History of IOT:-

• The first telemetry system was rolled out in Chicago way back in 1912. It is said to have used telephone lines to monitor data from power plants

. • Telemetry expanded to weather monitoring in the 1930s, when a device known as a radiosonde became widely used to monitor weather conditions from balloons.

• In 1957 the Soviet Union launched Sputnik, and with it the Space Race. This has been the entry of aerospace telemetry that created the basis of our global satellite communications today

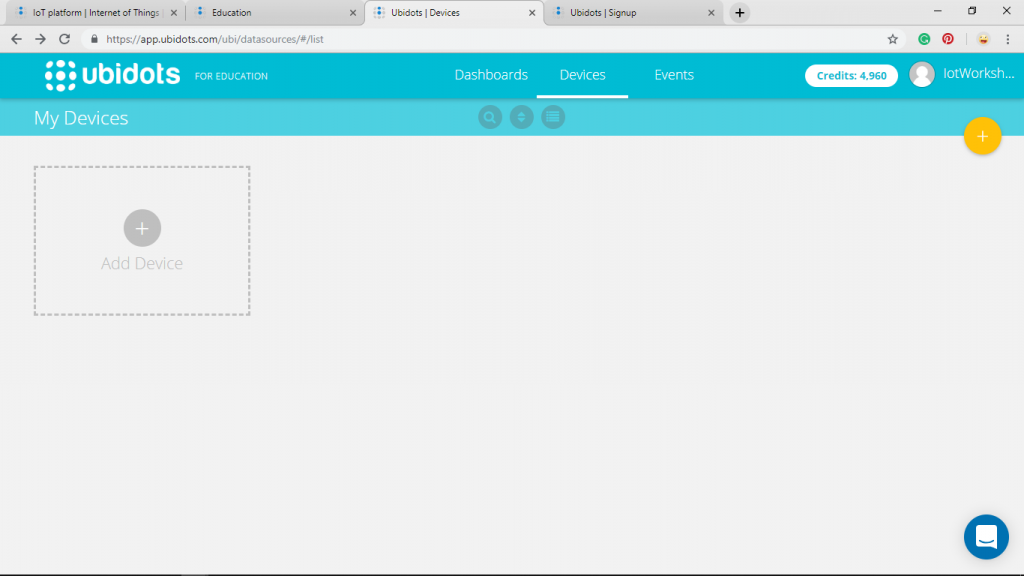
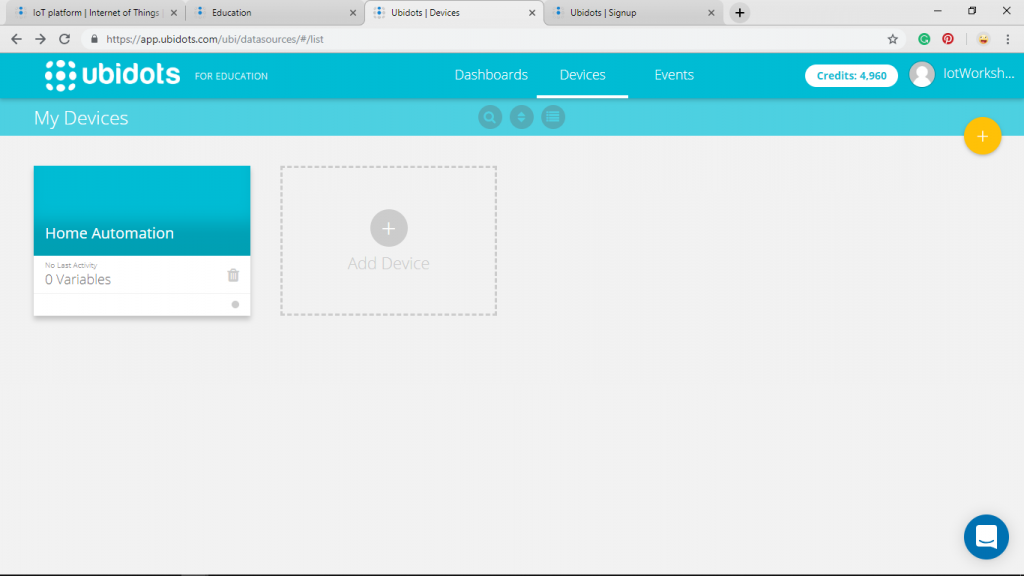
Introduction to IOT History of IOT

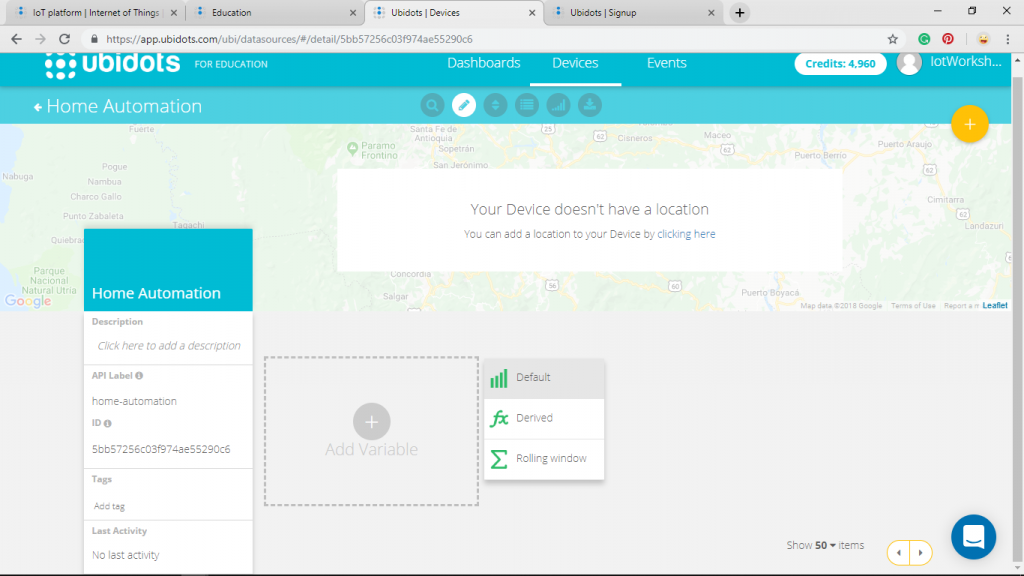
• Broad adoption of M2M technology began in the 1980s with wired connections for SCADA (supervisory control and data acquisition) on the factory floor and in home and business security systems.

• In the 1990s, M2M began moving toward wireless technologies. ADEMCO built their own private radio network to address intrusion and smoke detection because budding cellular connectivity was too expensive.

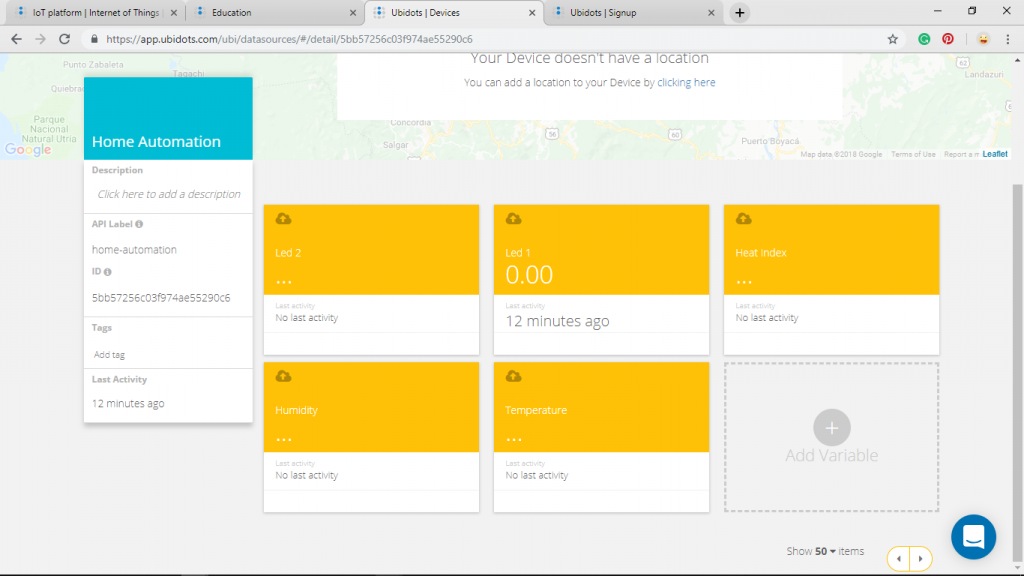
• In 1995, Siemens introduced the first cellular module built for M2M.

**UBIDOTS SETUP:**

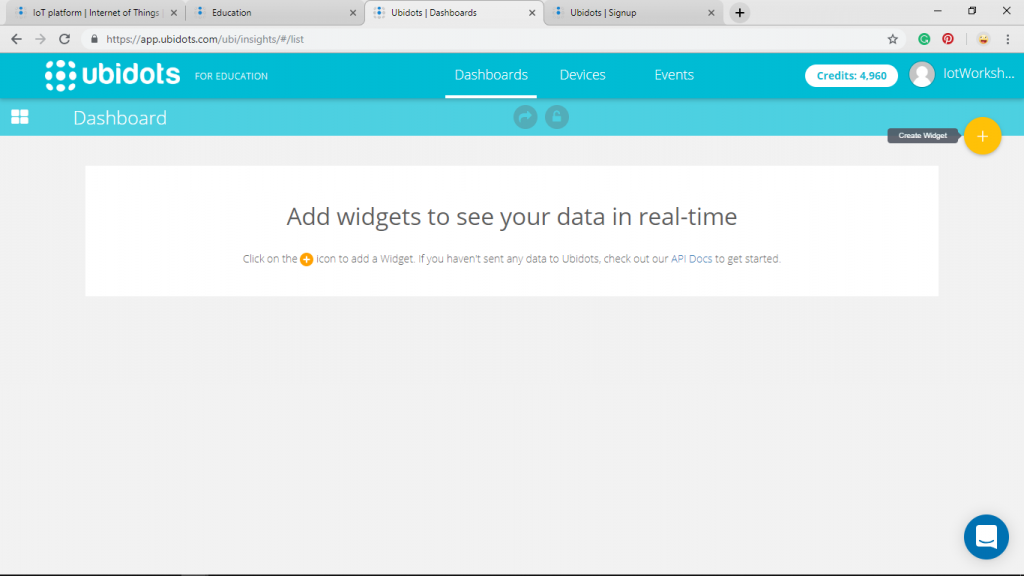
1. Create an ubidots for education account for free from [here](https://app.ubidots.com/accounts/signup/)
2. After logging into ubidots for education, we will be asked to create devices as shown below
3. Create a new device by clicking on Add device and name the device4.Now double click on the device, then we will be prompted to create variables. To create a variables click add variables and select the default as shown below



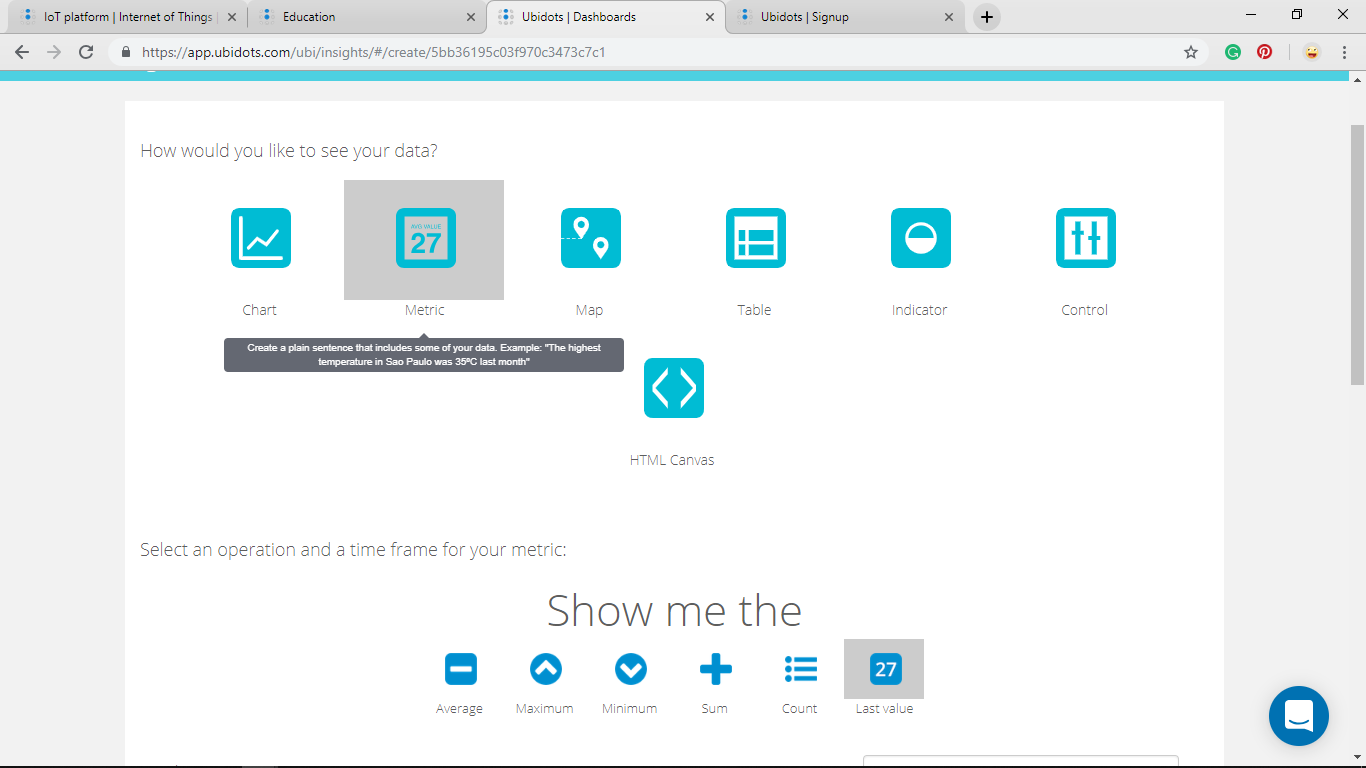
5.Then name the variable as Temperature and create variables for humidity, heat index, led 1 and led 2 using the same procedure



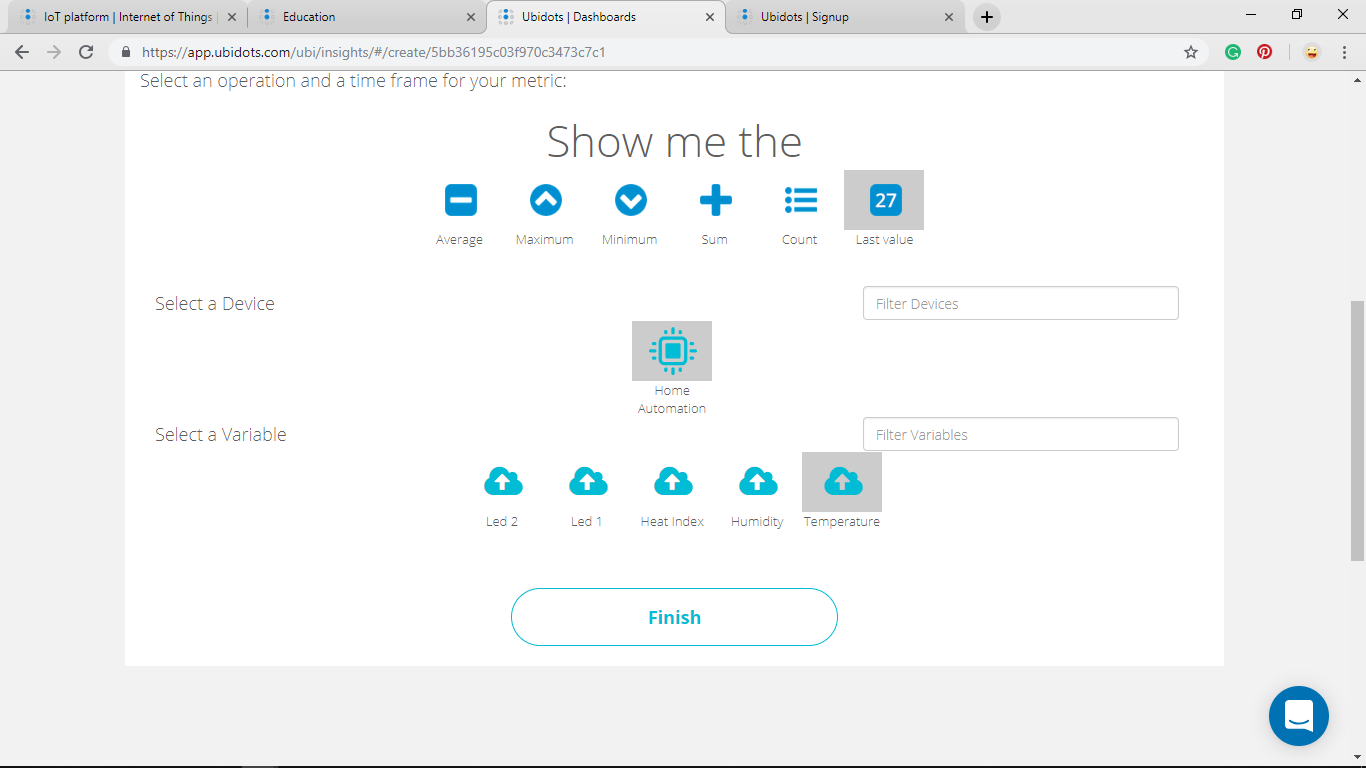
6.Now variables are successfully created. We should move to dashboards to create a widget to visualize the variables. Click on + to add a widget



7.We can visualize the data from the device in form of charts, metrics, maps, tables, indicators, and controls. To visualize the temperature in values, select the metric and select the last value.

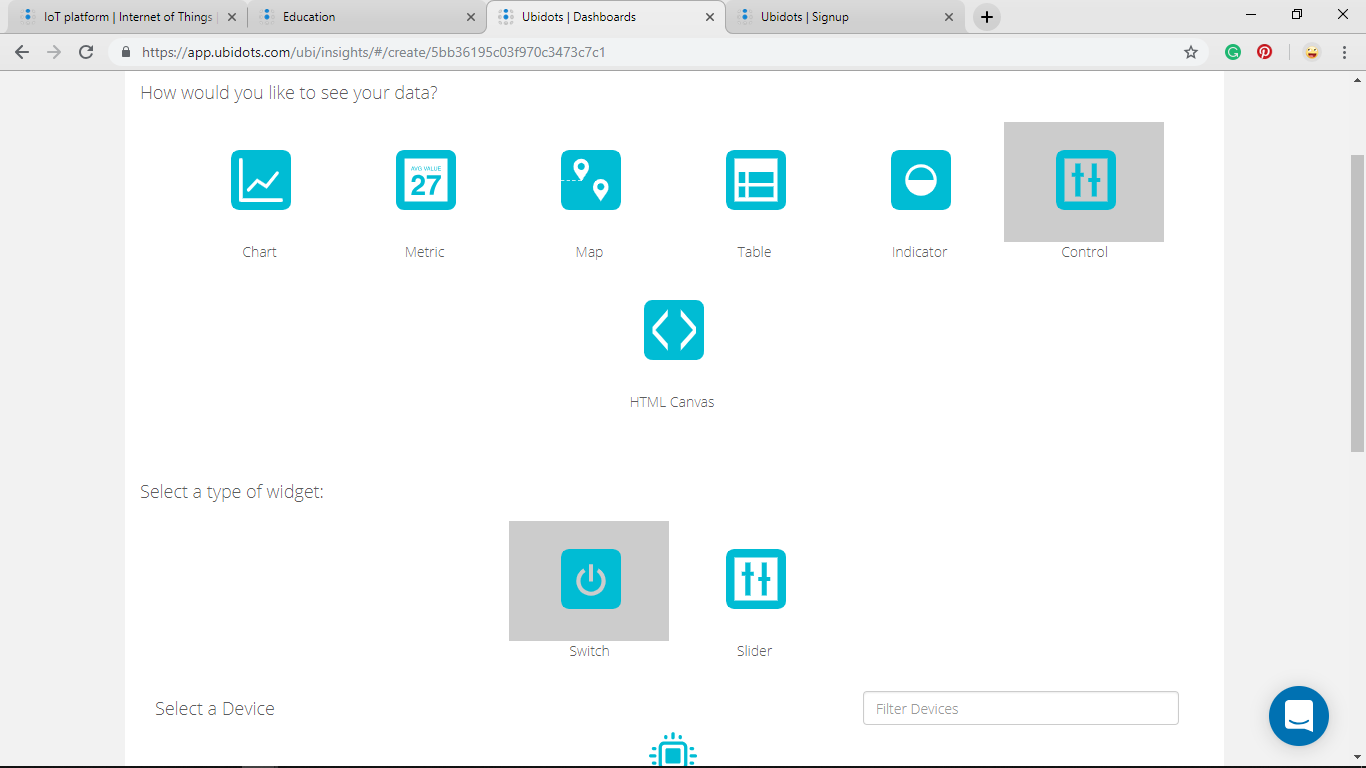


8.Then select the device and the variable that this widget should show. Click the finish button to create the widget

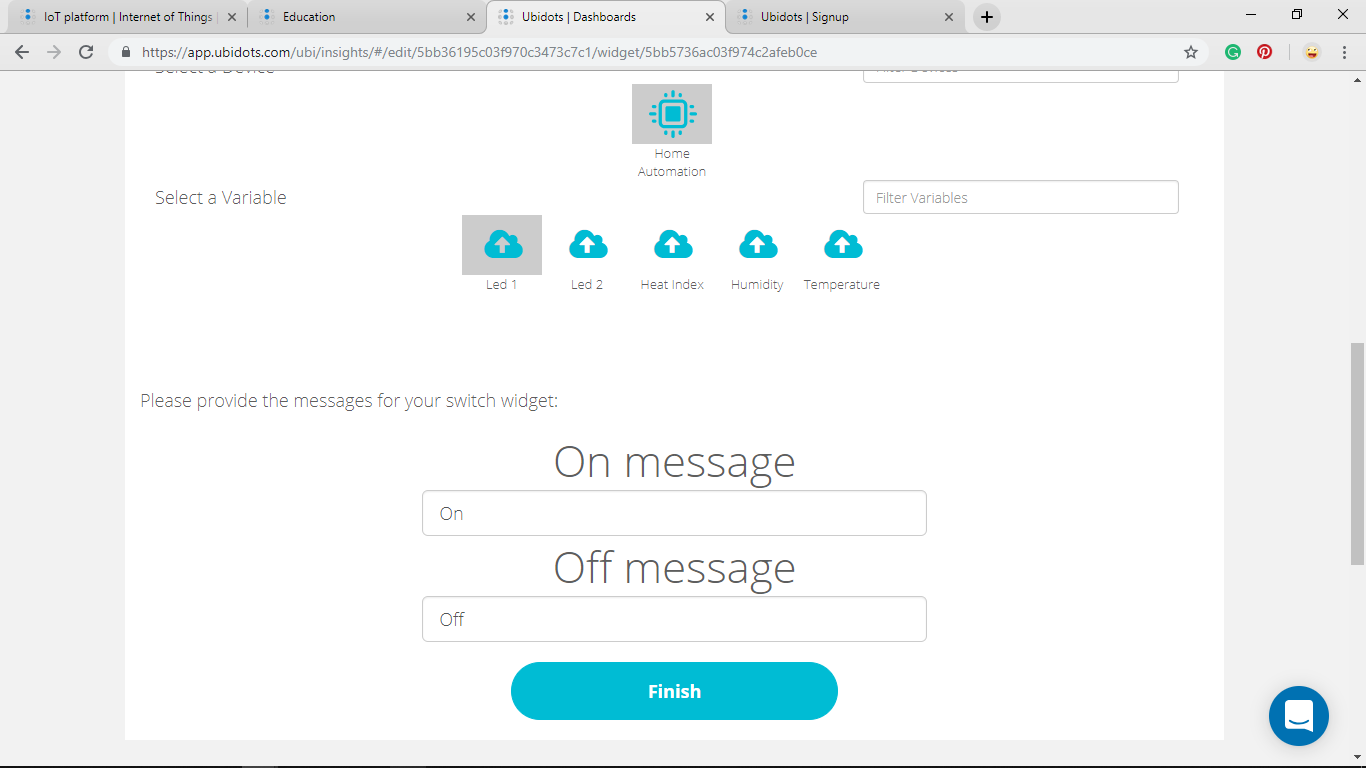


9.Repeat the steps 7,8 to create widgets for humidity and heat index

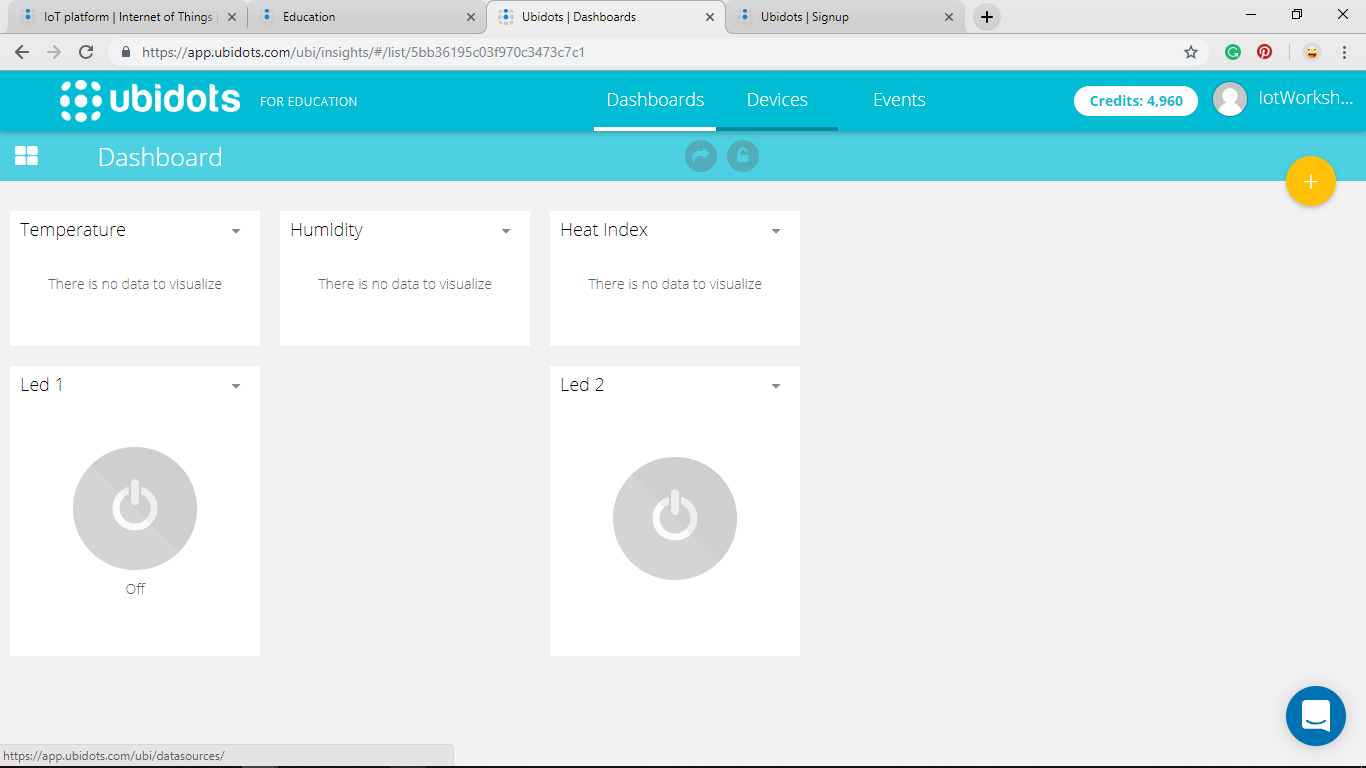
10.Then to control the led’s select the control option. Control option has two types of controls. They are Switch and Slider. For digital control, we can use a switch and for analog control, we can use the slider. We can select the switch to control the led’s



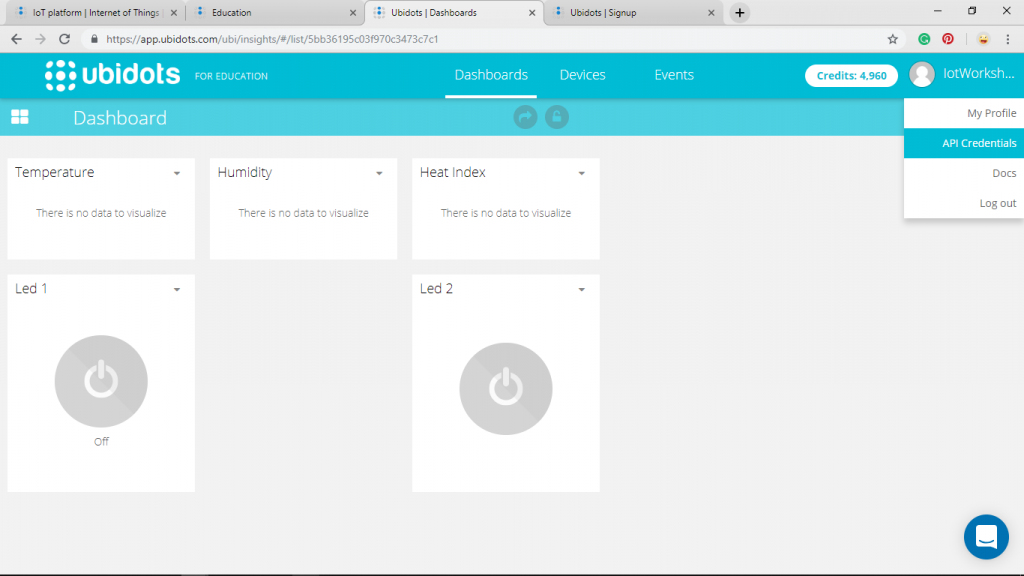
11.Then select the device and the variable for the widget. We have to specify the ON and OFF message for the switch

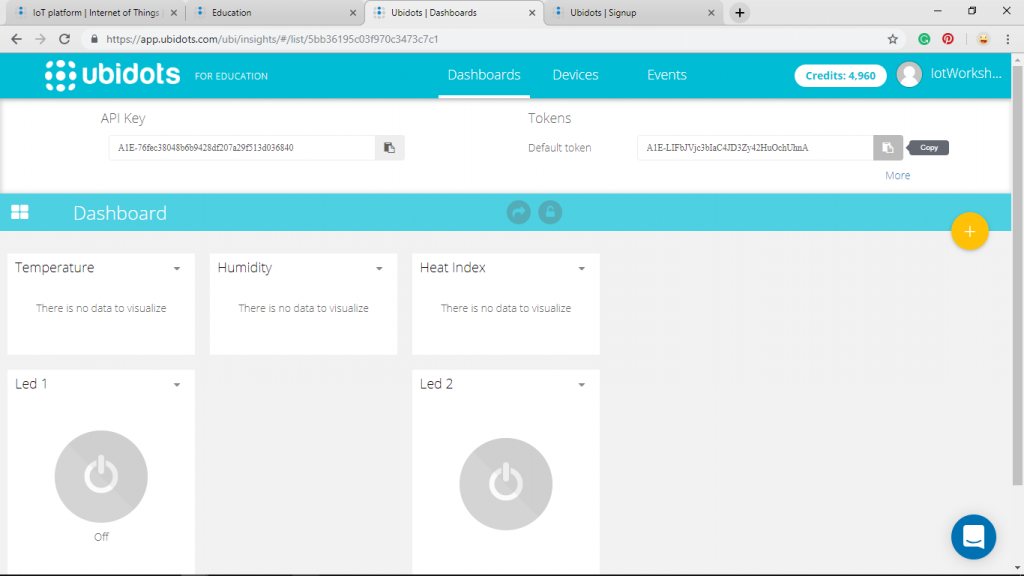


12.After creating widgets for all the five variables, the dashboard looks like this



13.Then we show know our token to connect with our account in ubidots. To know more about tokens visit [here](https://help.ubidots.com/user-guides/find-your-token-from-your-ubidots-account). To find the token refer the images below





Example Program:-

Blinking leds

from ubidots import ApiClient

import RPi.GPIO as GPIO

import time

GPIO.setmode(GPIO.BOARD)

led=3

led1=5

GPIO.setup(led,GPIO.OUT)

GPIO.setup(led1,GPIO.IN)

api=ApiClient(token='A1E-DCJjI0be4rPoMYAxWzgzlYb815WrVe')

var=api.get\_variable("5d4809b3c03f973115fe8347")

while(1):

var=api.get\_values(1)

d=var1[0][‘value’]

if(d==1):

GPIO.output(led,1)

Print”led on”

Else

GPIO.output(led1,0)Print”led off”



Ultrasonic sensor:-

from ubidots import ApiClient

import RPi.GPIO as GPIO

import time

GPIO.setmode(GPIO.BOARD)

trig=3

echo=5

GPIO.setup(trig,GPIO.OUT)

GPIO.setup(echo,GPIO.IN)

api=ApiClient(token='A1E-DCJjI0be4rPoMYAxWzgzlYb815WrVe')

var=api.get\_variable("5d4809b3c03f973115fe8347")

while(1):

GPIO.output(trig,1)

time.sleep(1)

GPIO.output(trig,0)

while GPIO.input(echo)==0:

start=time.time()

while GPIO.input(echo)==1:

stop=time.time()

el=stop-start

dis=(el\*34300)/2

print(dis)

response=var.save\_value({"value":dis})

