CU CHANDIGARH UNIVERSITY

University Institute of Engineering

Department of Computer Science & Engineering

Experiment -3

Student Name: Mukul Dagar

Branch: BE CSE

Semester:2

Subject Name : Disruptive Technology2

UID:22BCS15436

Section/Group: 22BCS-421-B Date of Performance:11/03/2023

//

Subject Code:22ECH-103

1. Aim of the practical:

Develop a smart phone application for smart home voice-assistant.

2. Tool used:

MIT App Inventor, UBIDOTS, Arduino IDE

3. CODE:

```
/*
 * Board:DOITESP32DEVKITv1
 * Command:-
 * 1-TURNON
 * 0-TURNOFF
 * /
#include<UbidotsESPMQTT.h>
#defineRELAY2
#defineTOKEN"BBFF-t5zhv2c9h68GSBoox52HW6UDnk3hAp"
YourUbidotsTOKEN
#defineWIFISSID"Mukul";
#defineWIFIPASS"mukul";
Voidcallback (char*topic, byte*payload, unsignedintlengt
h) {
  Serial.print("Messagearrived[");S
  erial.print(topic);Serial.print("
  ]");
  for(inti=0;i<length;i++) {Serial.p</pre>
    rint((char)payload[i]);
  Serial.println(); Serial.print
  ("Command: ");bool command =
```

```
*payload -
  48; Serial.println(command); di
  gitalWrite (RELAY, !command);
void setup()
  {Serial.begin(9600)
  Serial.println("Init...T4_Smart_Home");pinMode(RELA
  Y, OUTPUT);
  Serial.print("ConnectingtoSSID:");Se
  rial.print(WIFISSID); Serial.print(",
  Password:
  "); Serial.println(WIFIPASS);
  client.wifiConnection(WIFISSID, WIFIPASS); Serial.println("Don
  e");
  Serial.println(" Initializing Ubidots
  Connection..."); client.ubidotsSetBroker("industrial.api.ubid
  ots.com");/
/ Sets the broker properly for the business
  accountclient.setDebug(true);
                                                  //Passa
trueorfalseboolvaluetoactivatedebugmessagesclient.begin(callba
  ck);
  client.ubidotsSubscribe("smart-home-by-shivam", "switch");
//InserttheDeviceandVariable'sLabelsSeri
  al.println("Done");
  Serial.println("DONE");
}
voidloop() {
  //EstablisingconnectionwithUbidotsif(
  !client.connected()) {
    client.reconnect(); client.ubidotsSubscr
    ibe("smart-home-by-
shivam", "switch"); // InserttheDeviceandVariable 'sLabels
  client.loop();
  delay(1000);
}
```



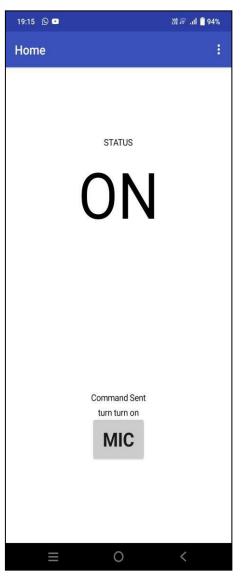
Department of Computer Science & Engineering

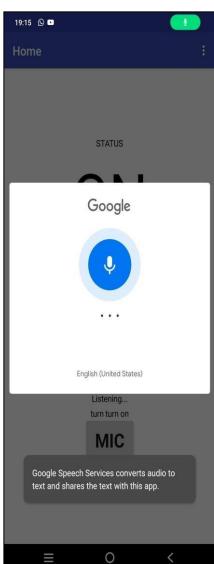
```
to sendCommand command
do set Web1 . Url to https://things.ubidots.com/api/v1.6/devices/smar.
    set Web1 . RequestHeaders to make a dictionary
                                                               X-Auth-Token
                                                                             value
                                                                                    BBFF-t5zhv2c9h68GSBoox52HW6UDnk3hAp
                                                               Content-Type
                                                                             value
                                                                                     application/json
                                                        kev
    call Web1 - .PostText
                   text
                         call toJSON -
                              dictionary
                                       make a dictionary
                                                           key
                                                                switch **
                                                                           value [
                                                                                  get command
                                                                     to toJSON dictionary
when Web1 GotText
                                                                            replace all text
                                                                                                        get dictionary -
 url responseCode responseType responseContent
                                                                                                         · N·
                                                                                               seament
   set text_box . Text to pioin
                                      get responseCode
                                                                                            replacement
                                                                                                         -
                                      gei responseType
                                      get responseContent
                                                                              replacement
                                                                                           1
                                                                      to recognizeCommand text
 when mic_button . Click
                                                                          contains text
                                                                                                   get text -
 do set message . Text to Listening...
     call SpeechRecognizer1 . GetText
                                                                          then set message . Text to
                                                                                                           * Command Sent *
                                                                                call sendCommand •
                                                                                          command
                                                                                set state . Text to ON
 when SpeechRecognizer1 .AfterGettingText
  result partial
                                                                                   contains • text
 do set text . Text to get result
                                                                                                    off
                                                                                            piece
     set message . Text to Listening Complete
                                                                               set (message . Text . to Command Sent)
     call recognizeCommand •
                                                                                call sendCommand •
                        text get result .
                                                                                          command
                                                                                                      0
                                                                                set state . Text to OFF
                                                                               set message . Text to Invalid Command!
```

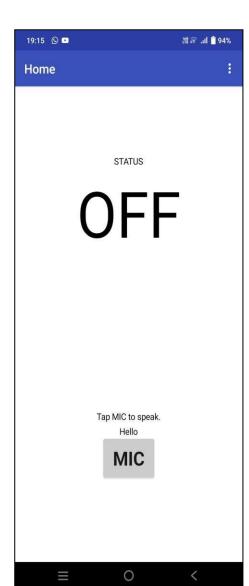
Screenshot of MIT app inventor website where android app was created and downloaded.



Department of Computer Science & Engineering



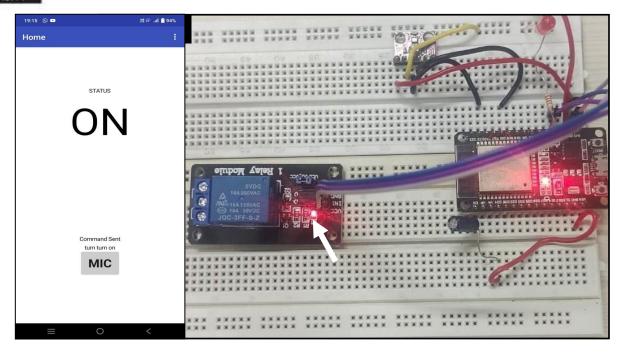




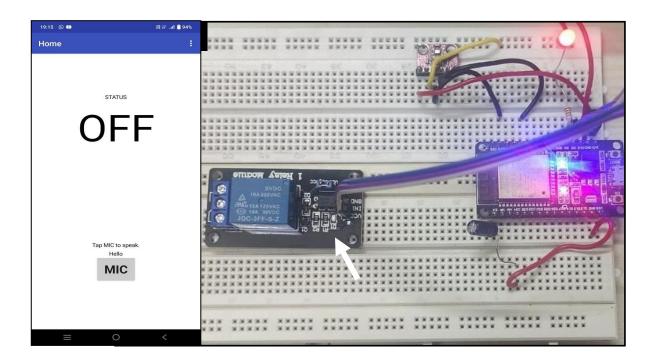


Department of Computer Science & Engineering

Observation



When turn on command is said on android app, then the relay get son, the marked red light indicates that relation.

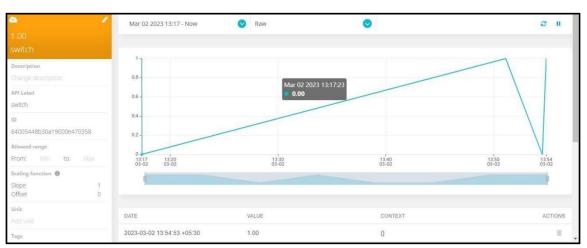




Department of Computer Science & Engineering



Status of switch whether it is on or off gets updated on ubidots dashboard.



This is record of status of relay in graphical representation,

```
14:25:13.150 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 0.0
14:25:13.243 -> Command: 0
14:25:25.163 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 1.0
14:25:25.209 -> Command: 1
14:26:53.160 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 0.0
14:26:53.254 -> Command: 0
14:27:26.190 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 1.0
14:27:26.237 -> Command: 1
14:28:19.171 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 0.0
14:28:19.265 -> Command: 0
14:28:31.184 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 1.0
14:28:31.277 -> Command: 1
14:29:53.187 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 0.0
14:29:53.270 -> Command: 0
14:30:04.220 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 1.0
14:30:04.267 -> Command: 1
14:31:43.233 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 0.0
14:33:33.254 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 0.0
14:33:33.332 -> Command: 0
14:33:35.253 -> Message arrived [/v1.6/devices/smart-home-by-shivam/switch/lv] 1.0
14:33:35.300 -> Command: 1
Autoscroll Show timestamp
                                                                                                            Newline \lor 9600 baud \lor Clear output
```

Output of serial monitor, this shows command 0 and 1 meaning on or off respectively.



Department of Computer Science & Engineering

LearningOutcome:

- Understanding of the basics of the Internet of Things (IoT) and MQTT protocols for communicating with IoT devices.
- Familiarity with the use of relays and ESP32 boards to control household appliances via the cloud.

Evaluation Grid (To be filled by Faculty):

| Parameters | Marks Obtained | Maximum Marks |
|---|---|---|
| Student Performance (task implementation and result evaluation) | | 12 |
| Viva-Voce | S N | 10 |
| Worksheet Submission (Record) | | 8 |
| Signature of Faculty (with Date): | Total Marks Obtained: | 30 |
| | Student Performance (task implementation and result evaluation) Viva-Voce Worksheet Submission (Record) | Student Performance (task implementation and result evaluation) Viva-Voce Worksheet Submission (Record) |