

# TEMPERATURE DETECTORS

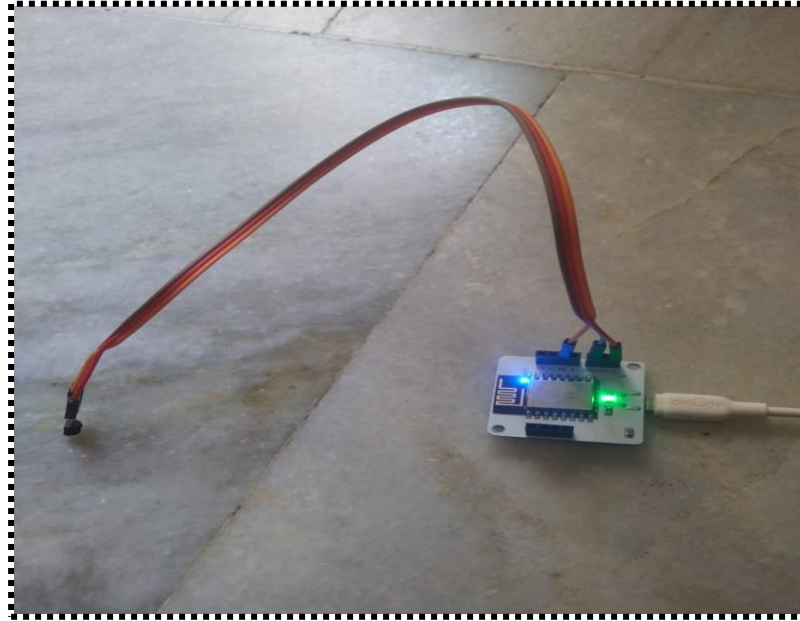
## Problem Statement:

In Pharmaceutical companies, they maintain the temperatures of the capsules in the range of threshold values. If their threshold values cross their limits, then there will be a huge loss to the companies. So, to minimize this loss, we come up with a solution by using IOT.

## Solution:

I have designed a solution in such a way that, whenever the temperature crosses the range of threshold values, the company owner will receive an alert of warning message either through SMS or through Email. So that He/ She can immediately set the temperature back to its threshold limits. By this, the loss will be decreases.

Here are some of the shots that taken while doing the project



CIRCUIT CONNECTIONS

# Creation of Product on BOLT Cloud

cloud.boltz.com/configure/captainproject

Want to join a "Live online workshop on Android app development?" [Register NOW!](#)

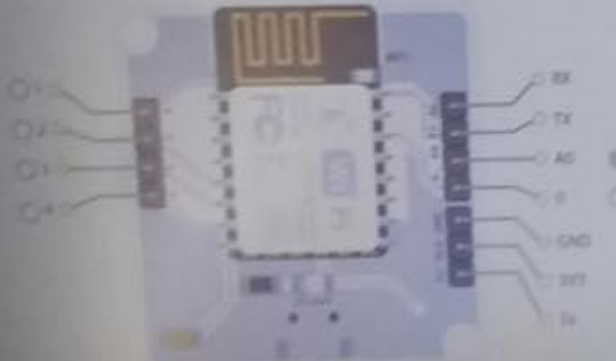
## Products: Setup

Hardware Code

Step 1: Assemble the circuit using Bolt hardware module as per your requirement.  
Step 2: Select the pins as per circuit designed and assign a unique variable name to them.  
Step 3: Data collection rate: 1 second

Note: Variable name can only contain lowercase alphabetic characters and underscore and should start with an alphabet.

Pin	Variable Name
A0 Analog	temp



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Register NOW!



Products

TAKE A TOUR



Mami Dvys

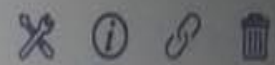
Dashboard

Products

Users

Settings

+ Add Product

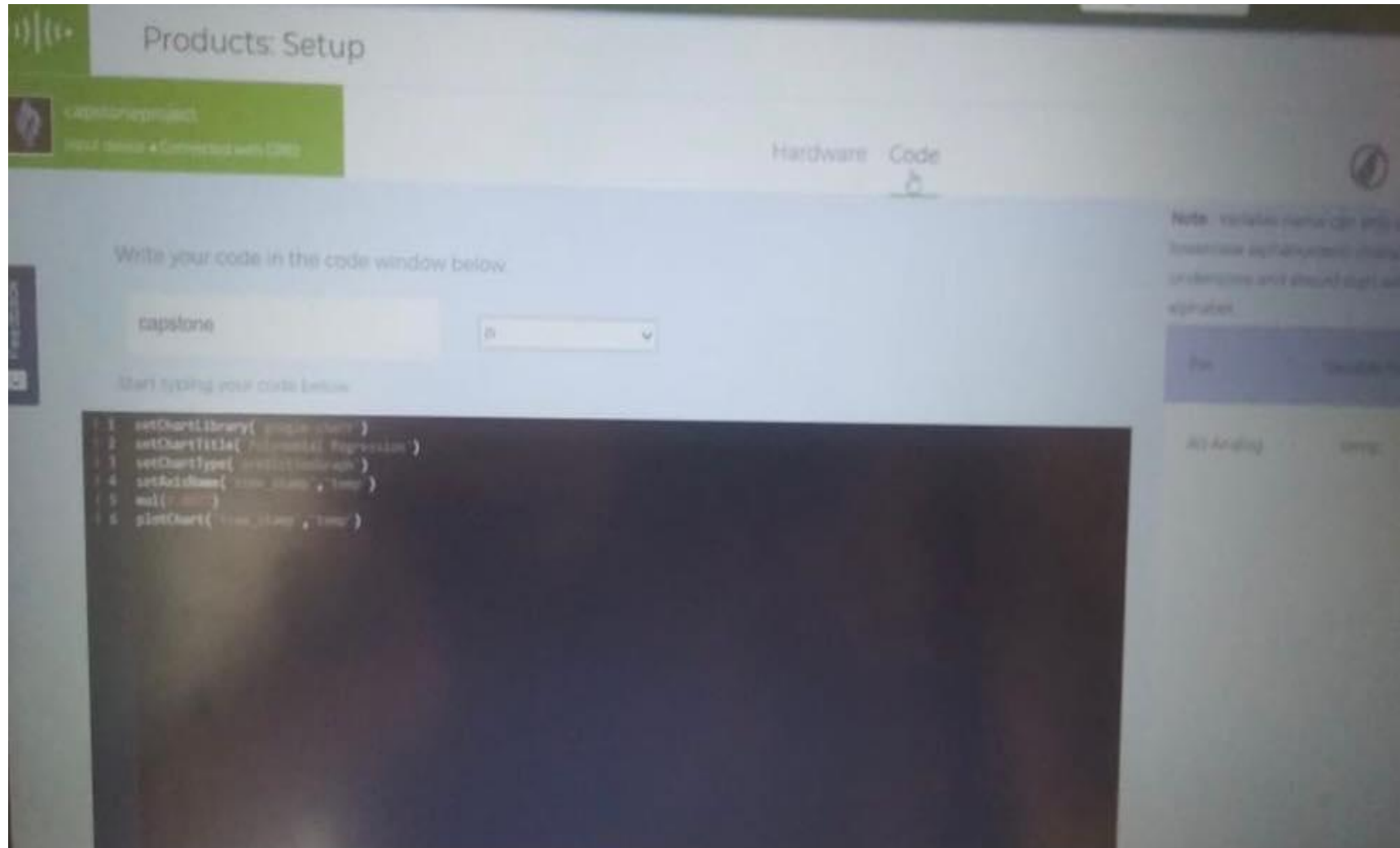


ID	STATUS	PRODUCT	ACTIONS
----	--------	---------	---------

BOLT13892244	ONLINE	capstoneproject	
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Help

# Code for Polynomial Regression

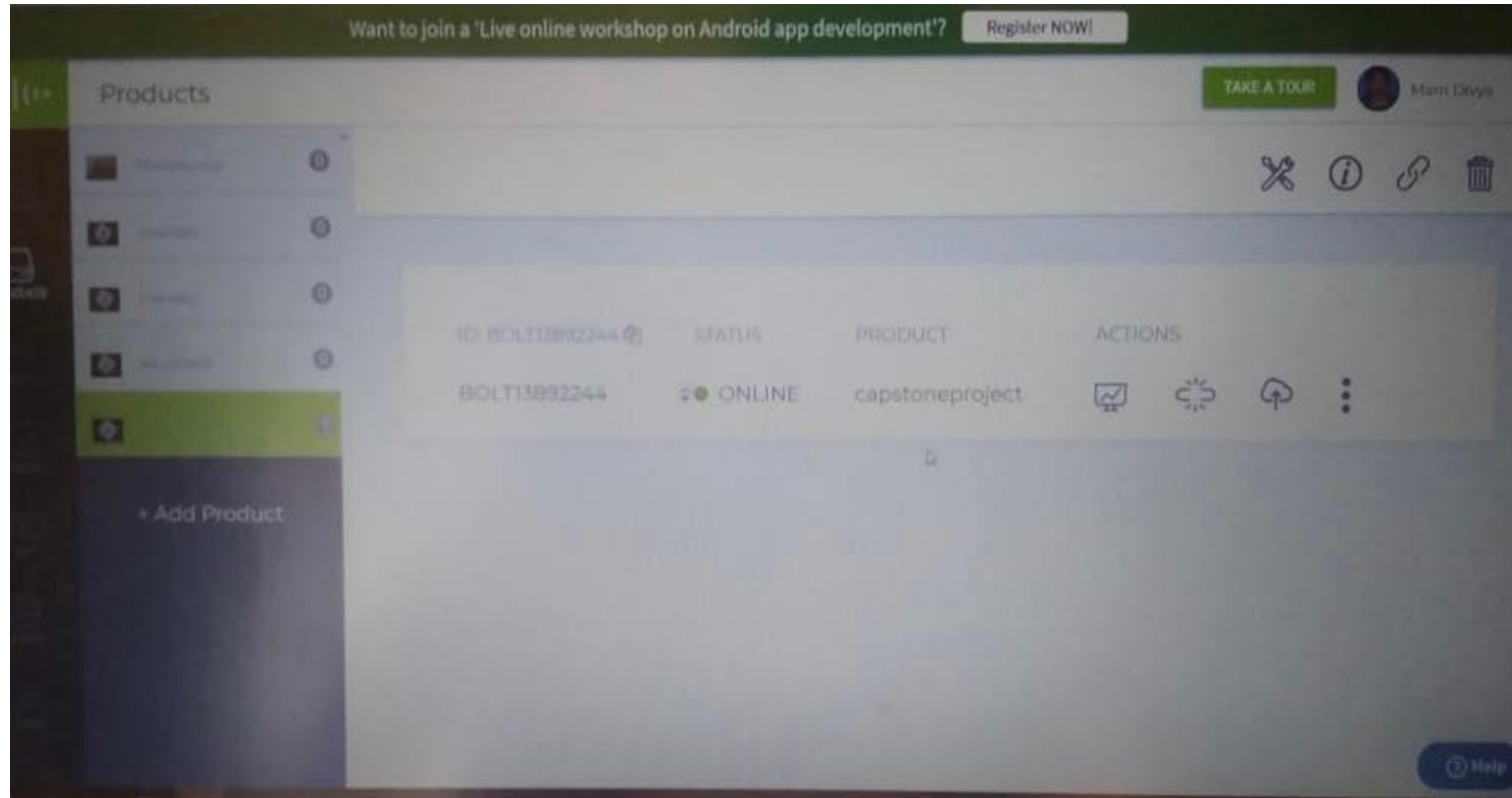


The screenshot shows the 'Products: Setup' interface. At the top, there's a green header with the text 'Products: Setup'. Below it, a green bar indicates 'capstoneproject' is 'New device • Connected with USB'. The main area has two tabs: 'Hardware' and 'Code', with 'Code' being the active tab. Below the tabs, a text prompt says 'Write your code in the code window below.' There is a text input field containing 'capstone' and a dropdown menu showing 'in'. Below this, another text prompt says 'Start typing your code below.' A large dark code editor window contains the following code:

```
1 setChartLibrary( 'google-chart' )
2 setChartTitle( 'Polynomial Regression' )
3 setChartType( 'prediction-legend' )
4 setAxisName( 'time_stamp', 'time' )
5 eval( '1.001' )
6 plotChart( 'time_stamp', 'time' )
```

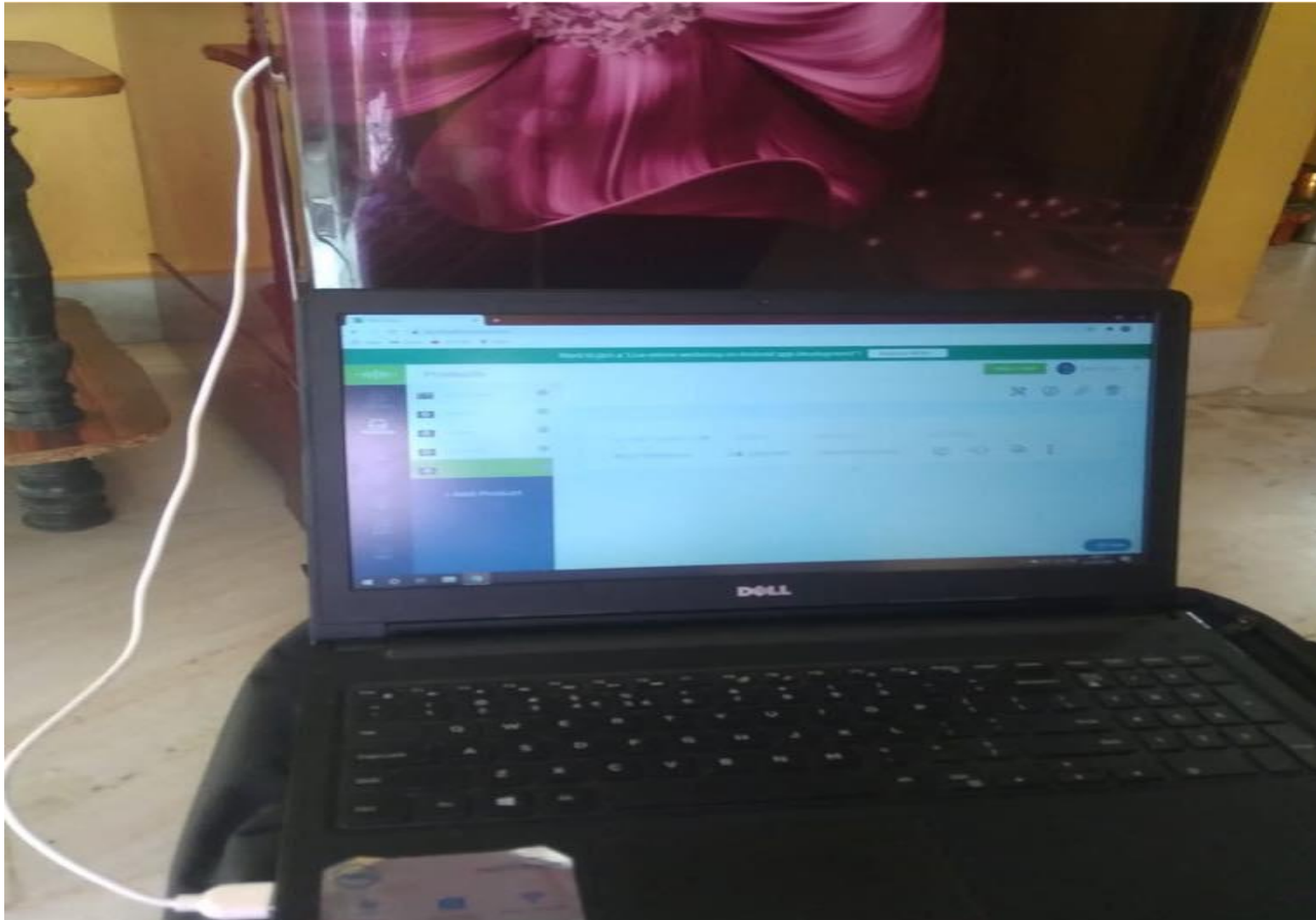
On the right side, there's a 'Note' section with text that is partially obscured. Below the note, there's a table with two columns: 'File' and 'Download File'. The table has two rows: one with 'No Analog' and 'temp'.

# GRAPH

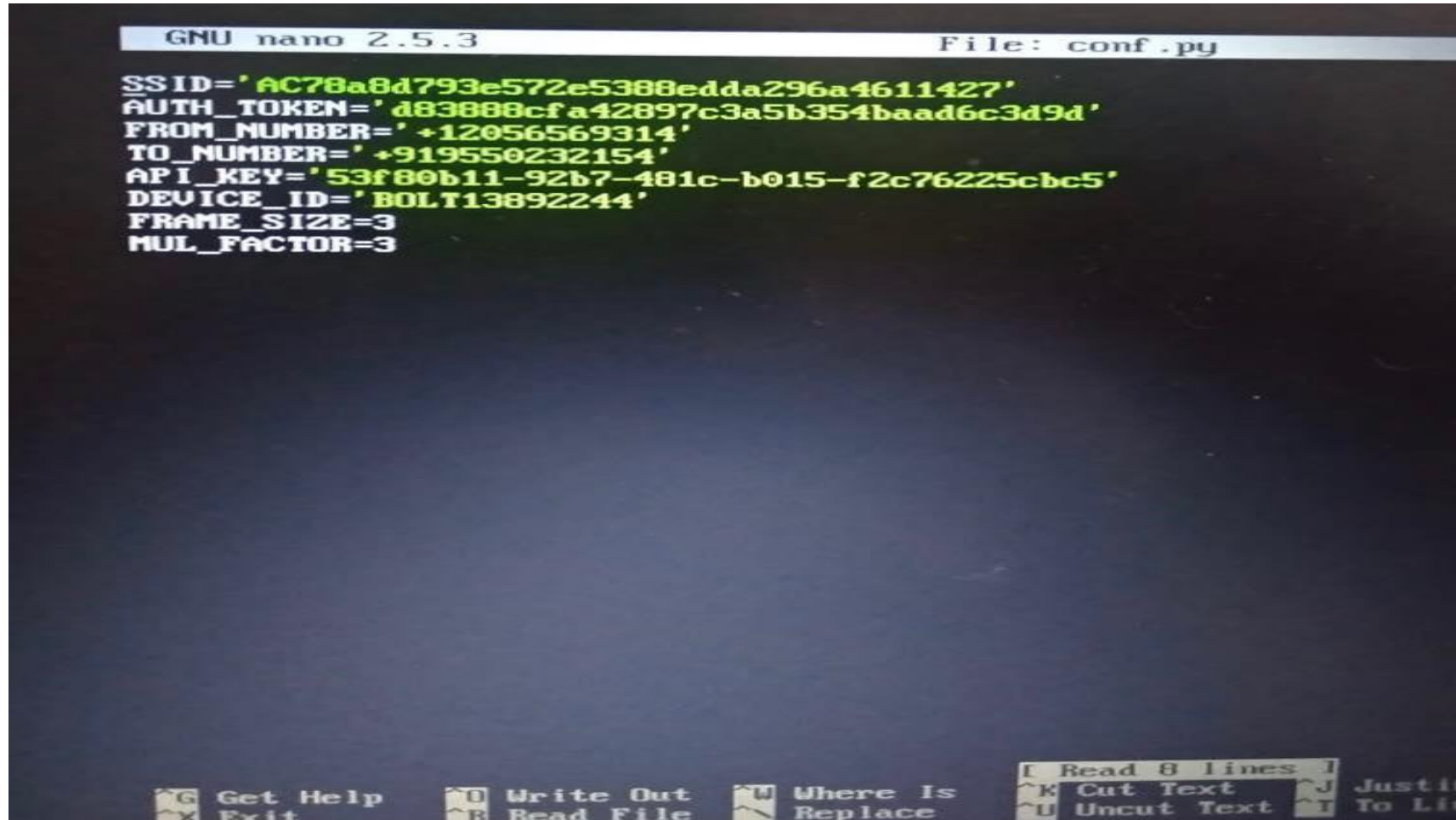




# Setting up the Circuit inside the Refrigerator



# ACCESS ID'S



The image shows a terminal window with the GNU nano 2.5.3 text editor open. The file being edited is named 'conf.py'. The editor contains several lines of configuration data, including SSID, authentication tokens, phone numbers, API keys, and device identifiers. The bottom of the screen displays a menu with various editing and navigation commands.

```
GNU nano 2.5.3 File: conf.py

SSID='AC78a8d793e572e5388edda296a4611427'
AUTH_TOKEN='d83888cfa42897c3a5b354baad6c3d9d'
FROM_NUMBER='+12056569314'
TO_NUMBER='+919550232154'
API_KEY='53f80b11-92b7-481c-b015-f2c76225cbc5'
DEVICE_ID='BOLT13892244'
FRAME_SIZE=3
MUL_FACTOR=3

^G Get Help   ^O Write Out  ^W Where Is   ^L Read 8 lines
^X Exit       ^R Read File  ^M Replace    ^K Cut Text   ^J Justif
^_            ^I           ^U Uncut Text ^I To Lin
```

# PYTHON CODE

```
GNU nano 2.5.3 File: capstone.py

import conf,json,time,math,statistics,requests
from boltiot import Bolt,Sms
def capstone(history_data,frame_size,factor):
    if len(history_data)<frame_size:
        return None
    if len(history_data)>frame_size:
        del history_data[0:len(history_data)-frame_size]
    Mn=statistics.mean(history_data)
    Variance=0
    for data in history_data:
        Variance+=math.pow((data-Mn),2)
    Zn=factor*math.sqrt(Variance/frame_size)
    High_bound=history_data[frame_size-1]+Zn
    Low_bound=history_data[frame_size-1]-Zn
    return[High_bound,Low_bound]
def Temp(value):
    Temperature=value/10.24
    return round(Temperature)
count=0
product=Bolt(conf.API_KEY,conf.DEVICE_ID)
sms=Sms(conf.SSID,conf.AUTH_TOKEN,conf.TO_NUMBER,conf.FROM_NUMBER)
history_data=[]
while True:
    response=product.analogRead('A0')
    data=json.loads(response)
    if data['success']!=1:
        print("There was an error while retrieving the data.")
        print("This is the error."+data['value'])
        time.sleep(10)
        continue
    print("Temperature is:",Temp(float(data['value'])))
    sensor_value=0
```

Get Help Exit Write Out Read File Where Is Replace Cut Text Uncut Text Justify To Linter



# PYTHON CODE

```
GNU nano 2.5.3 File: capstone.py

    return round(Temperature)
count=0
product=Bolt(conf.API_KEY,conf.DEVICE_ID)
sms=Sms(conf.SSID,conf.AUTH_TOKEN,conf.TO_NUMBER,conf.FROM_NUMBER)
history_data=[]
while True:
    response=product.analogRead('A0')
    data=json.loads(response)
    if data['success']!=1:
        print("There was an error while retrieving the data.")
        print("This is the error."+data['value'])
        time.sleep(10)
        continue
    print("Temperature is:",Temp(float(data['value'])))
    sensor_value=0
    try:
        sensor_value=int(data['value'])
    except e:
        print("There was an error while parsing the response:",e)
        continue
    bound=capstone(history_data,conf.FRWZ_SIZE,conf.MUL_FACTOR)
    if not bound:
        required_data_count=conf.FRWZ_SIZE - len(history_data)
        print("Not enough data to compute 2-score.Need",required_data_count,"more data points")
        history_data.append(int(data['value']))
        time.sleep(10)
        continue
    try:
        if sensor_value>bound[0]:
            print("Temperature is increased suddenly,sending Alert message:")
            response1=sms.send_sms("Alert !someone opened the fridge door ,close it to maintain the t")
            print("Response received is:."+str(response1))
```

Get Help	Write Out	Where Is	Cut Text	Justify	Cur Pos	Prev Page
Exit	Read File	Replace	Uncut Text	To Linter	Go To Line	Next Page

# PYTHON CODE

```
GNU nano 2.5.3 File: capstone.py

except e:
    print("There was an error while parsing the response:",e)
    continue
bound=capstone(history_data,conf.FRAME_SIZE,conf.MUL_FACTOR)
if not bound:
    required_data_count=conf.FRAME_SIZE - len(history_data)
    print("Not enough data to compute 2-score.Need",required_data_count,"more data points")
    history_data.append(int(data['value']))
    time.sleep(10)
    continue
try:
    if sensor_value>bound[0]:
        print("Temperature is increased suddenly,sending Alert message:")
        response1=sms.send_sms("Alert !someone opened the fridge door ,close it to maintain the t$")
        print("Response received is:"+str(response1))
        count=0
    elif sensor_value<bound[1]:
        print("The temperature is decreasing ,sending Alert message!")
        response2=sms.send_sms("Alert! it is getting too cold maintain the temperature to avoid f$")
        print("Response recieved is:"+str(response2))
        count=0
    if Temp(sensor_value) > -33 and Temp(sensor_value) < -30:
        count=count+1
        if count>=120:
            print("The temperature is between -33 and -30for far too long,ssending Alert message!")
            response3=sms.send_sms("Alert !The temperature is between -33 and -30 for far too long $")
            print("Response received is:"+str(response3))
            history_data.append(sensor_value)
except Exception as e:
    print("Error",e)
    time.sleep(10)
```

Get Help Write Out Where Is Cut Text Justify Cur Pos  
Exit Read File Replace Uncut Text To Linter Go To Line Prev Page Next Page

# PYTHON CODE

```
file: capstone.py

print("The temperature is decreasing ,sending Alert message!")
response2=sms.send_sms("Alert! it is getting too cold maintain the temperature to avoid f$
print("Response recieved is:"+str(response2))
count=0
if Temp(sensor_value) > -33 and Temp(sensor_value) < -30:
    count=count+1
    if count>=120:
        print("The temperature is between -33 and -30for far too long,ssending Alert message!")
        response3=sms.send_sms("Alert !The temperature is between -33 and -30 for far too long $
        print("Response received is:"+str(response3))
    history_data.append(sensor_value)
except Exception as e:
    print("Error",e)
time.sleep(10)
```



# OUTPUT

```
diouyareddy@ubuntu:~/finalproject$ sudo python3 capstone.py
Temperature is: 9
Not enough data to compute Z-score.Need 10 more data points
Temperature is: 10
Not enough data to compute Z-score.Need 9 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 8 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 7 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 6 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 5 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 4 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 3 more data points
Temperature is: 9
Not enough data to compute Z-score.Need 2 more data points
Temperature is: 10
Not enough data to compute Z-score.Need 1 more data points
Temperature is: 10
Temperature is: 10
Temperature is: 10
Temperature is: 10
Temperature is: 11
Temperature is increased suddenly,sending Alert message:
Response received is:<Twilio.Api.V2010.MessageInstance account_sid=AC78a8d793c572c5388edda296a461142
7 sid=SMcdddc49439184c6d82be1b763dec10fe>
Temperature is: 10
Temperature is: 9
Temperature is: 9
Temperature is: 9
-
```

# OUTPUT ON MOBILE



**57575701**

Marked as Spam by 213 people

Sent from your Twilio trial account - Alert! it is getting too cold maintain the temperature to avoid freezing of medicines

Sent from your Twilio trial account - Alert !someone opened the fridge door ,close it to maintain the temperature

Sent from your Twilio trial account - Alert! it is getting too cold maintain the temperature to avoid freezing of medicines

Sent from your Twilio trial account - Alert! it is getting too cold maintain the temperature to avoid freezing of medicines