Programs List

1.Program for the blinking of LED Light.

```
const int ledpin1=2;
const int ledpin2=4;

void setup()
{
  pinMode(ledpin1,OUTPUT);
  pinMode(ledpin2,OUTPUT);
}


void loop()
{
  digitalWrite(ledpin1,HIGH);
  delay(500);
  digitalWrite(ledpin1,LOW);
  delay(500);
  digitalWrite(ledpin2,HIGH);
  delay(500);
  digitalWrite(ledpin2,LOW);
  delay(500);

}
```

2. Design an IOT System and an app to ON/OFF lights using bluetooth technology.

Code:

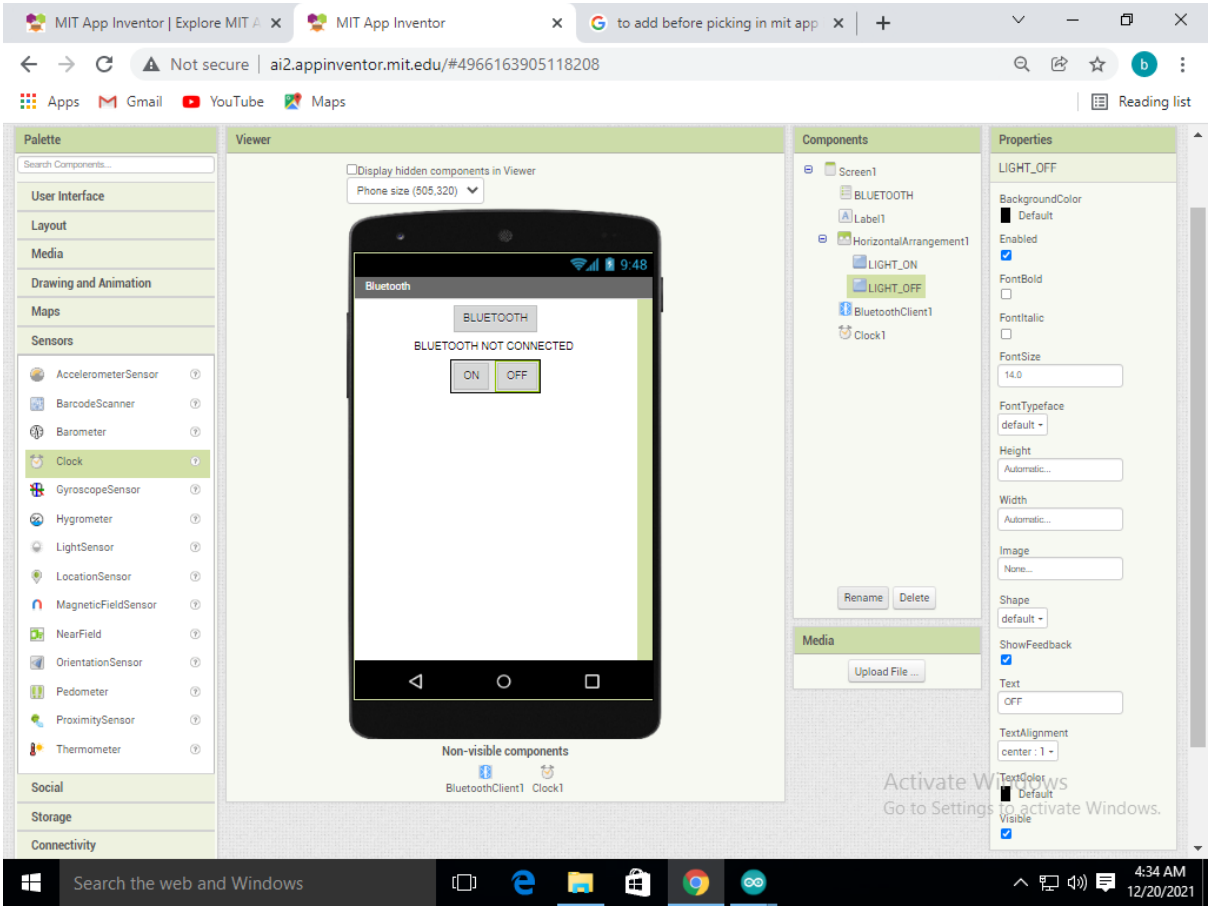
```
#include"BluetoothSerial.h"
BluetoothSerial SerialBT;
String state;
void setup()
{
  pinMode(2,OUTPUT);
  Serial.begin(9600);
  SerialBT.begin("realme X2");
  Serial.println("The device started now you can pair with bluetooth");
}

void loop()
{
  if(Serial.available())
  {
    SerialBT.write(Serial.read());
    Serial.println("hello");
  }
```

```
if(SerialBT.available())
{
 state=SerialBT.read();
 Serial.print("State:");
 Serial.println(state);
 if(state.equals("49"))
 {
   digitalWrite(2,HIGH);
   Serial.println("Light On");
 }
 else if(state.equals("50"))
 {
   digitalWrite(2,LOW);
   Serial.println("Light OFF");
 }

 }
 state="";
 delay(200);

}
```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Palette
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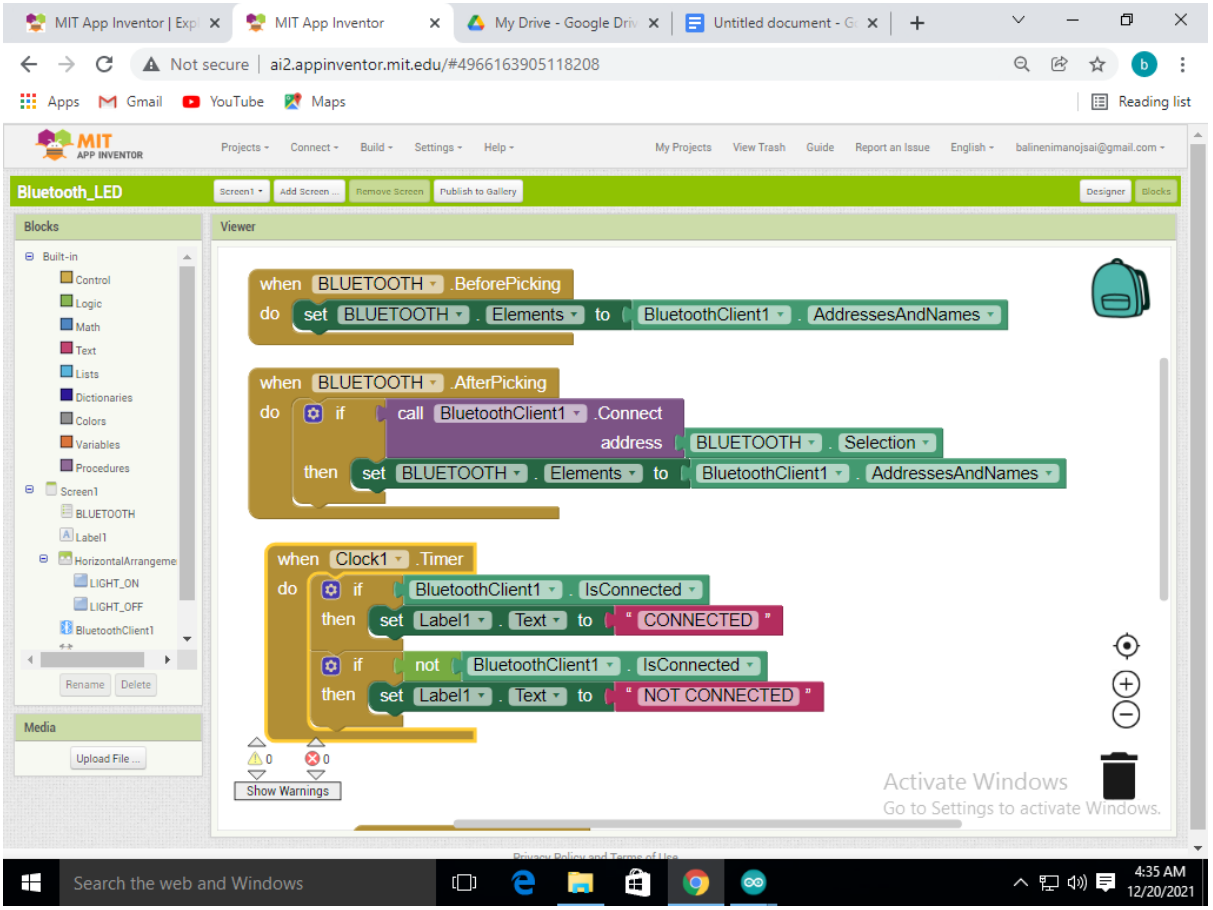
User Interface
Layout
Media
Drawing and Animation
Maps
Sensors
AccelerometerSensor
BarcodeScanner
Barometer
Clock
GyroscopeSensor
Hygrometer
LightSensor
LocationSensor
MagneticFieldSensor
NearField
OrientationSensor
Pedometer
ProximitySensor
Thermometer
Social
Storage
Connectivity
Viewer
Display hidden components in Viewer
Phone size (505,320)
9:48
Bluetooth
BLUETOOTH
BLUETOOTH NOT CONNECTED
ON
OFF
Non-visible components
BluetoothClient1
Clock1
Components
Screen1
BLUETOOTH
Label1
HorizontalArrangement1
LIGHT_ON
LIGHT_OFF
BluetoothClient1
Clock1
Rename
Delete
Media
Upload File ...
Properties
LIGHT_OFF
BackgroundColor
Default
Enabled
FontBold
FontItalic
FontSize
14.0
FontTypeface
default
Height
Automatic...
Width
Automatic...
Image
None...
Shape
default
ShowFeedback
Text
OFF
TextAlignment
center : 1
TextColor
Default
Visible
Activate Windows
Go to Settings to activate Windows.
Search the web and Windows
4:34 AM
12/20/2021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Settings
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Bluetooth_LED
Screen1
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Blocks
Built-in
Control
Logic
Math
Text
Lists
Dictionaries
Colors
Variables
Procedures
Screen1
BLUETOOTH
Label1
HorizontalArrangeme
LIGHT_ON
LIGHT_OFF
BluetoothClient1
Rename
Delete
Media
Upload File ...
Viewer
when BLUETOOTH .BeforePicking
do set BLUETOOTH . Elements to BluetoothClient1 . AddressesAndNames
when BLUETOOTH .AfterPicking
do if call BluetoothClient1 .Connect
address BLUETOOTH . Selection
then set BLUETOOTH . Elements to BluetoothClient1 . AddressesAndNames
when Clock1 .Timer
do if BluetoothClient1 . IsConnected
then set Label1 . Text to " CONNECTED "
if not BluetoothClient1 . IsConnected
then set Label1 . Text to " NOT CONNECTED "
0
0
Show Warnings
Activate Windows
Go to Settings to activate Windows.
Search the web and Windows
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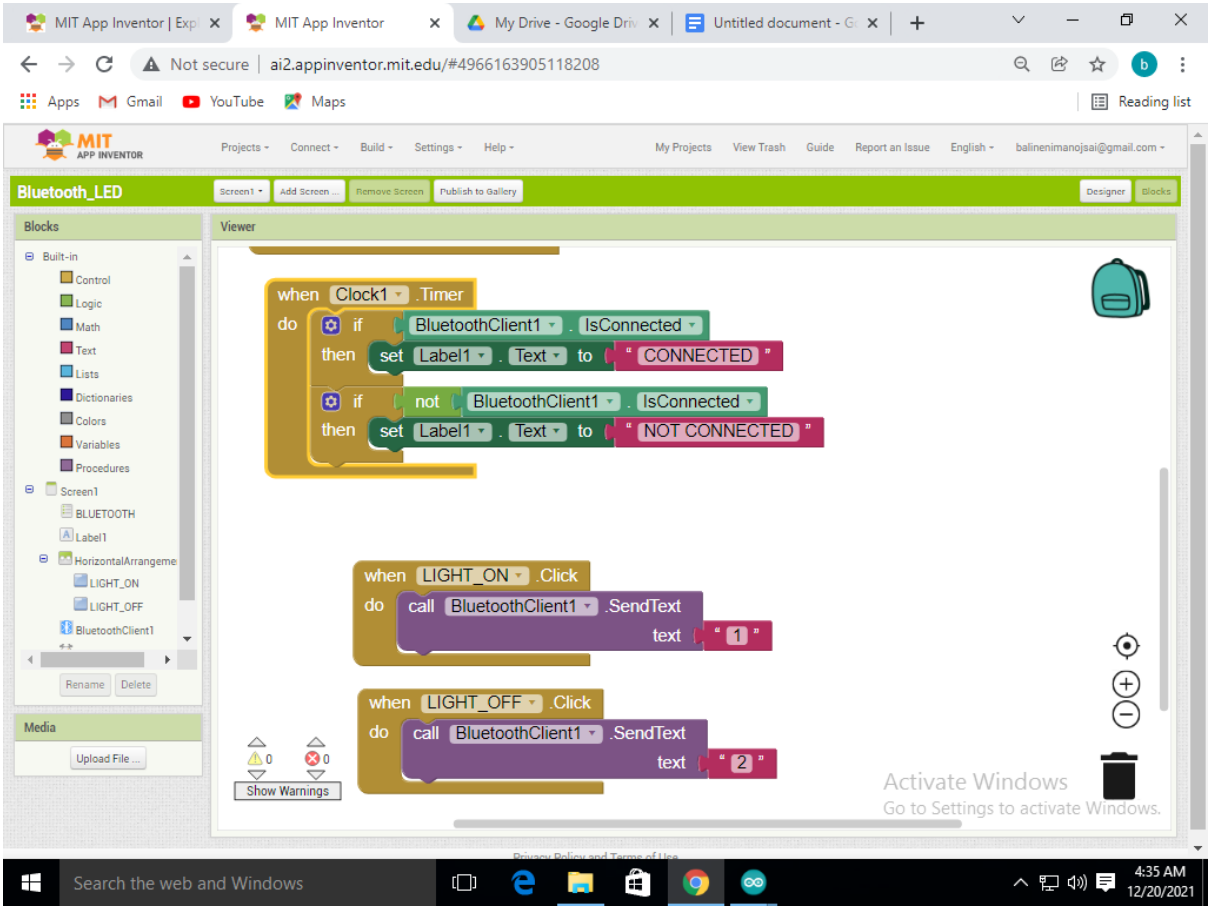
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Screen1
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BluetoothClient1
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Viewer
when Clock1 .Timer
do if BluetoothClient1 . IsConnected
then set Label1 . Text to " CONNECTED "
if not BluetoothClient1 . IsConnected
then set Label1 . Text to " NOT CONNECTED "
when LIGHT_ON .Click
do call BluetoothClient1 .SendText
text " 1 "
when LIGHT_OFF .Click
do call BluetoothClient1 .SendText
text " 2 "
0
0
Show Warnings
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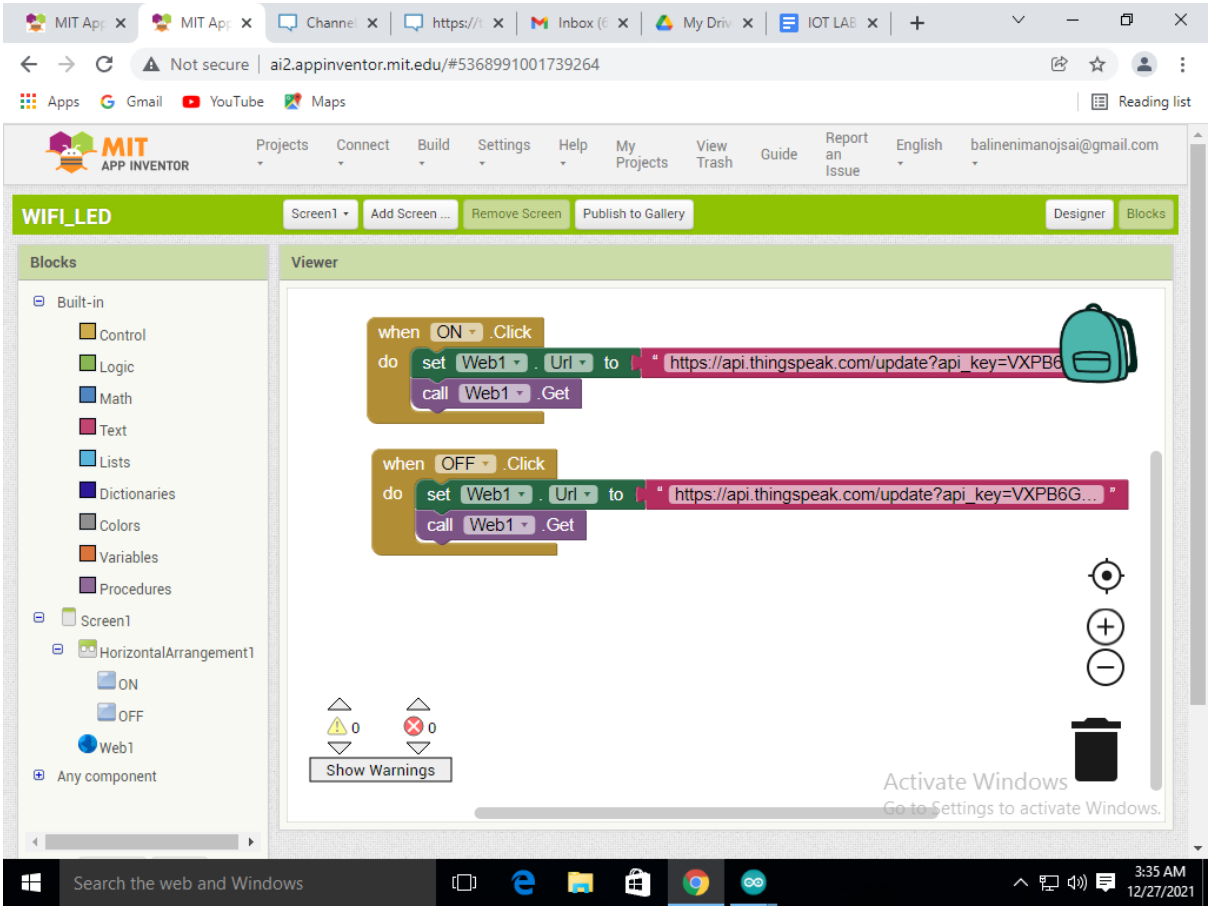
3. Design an IOT System and an app to ON/OFF lights using wifi technology.

```
#include <ThingSpeak.h>
#include <WiFi.h>

WiFiClient client;

const char *ssid = "realme X2";
const char *password = "Manoj123";

void setup() {
  // put your setup code here, to run once:
  pinMode(4, OUTPUT);

  Serial.begin(115200);
  ThingSpeak.begin(client);

  delay(10);

  Serial.print("Connecting to...");
  Serial.println(ssid);

  WiFi.begin(ssid, password);

  while(WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.println("Waiting to connect...");
  }
```

```
  Serial.println("WiFi Connected");
  Serial.print("IP Address: ");
  Serial.println(WiFi.localIP());
}

void loop() {
  // put your main code here, to run repeatedly:
  int led = ThingSpeak.readIntField(1612969, 1);

  Serial.println(led);

  if(led == 1) {
    digitalWrite(4, HIGH);

    Serial.println("LED ON");
  }

  if(led == 0) {
    digitalWrite(4, LOW);

    Serial.println("LED OFF");
  }

  delay(1000);
}
```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Screen1
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ON
OFF
Web1
Any component
Viewer
when ON .Click
do set Web1 . Url to " https://api.thingspeak.com/update?api_key=VXPB6
call Web1 .Get
when OFF .Click
do set Web1 . Url to " https://api.thingspeak.com/update?api_key=VXPB6G... "
call Web1 .Get
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0
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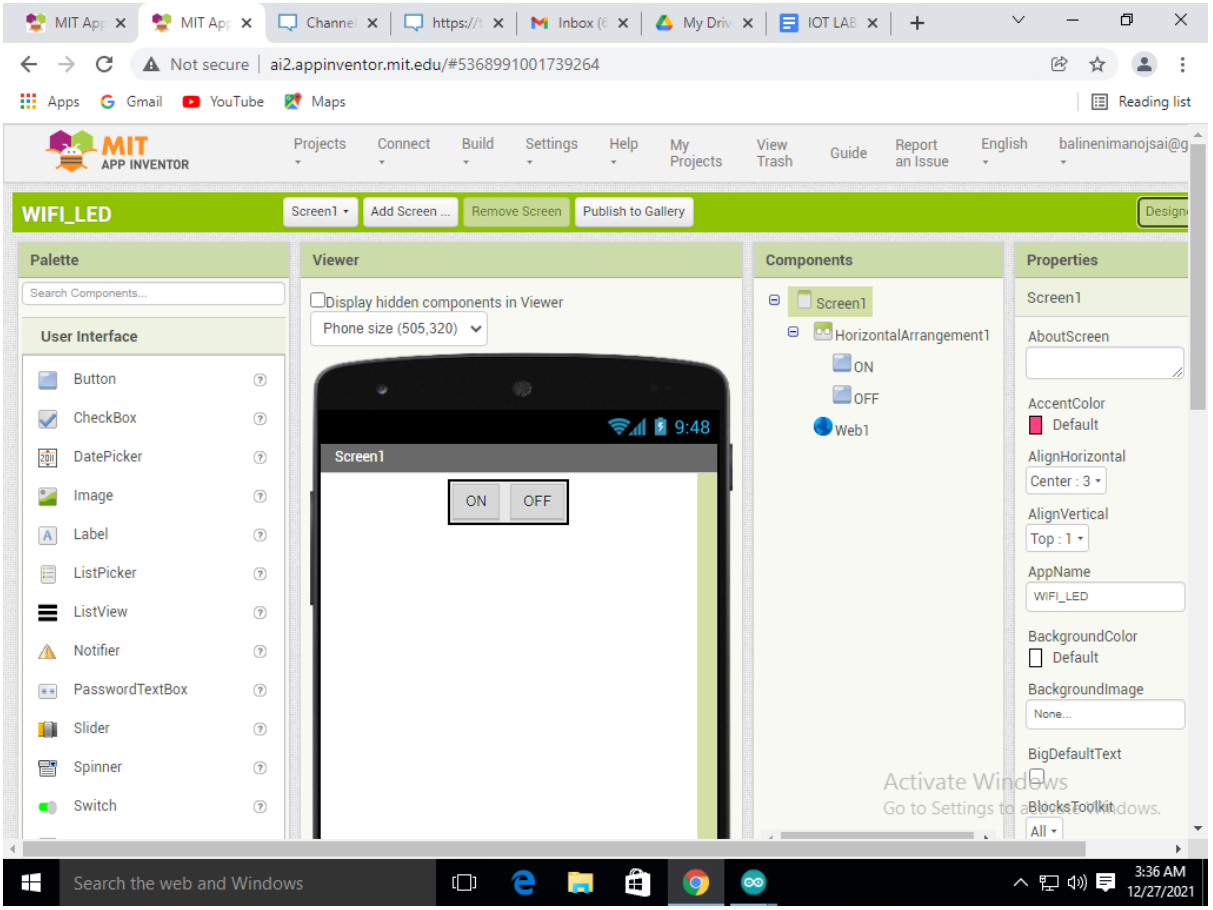
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Label
ListPicker
ListView
Notifier
PasswordTextBox
Slider
Spinner
Switch
Viewer
Display hidden components in Viewer
Phone size (505,320)
9:48
Screen1
ON
OFF
Components
Screen1
HorizontalArrangement1
ON
OFF
Web1
Properties
Screen1
AboutScreen
AccentColor
Default
AlignHorizontal
Center : 3
AlignVertical
Top : 1
AppName
WIFI_LED
BackgroundColor
Default
BackgroundImage
None...
BigDefaultText
BlocksToolkit
All
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4.Write a program to find the temperature and humidity using DHT Sensor

```
#include "DHT.h"
#define DHTPIN 17
#define DHTTYPE DHT11
DHT dht (DHTPIN, DHTTYPE);

float h,t;

void setup() {
  Serial.begin(115200);
 }

void loop()
{
  h = dht.readHumidity();
  t = dht.readTemperature();
 Serial.print("temperature:");
 Serial.println(t);
 Serial.print("Humidity:");
 Serial.println(h);
 delay(1000);
}
```

5.Write a program to find the distance between the objects using the ultrasonic sensor.

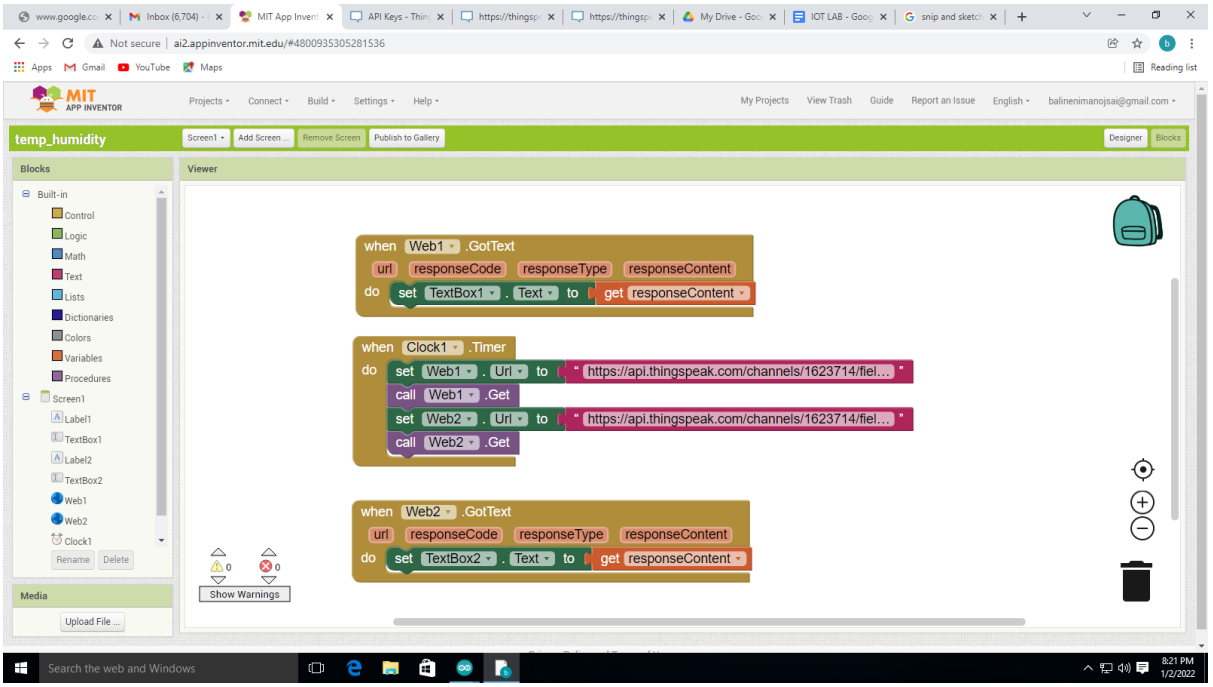
```
const int trigPin=12;
const int echoPin=14;

long duration;
int distance;

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

void loop() {
  // put your main code here, to run repeatedly:
  digitalWrite(trigPin,LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin,HIGH);
   delayMicroseconds(10);
 digitalWrite(trigPin,LOW);
   duration=pulseIn(echoPin,HIGH);
   distance=duration*0.034/2;
   Serial.print("Distance: ");
   Serial.println(distance);
   delay(2000);

}
```

Program for temperature uploading

```
#include <WiFi.h>
#include "DHT.h"
#define DHTPIN 4 // what pin we're connected to
#define DHTTYPE DHT11 // define type of sensor DHT 11
DHT dht (DHTPIN, DHTTYPE);
const char* ssid = "realme X2";//Enter the ssid of your router
const char* password = "Manoj123";
const char* host = "api.thingspeak.com";
const char* privateKey = "1SMXSJWTHE2M8V5R";//read key
const char* privateKey1 = "1O23O34Q3LHHSJ75";
float h,t;
void setup() {
 Serial.begin(115200);
 dht.begin();
 delay(10);
 Serial.print("Connecting to ");
 Serial.println(ssid);
 WiFi.begin(ssid, password);
 while (WiFi.status() != WL_CONNECTED) {
 delay(500);
 Serial.print(".");
 }
 Serial.println("");
 Serial.println("WiFi connected");
 Serial.println("IP address: ");
 Serial.println(WiFi.localIP());
}
void loop()
{
```

```
 h = dht.readHumidity();
 t = dht.readTemperature();
 Serial.print("temperature:");
 Serial.println(t);
 Serial.print("Humidity:");
 Serial.println(h);
 upload();
 delay(1000);
 //retrieve_from_Cloud();
 //delay(10000);
}
void upload()
{
 Serial.print("connecting to ");
 Serial.println(host);
 WiFiClient client;
 const int httpPort = 80;
 if (!client.connect(host, httpPort)) {
 Serial.println("connection failed");
 return;
 }
 String url = "/update";
 url += "?api_key=";
 url += privateKey1;
 url += "&field1=";
 url += t;
 url += "&field2=";
 url += h;
 Serial.print("Requesting URL: ");
 Serial.println(url);
 client.print(String("GET ") + url + " HTTP/1.1\r\n" +"Host: " + host
+ "\r\n" +"Connection: close\r\n\r\n");
 delay(1000);
```

```
while(client.available())
{
String line1 = client.readStringUntil('\r');
Serial.print(line1);
}
Serial.println();
Serial.println("closing connection");
}
```



https://api.thingspeak.com/channels/1623714/fields/1/last?api_key=1MN8C1CRJQ13SXI2

https://api.thingspeak.com/channels/1623714/fields/2/last?api_key=1MN8C1CRJQ13SXI2