IOT Base Smart Dustbin

Aim:

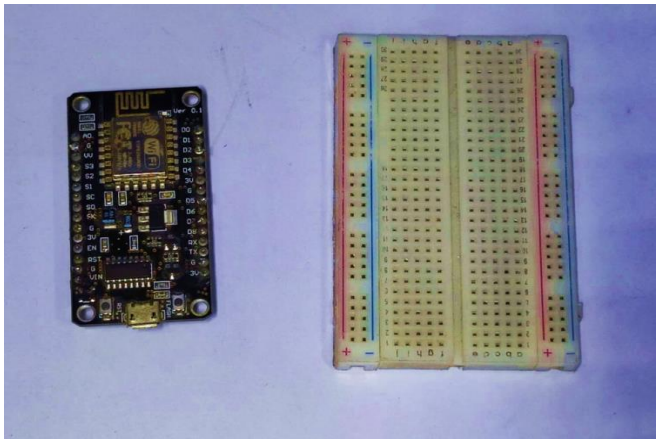
Learn about the Nodemcu (esp8266), Ultrasonic sensor, IR sensor etc… and with the help of these components how we can make smart dustbin and operate it from anywhere by using blynk IOT app.

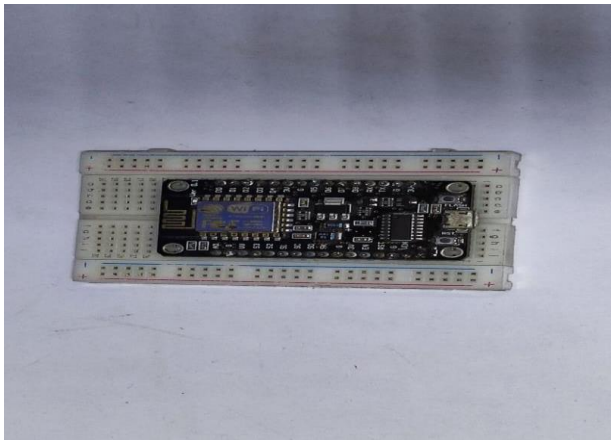
Components Required:

SI no.	Components	Quantity
1	Nodemcu (esp8266)	1
2	Ultrasonic sensor	1
3	IR sensor	1
4	Servo motor	1
5	Breadboard	1
6	Battery (12v)	1
7	Jumper wire	few

Hardware Assembling:

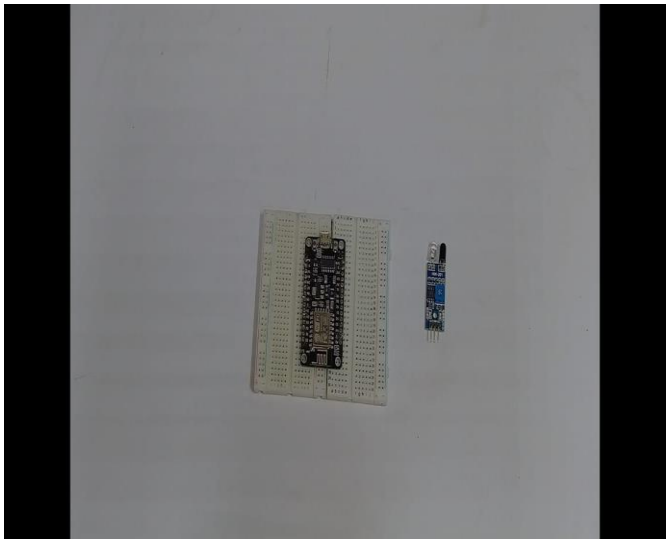
STEP 1- Take the Nodemcu board and put on the breadboard.

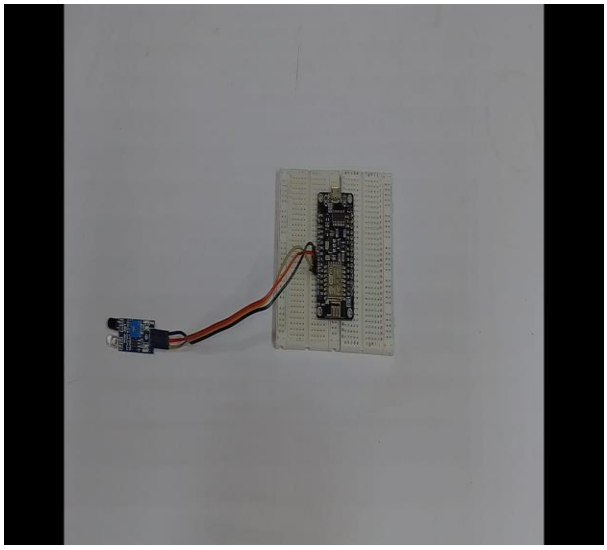




STEP 2- Take the IR Sensor and connect with Nodemcu.

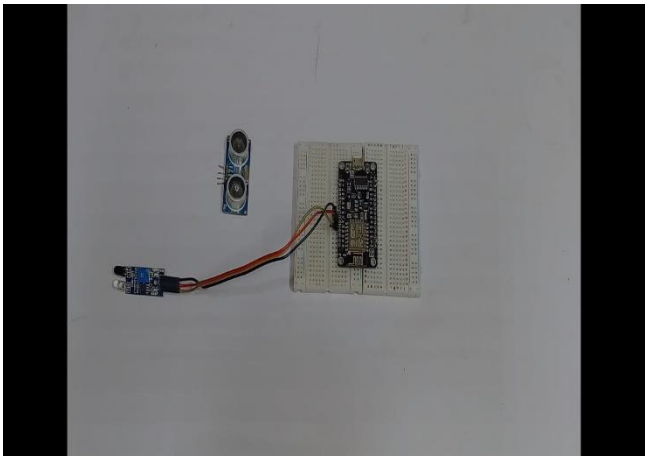
OUT<————-> D4
GND <————-> GND
VCC<————-> 3V,VIN

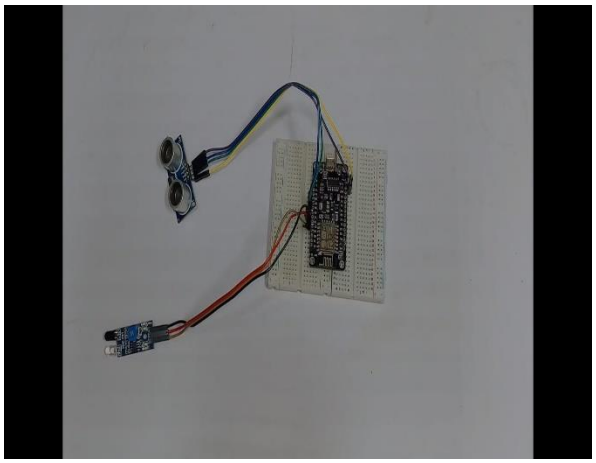




STEP 3- Take the Ultrasonic Sensor and connect with Nodemcu.

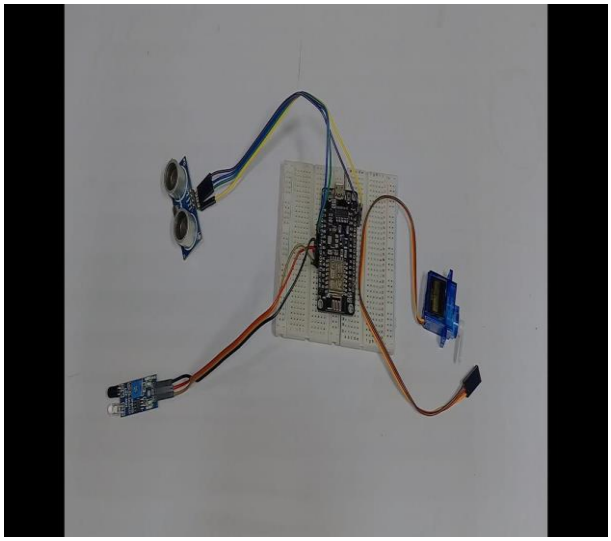
TRIG <————-> D7
ECHO <————-> D8
GND <————-> GND
VCC <————-> VIN

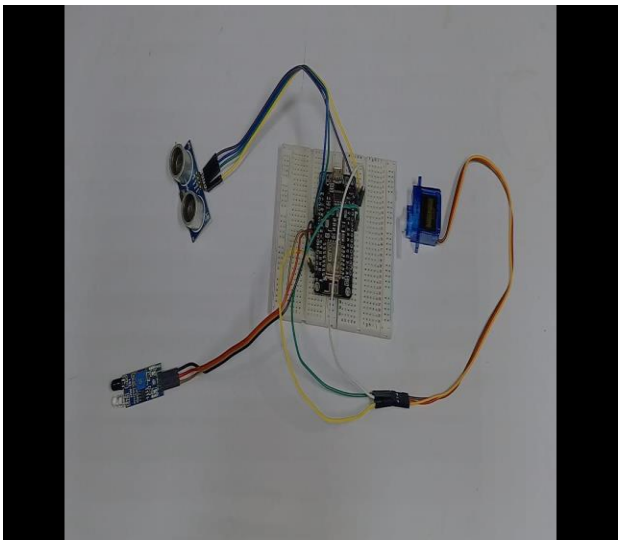




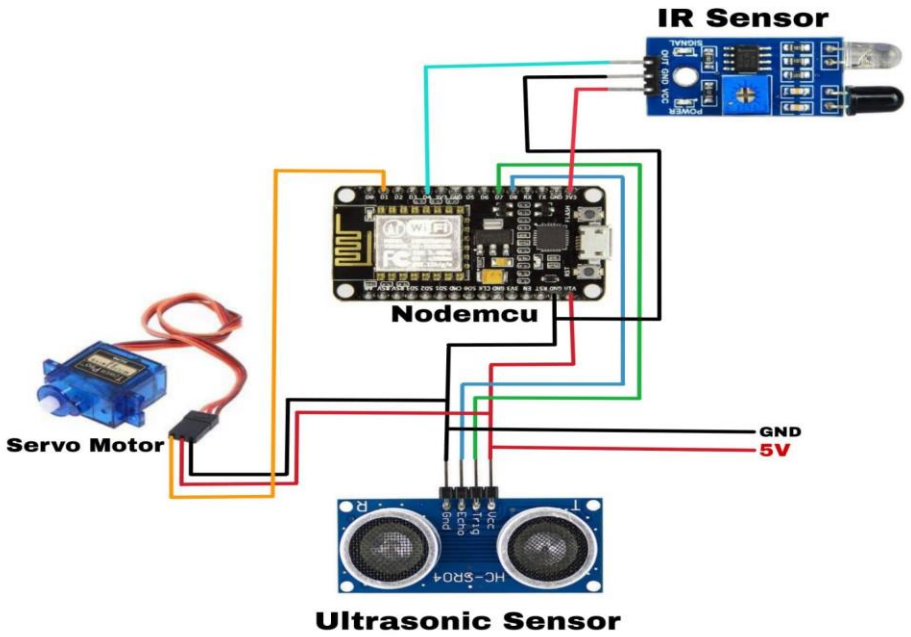
STEP 4- Take the Servo Motor and connect with Nodemcu.

CTRL<————-> D1
GND <————-> GND
VCC <————-> VIN





STEP 5- This is the circuit diagram of the project.



CODE OF THE PROJECT:

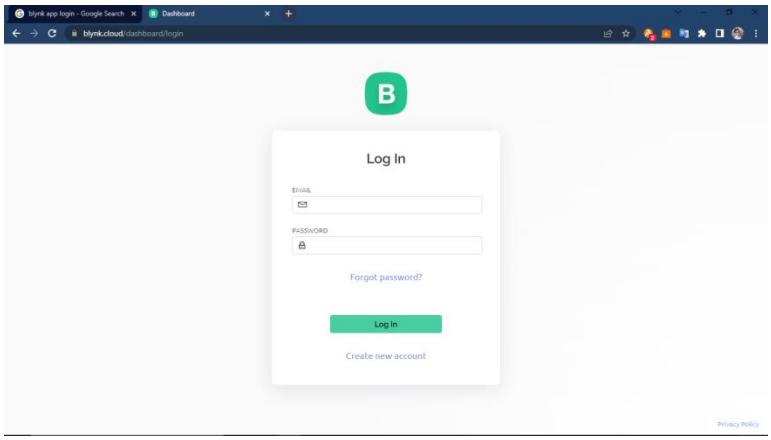
```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <Servo.h>

char auth[] = "-------";//Enter your Auth token
char ssid[] = "------";//Enter your WIFI name
char pass[] = "------";//Enter your WIFI password

BlynkTimer timer;
#define trig D7
#define echo D8
int value; // variable to store value read on digital pin

Servo servo;

void setup() {
  Serial.begin(9600);
pinMode(2, INPUT); // initialize digital pin 2 as an input
    servo.attach(5); //D1
    servo.write(0);
  pinMode(trig, OUTPUT);
  pinMode(echo, INPUT);
    delay(2000);
Blynk.begin(auth, ssid, pass, "blynk.cloud", 80);
  timer.setInterval(100L, ultrasonic);
}
```

```
  void ultrasonic() {
  digitalWrite(trig, LOW);
  delayMicroseconds(4);
digitalWrite(trig, HIGH);
 delayMicroseconds(10);
digitalWrite(trig, LOW);
  long t = pulseIn(echo, HIGH);
  long cm = t / 29 / 2;
  Blynk.virtualWrite(V0, cm);
}
void loop()
{
value = digitalRead(2); // read value on pin 2
if(value==1) // if value is 1
{
     servo.write(90);
    delay(1000);
}
```

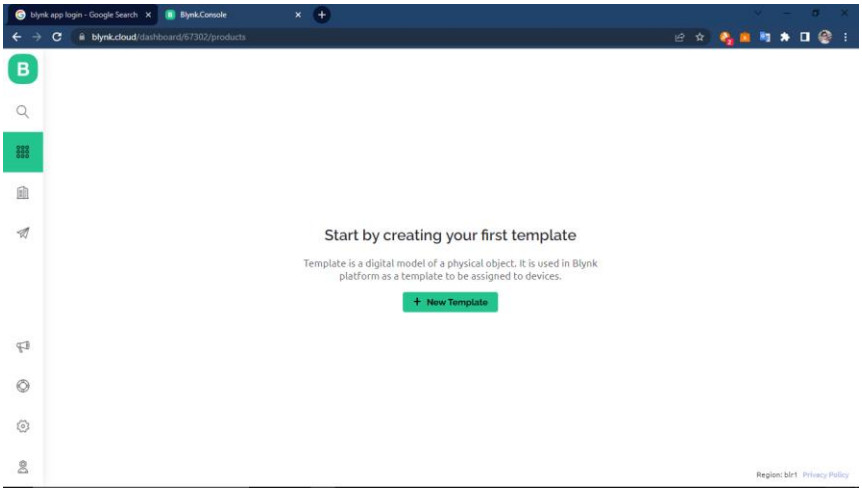
```
if(value==0)
{
   servo.write(0);
   delay(1000);
}
 Blynk.run();//Run the Blynk library
  timer.run();//Run the Blynk timer
}
```

Setup the blynk:

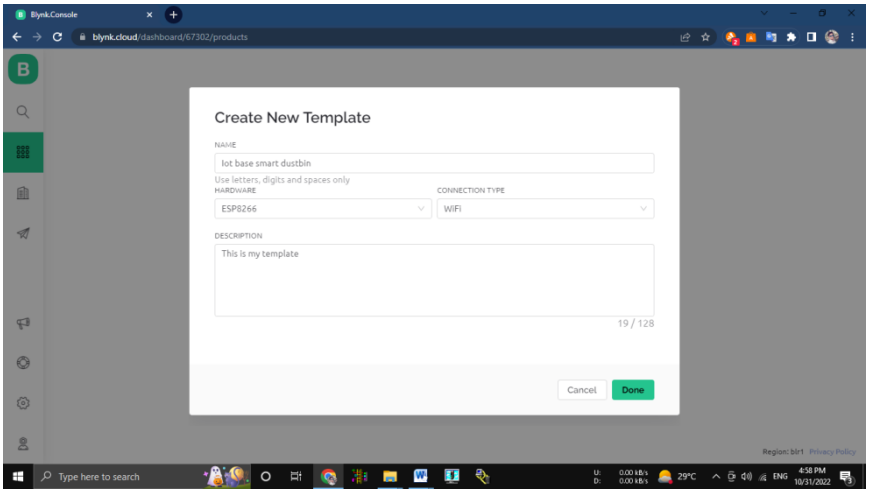
STEP 1– Open the blynk in the chrome and login the blynk page.



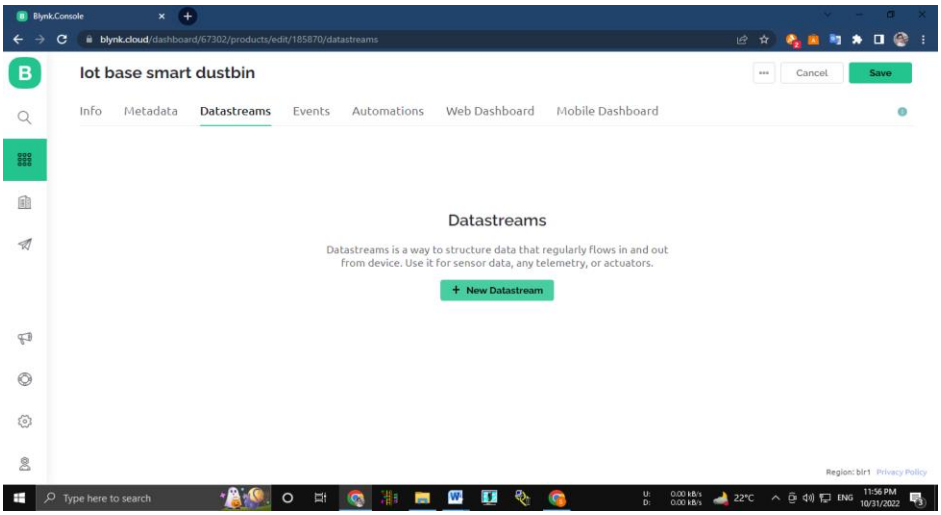
STEP 2 - After that click the new template.



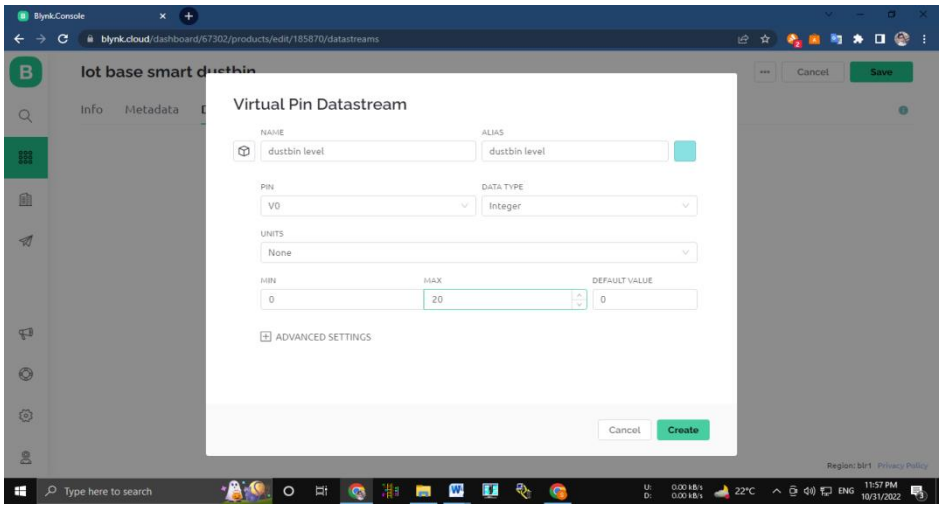
STEP 3– Give the project name and select the hardware esp8266 board.



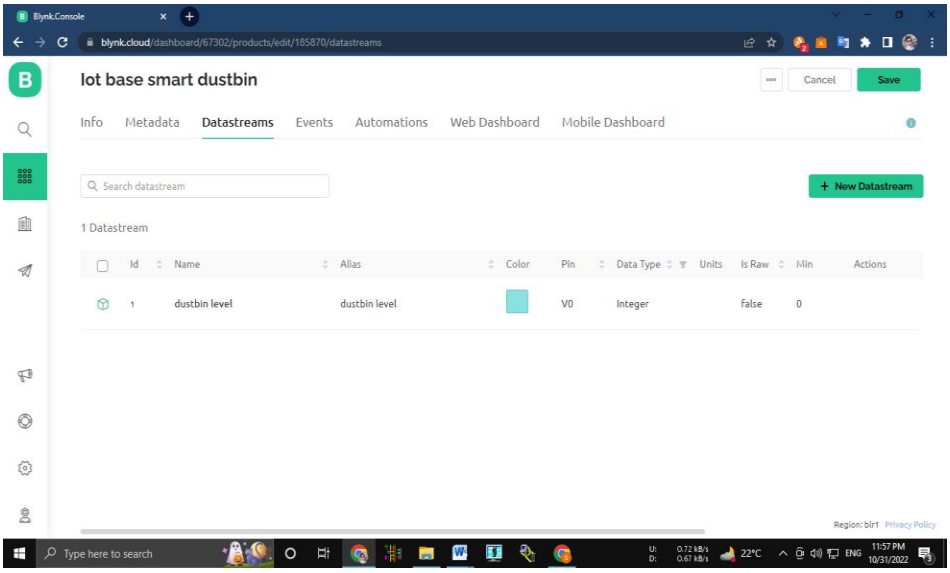
STEP 4 – select the datastreams and go to the new datastreams.



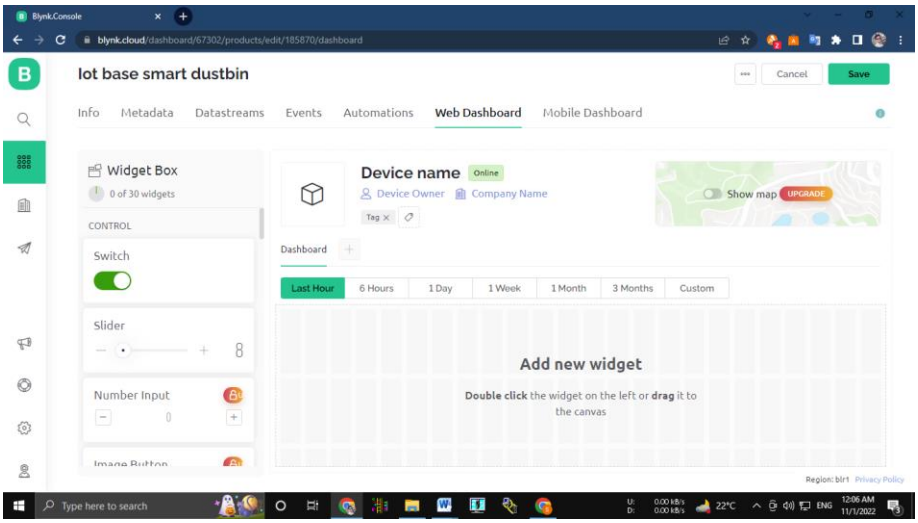
STEP 5- Give the name and select pin V0 and hit the option create.



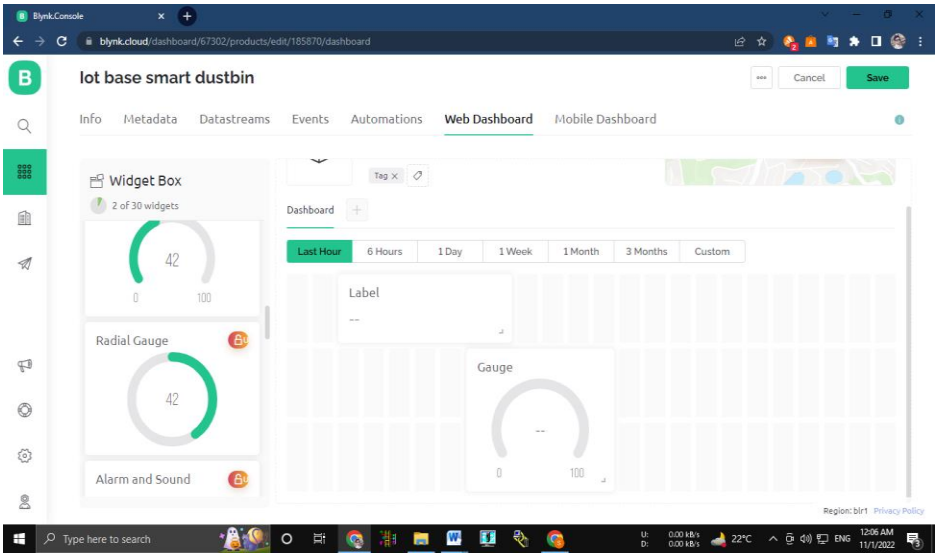
STEP 6–Then show this type of window.



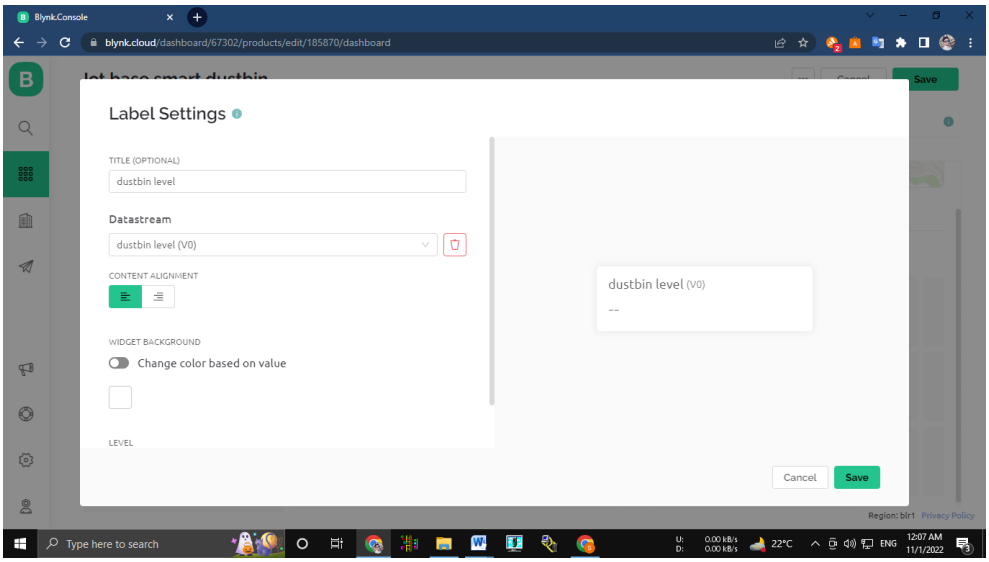
STEP 7– Select the web dashboard option.



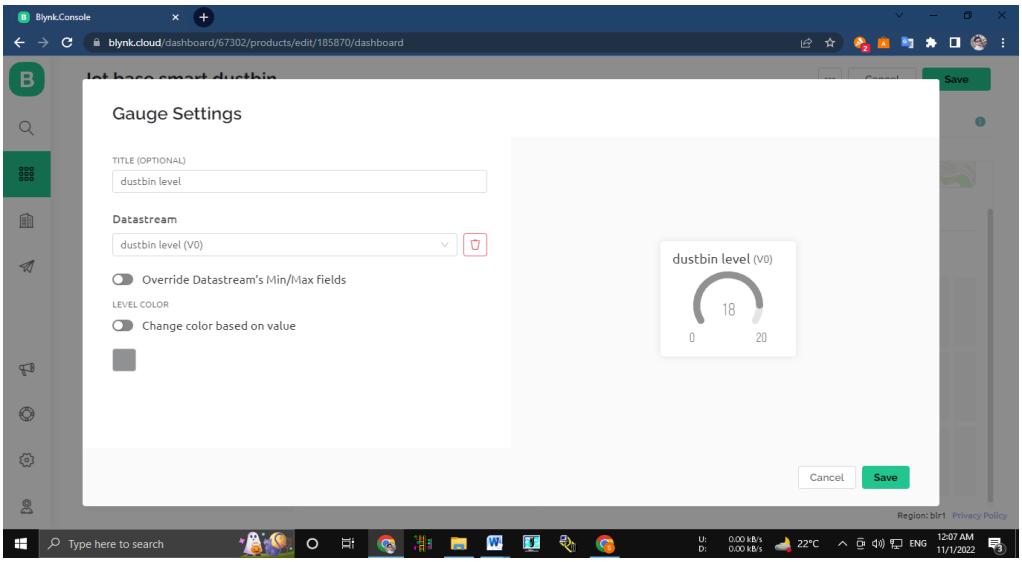
STEP 8 – Drag the label and Gauge option.



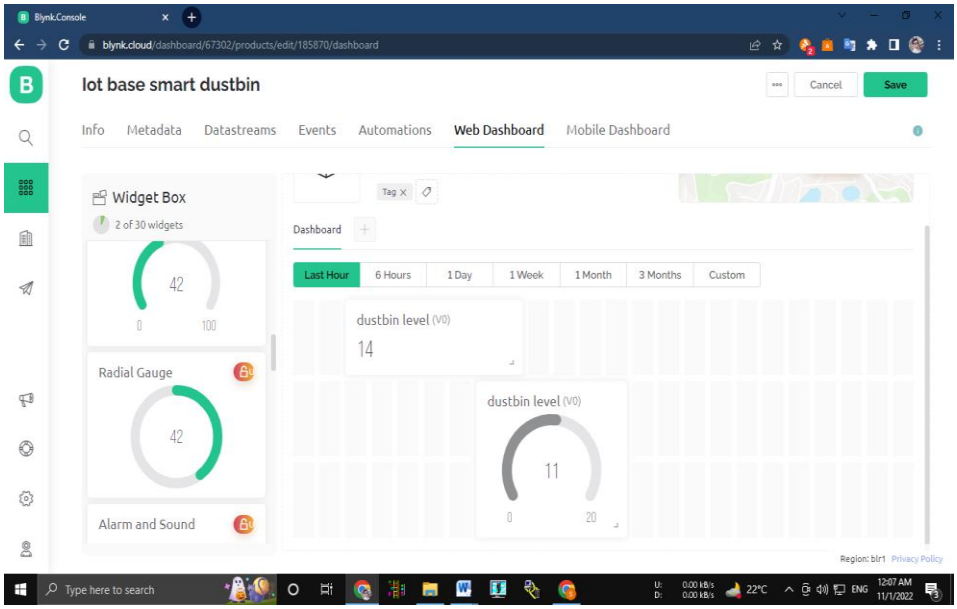
STEP 9 – Go to setting option of label select datastreams V0.



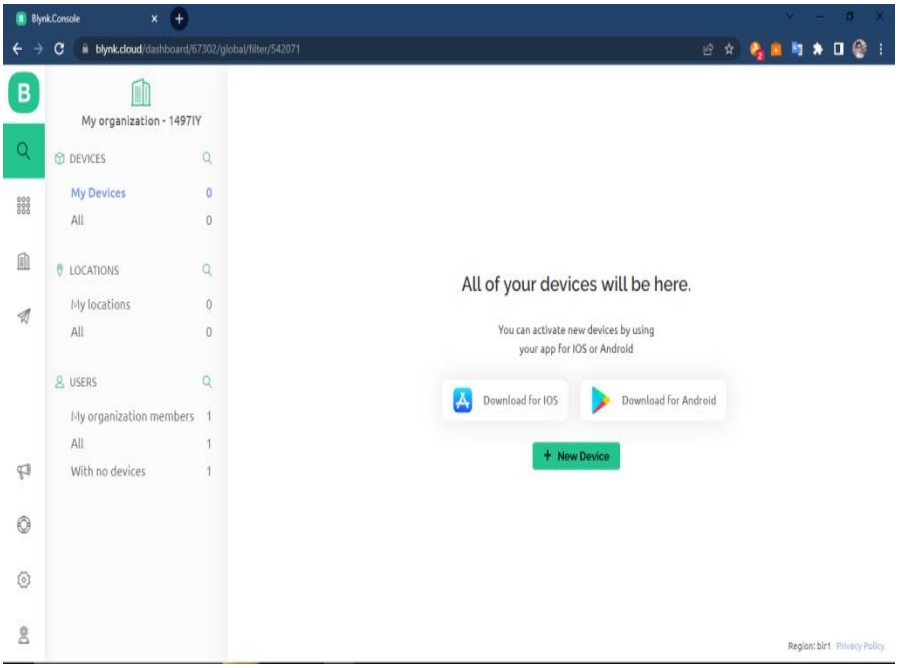
STEP 10– Go to the setting option of gauge and select the datastream V0.



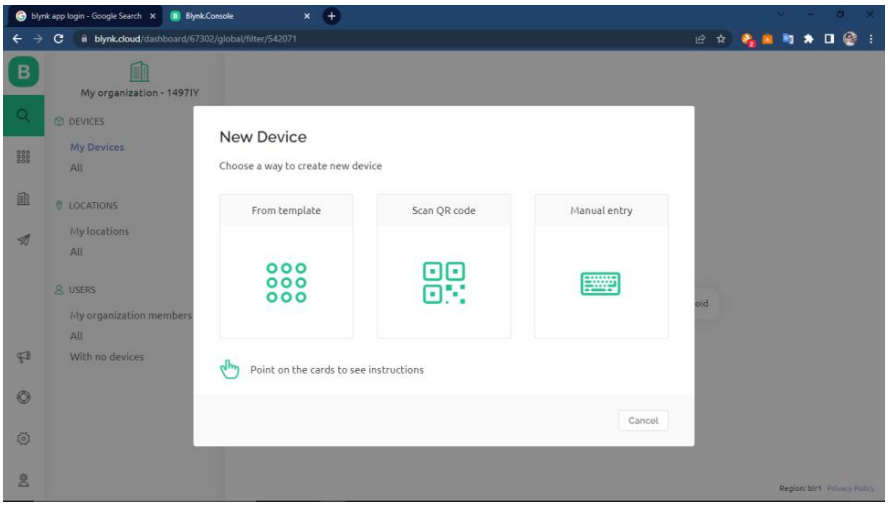
STEP 11 - Click the save button.



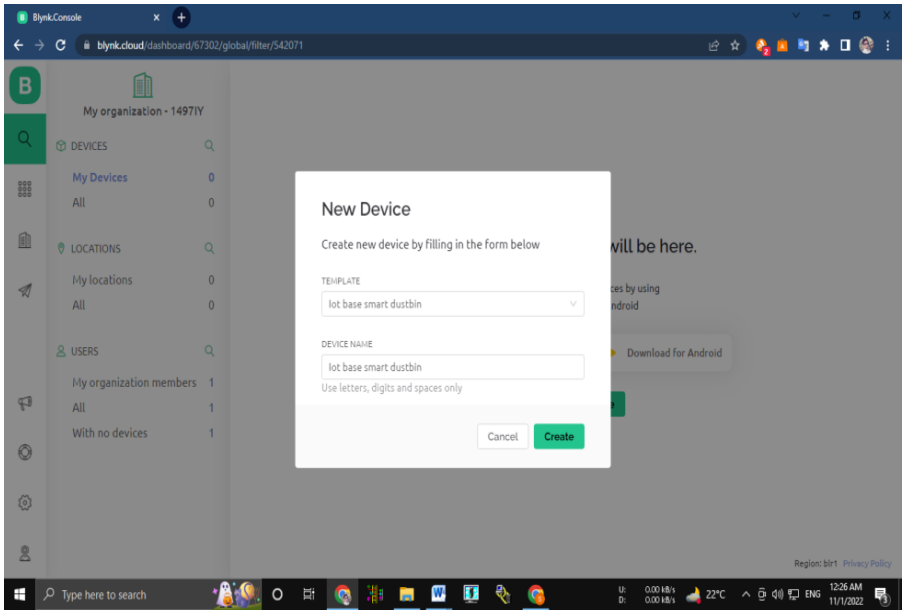
STEP 12 – After that click the search point. And select the new device option.



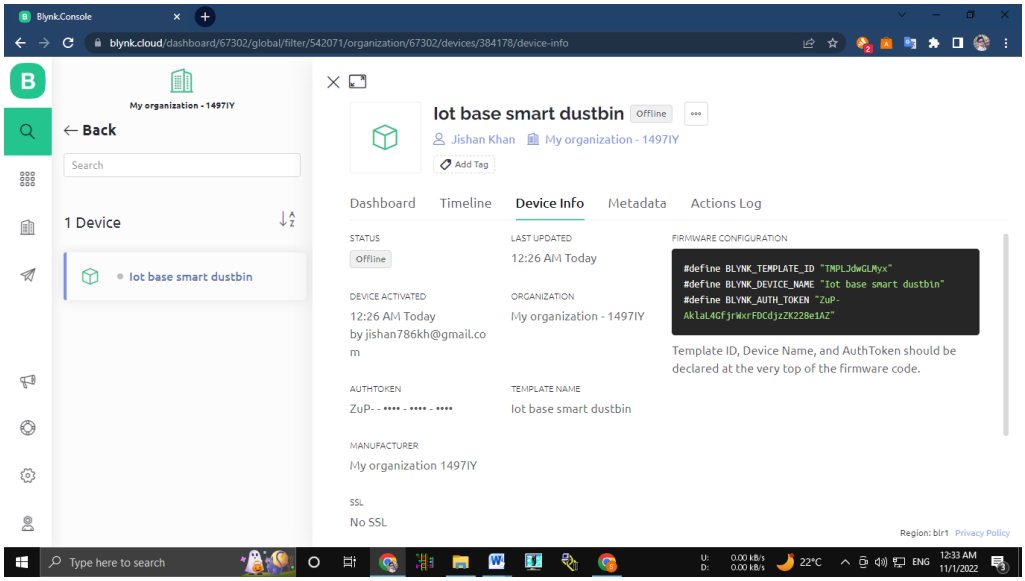
STEP 13 – Select the from template option.



STEP 14 - Give the template name and device name then click create.

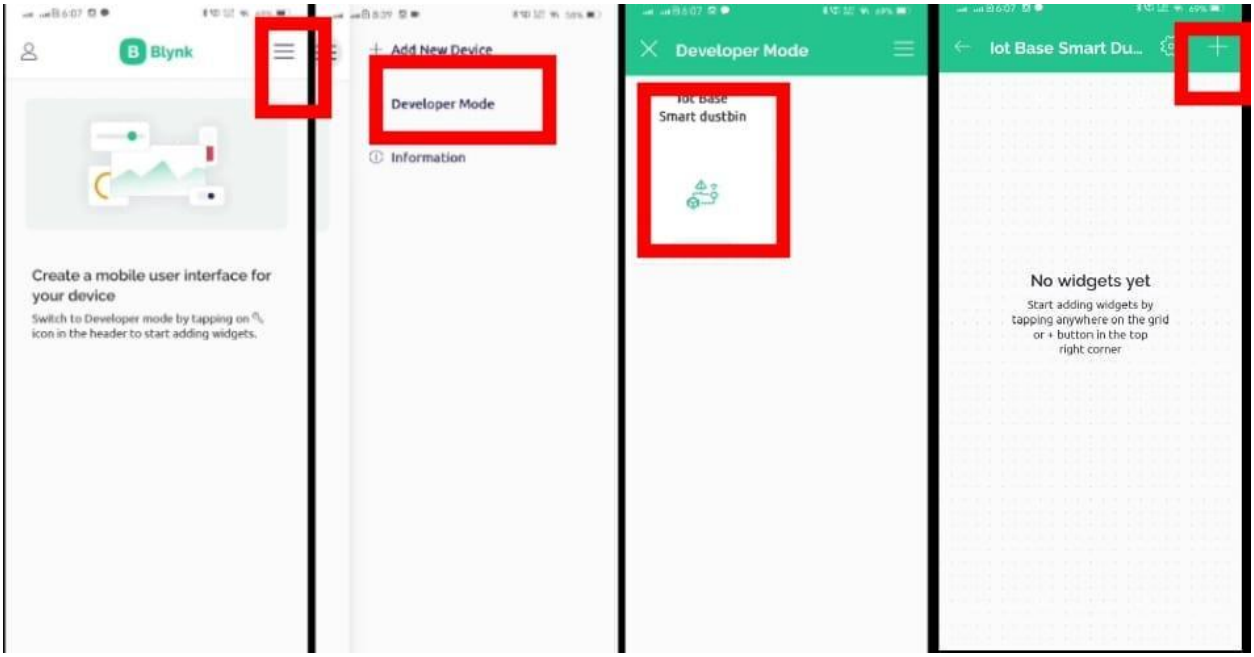


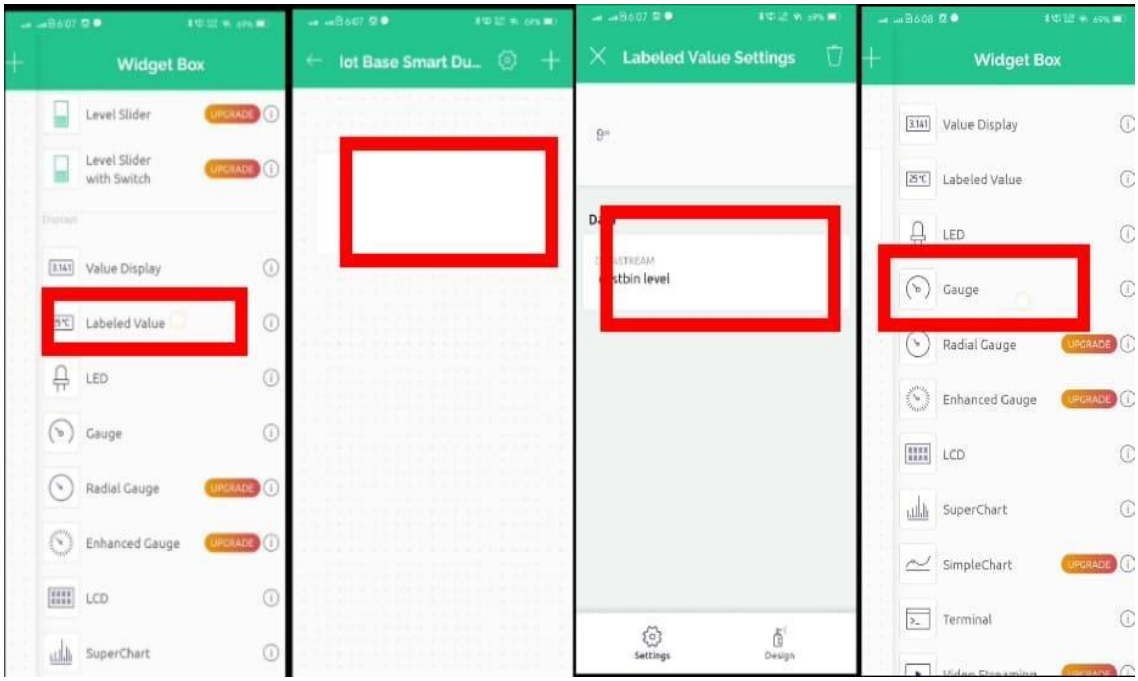
STEP 15 – Go to device info option and copy the FIRMWARE CONFIGURATION. This configuration is used in Arduino code.

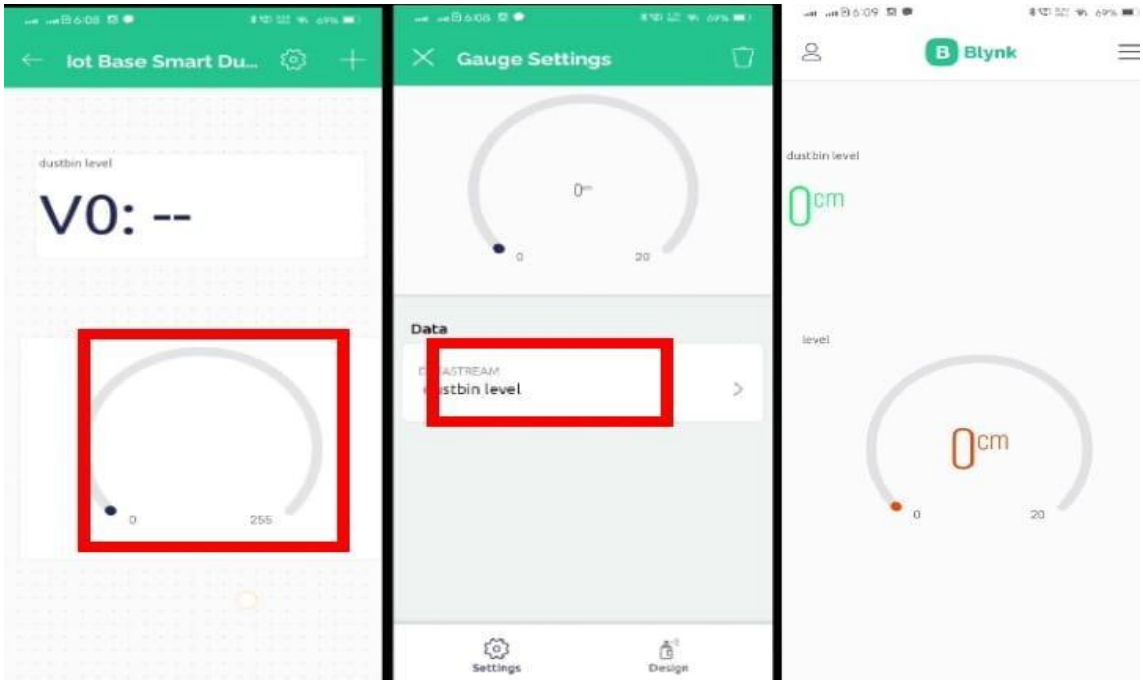


Setup the blynk app:

Install the new blynk app and login. After that follow all the step which is given below in the picture.







Conclusion/Learning Outcomes:

We have learnt the project Smart Dustbin and known the use of Blynk App.