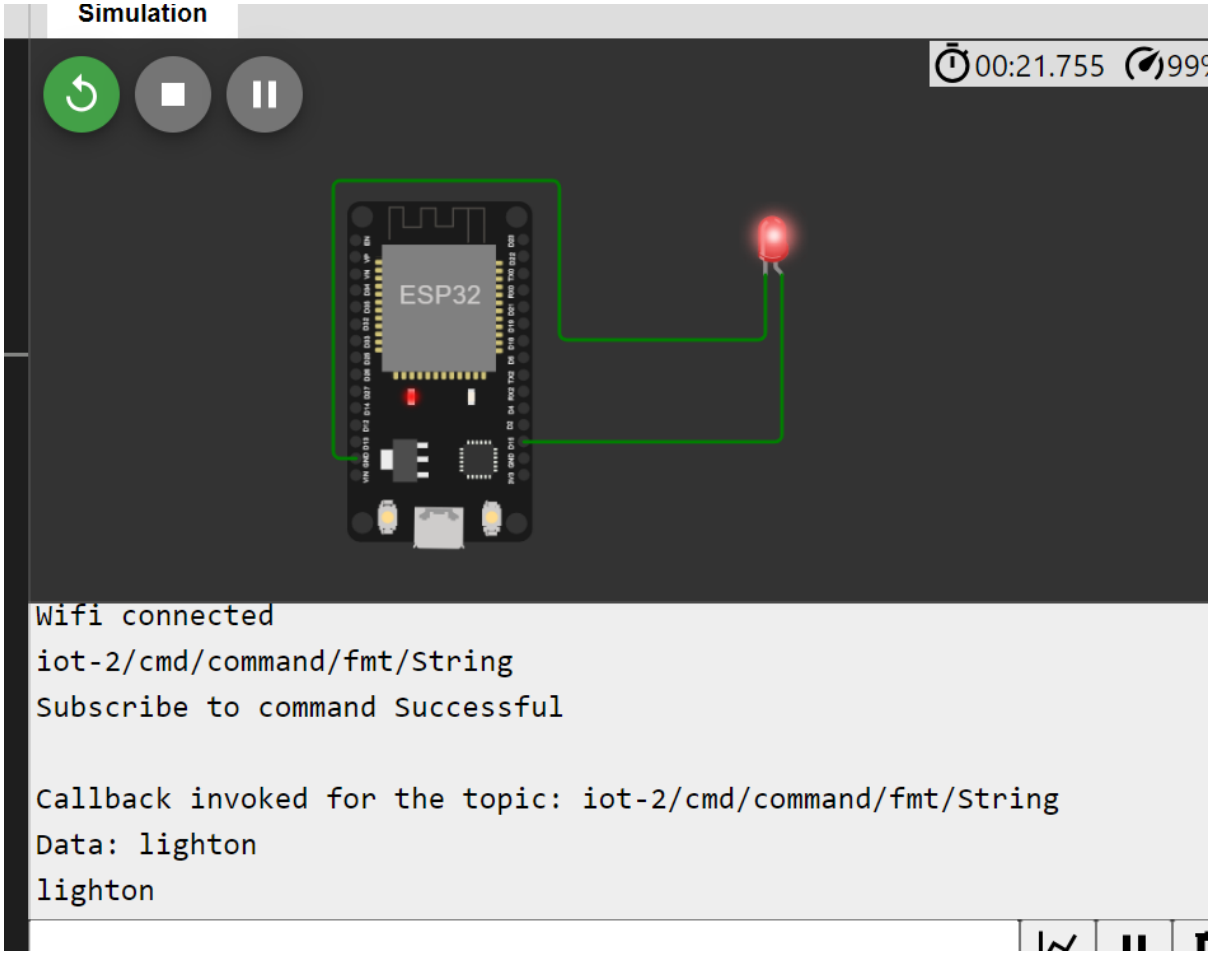
```
#include<WiFi.h>
#include<PubSubClient.h>
int led=15;

void callBack(char* subTopic,byte* payload, unsigned int payLength);

#define ORG "xvgkhg"
#define DEVICE_TYPE "wokwi"
#define DEVICE_ID "1234"
#define TOKEN "12345678"
String data;

char server[]=ORG".messaging.internetofthings.ibmcloud.com";
char subTopic[]="iot-2/cmd/command/fmt/String";
char authMethod[]="use-token-auth";
char token[]=TOKEN;
char clientId[]="d:"ORG":"DEVICE_TYPE":"DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server,1883,callBack,wifiClient);

void setup()
{
  Serial.begin(115200);
  pinMode(led,OUTPUT);
  Serial.println();
  wificonnect();
```

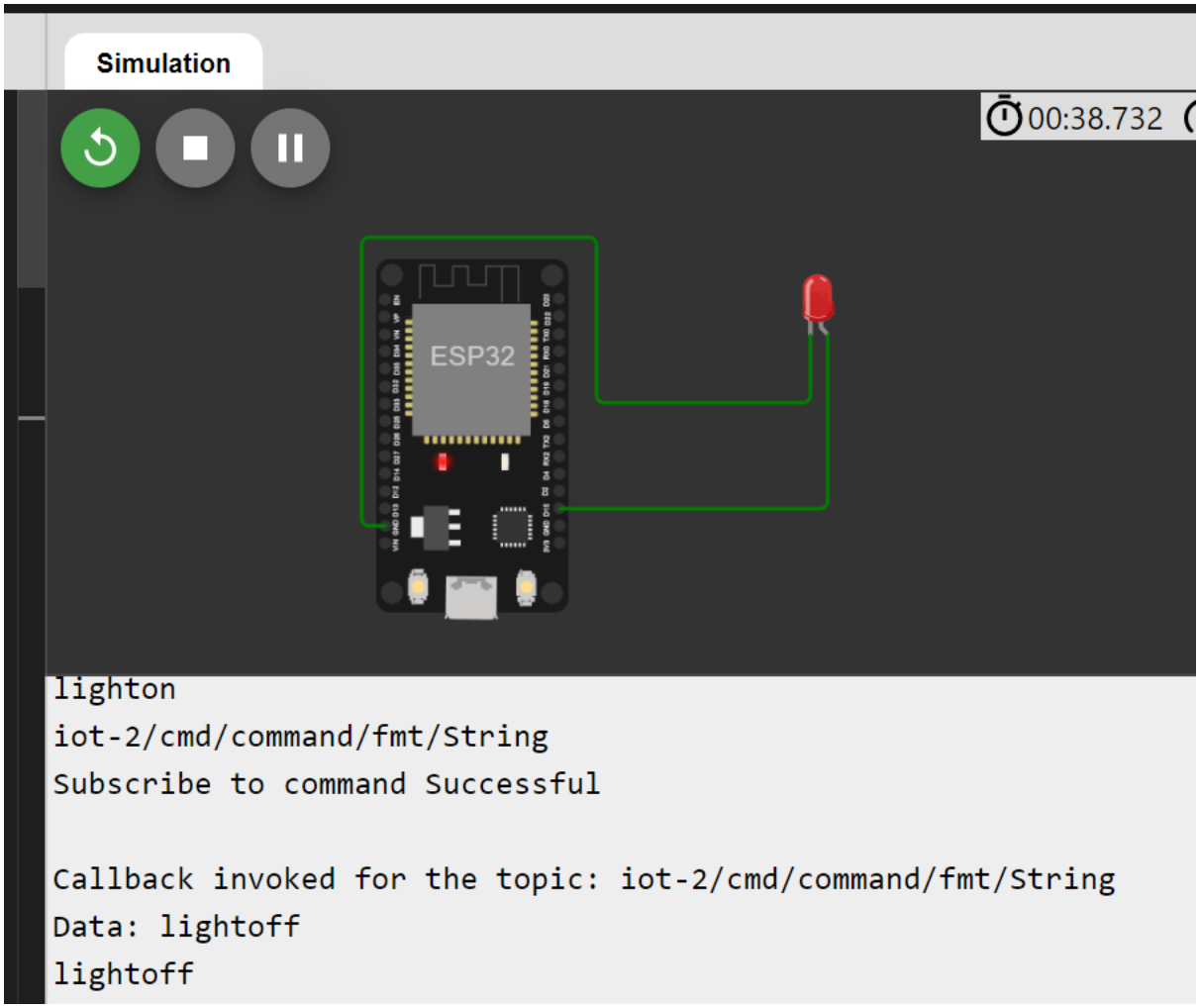
```
  mqttconnect();
}

void loop()
{
  delay(1000);
  if(!client.loop())
  {
    mqttconnect();
  }
}

void mqttconnect()
{
  if(!client.connected())
  {
    //Serial.print("Reconnecting");
    while(!!!client.connect(clientId,authMethod,token))
    {
      Serial.print(".");
      delay(500);
    }
    initManagedDevice();
    Serial.println();
  }
}

void wificonnect()
{
  Serial.println();
  Serial.print("Connecting ");
  WiFi.begin("Wokwi-GUEST","",6);
  while(WiFi.status()!=WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }
  Serial.println();
  Serial.println("Wifi connected");
}

void initManagedDevice()
{
  if(client.subscribe(subTopic))
  {
    Serial.println(subTopic);
    Serial.println("Subscribe to command Successful");;
  }
  else
  {
```

```
    Serial.println("Subscribe Failed");
  }
}

void callBack(char* subTopic,byte* payload,unsigned int payLength)
{
  Serial.print("Callback invoked for the topic: ");
  Serial.println(subTopic);

  for(int i=0;i<payLength;i++)
  {
    data=data+(char)payload[i];
  }
  Serial.println("Data: "+data);
  if(data=="lighton")
  {
    Serial.println(data);
    digitalWrite(led,HIGH);
  }
  else
  {
    Serial.println(data);
    digitalWrite(led,LOW);
  }
  data="";
}
```

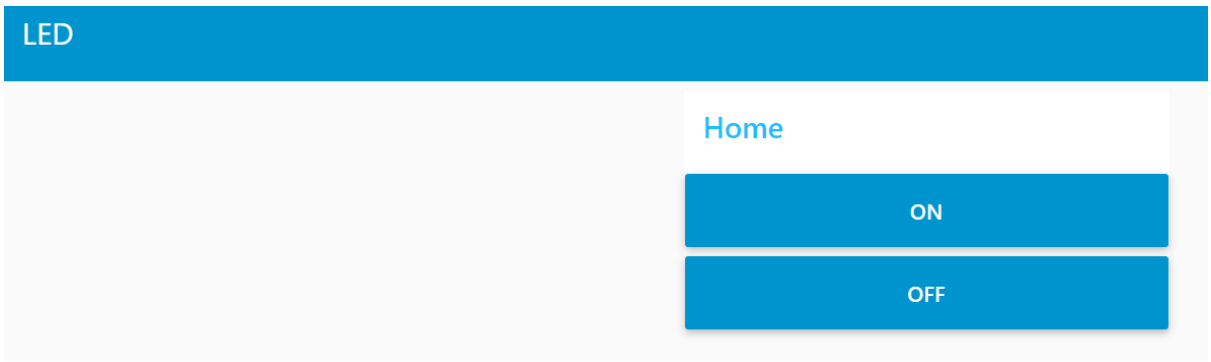
Simulation:



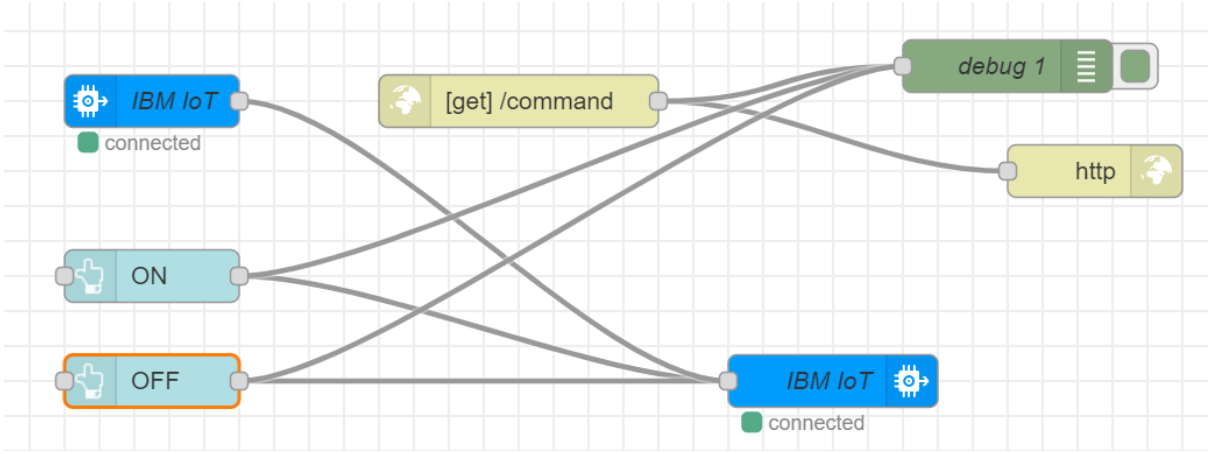

Simulation
00:21.755
ESP32
Wifi connected
iot-2/cmd/command/fmt/String
Subscribe to command Successful
Callback invoked for the topic: iot-2/cmd/command/fmt/String
Data: lighton
lighton



Node-Red Dashboard



Node-Red



Performed by –

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