Sprint-4

Date	12 November 2022
Team ID	PNT2022TMID30034
Project Name	Smart Farmer - IoT Enabled Smart Farming Application

Step-1

USN-10

Writing Python Script to connect with hardware and to access cloud and to display comments like light on/off and motor on/off in Python IDE.

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random



#Provide your IBM Watson Device Credentials
organization = "o7kvsp"
deviceType = "Aurdino"
deviceId = "123"
authMethod = "token"
authToken = "87654321"

# Initialize GPIO



def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="Lighton":
        print ("Light is on")
    elif status=="Motoron":
        print ("Motor is on")
    elif status=="Lightoff":
        print ("Light is off")
    else:
        print("Motor is off")

    #print(cmd)




try:
        deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod, "auth-token": authToken}
        deviceCli = ibmiotf.device.Client(deviceOptions)
        #..............................................

except Exception as e:
        print("Caught exception connecting device: %s" % str(e))
        sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
      #Get Sensor Data from DHT11

      temp=random.randint(0,100)
```

```
        hum=random.randint(0,100)
        moisture=random.randint(0,100)
        distance=random.randint(0,500)

        data = { 'temp' : temp, 'hum': hum, 'moisture' : moisture, 'distance': distance}
        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % hum,
"Moisture = %s %%" % moisture,"Distance = %s %%" % distance, "to IBM Watson")

        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
        if not success:
            print("Not connected to IoTF")
        time.sleep(50)

        deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```

Step-2

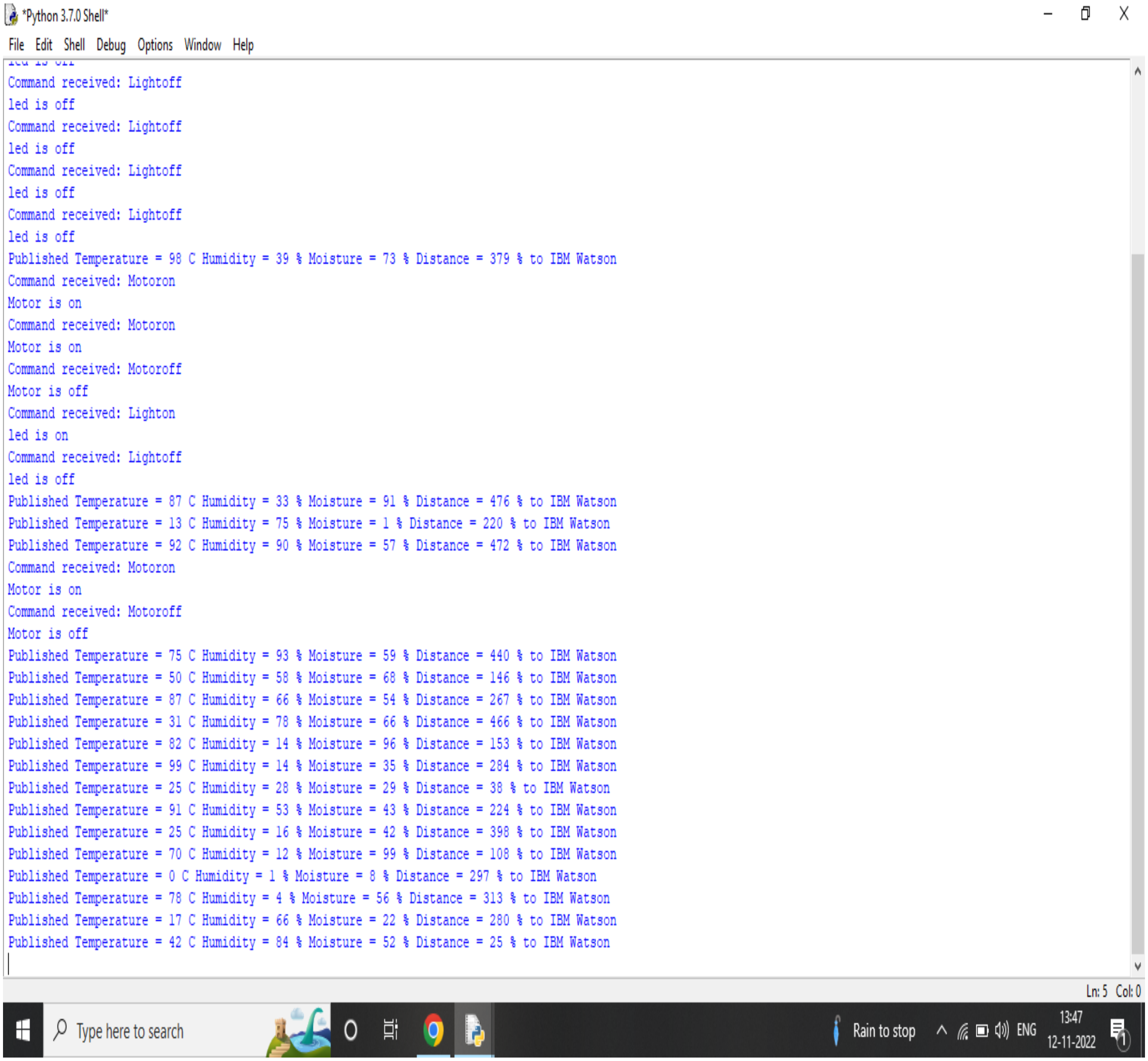
<u>USN-11</u>

As sir told we didn’t used simulator like wokwi instead that we used python script.

Step-3

<u>USN-12</u>

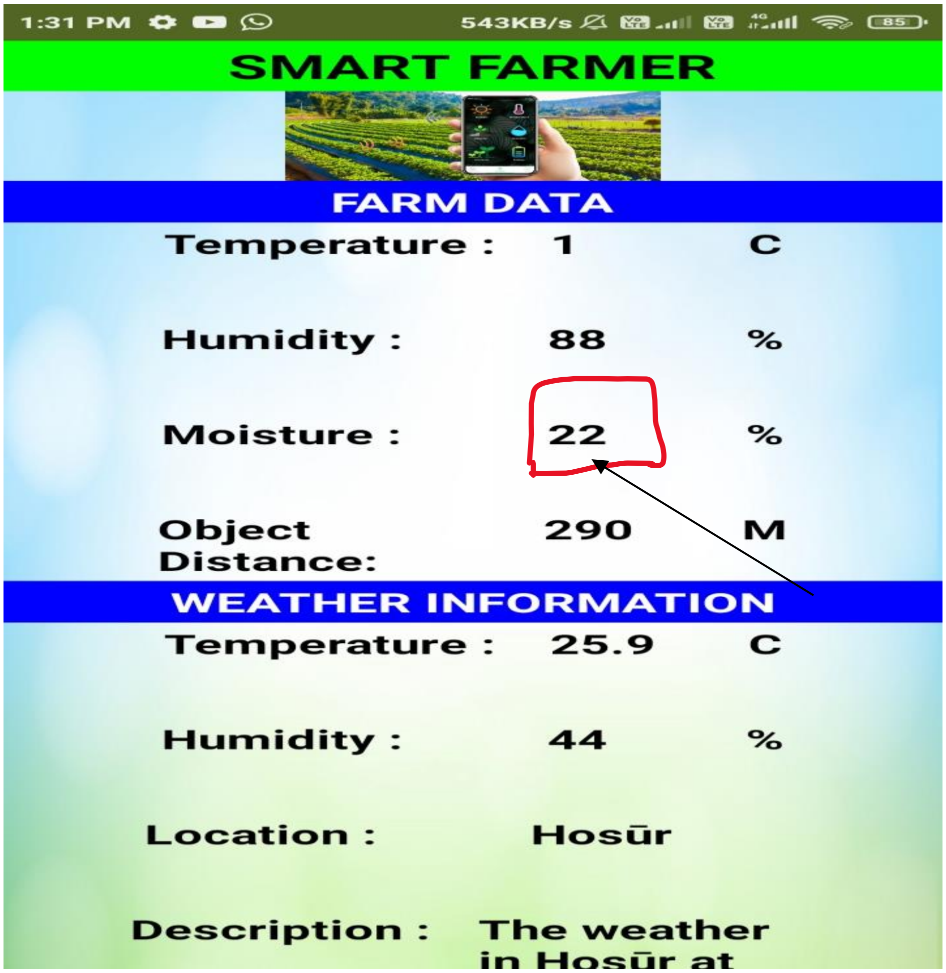
In python script I can see whatever change I have made in my application if I on/off motor or light I can see commands like motor on, motor off, Light on, light off commands in my Python output console.



```
led is off
Command received: Lightoff
led is off
Command received: Lightoff
led is off
Command received: Lightoff
led is off
Command received: Lightoff
led is off
Published Temperature = 98 C Humidity = 39 % Moisture = 73 % Distance = 379 % to IBM Watson
Command received: Motoron
Motor is on
Command received: Motoron
Motor is on
Command received: Motoroff
Motor is off
Command received: Lighton
led is on
Command received: Lightoff
led is off
Published Temperature = 87 C Humidity = 33 % Moisture = 91 % Distance = 476 % to IBM Watson
Published Temperature = 13 C Humidity = 75 % Moisture = 1 % Distance = 220 % to IBM Watson
Published Temperature = 92 C Humidity = 90 % Moisture = 57 % Distance = 472 % to IBM Watson
Command received: Motoron
Motor is on
Command received: Motoroff
Motor is off
Published Temperature = 75 C Humidity = 93 % Moisture = 59 % Distance = 440 % to IBM Watson
Published Temperature = 50 C Humidity = 58 % Moisture = 68 % Distance = 146 % to IBM Watson
Published Temperature = 87 C Humidity = 66 % Moisture = 54 % Distance = 267 % to IBM Watson
Published Temperature = 31 C Humidity = 78 % Moisture = 66 % Distance = 466 % to IBM Watson
Published Temperature = 82 C Humidity = 14 % Moisture = 96 % Distance = 153 % to IBM Watson
Published Temperature = 99 C Humidity = 14 % Moisture = 35 % Distance = 284 % to IBM Watson
Published Temperature = 25 C Humidity = 28 % Moisture = 29 % Distance = 38 % to IBM Watson
Published Temperature = 91 C Humidity = 53 % Moisture = 43 % Distance = 224 % to IBM Watson
Published Temperature = 25 C Humidity = 16 % Moisture = 42 % Distance = 398 % to IBM Watson
Published Temperature = 70 C Humidity = 12 % Moisture = 99 % Distance = 108 % to IBM Watson
Published Temperature = 0 C Humidity = 1 % Moisture = 8 % Distance = 297 % to IBM Watson
Published Temperature = 78 C Humidity = 4 % Moisture = 56 % Distance = 313 % to IBM Watson
Published Temperature = 17 C Humidity = 66 % Moisture = 22 % Distance = 280 % to IBM Watson
Published Temperature = 42 C Humidity = 84 % Moisture = 52 % Distance = 25 % to IBM Watson
```

Step-4

If the moisture level is below 30% then then automatically an email notification will be sent to the registered email id of the farmer which was stored in the database while getting the details during the sign-up process.



SMART FARMER

FARM DATA

Temperature : 1 C

Humidity : 88 %

Moisture : 22 %

Object Distance: 290 M

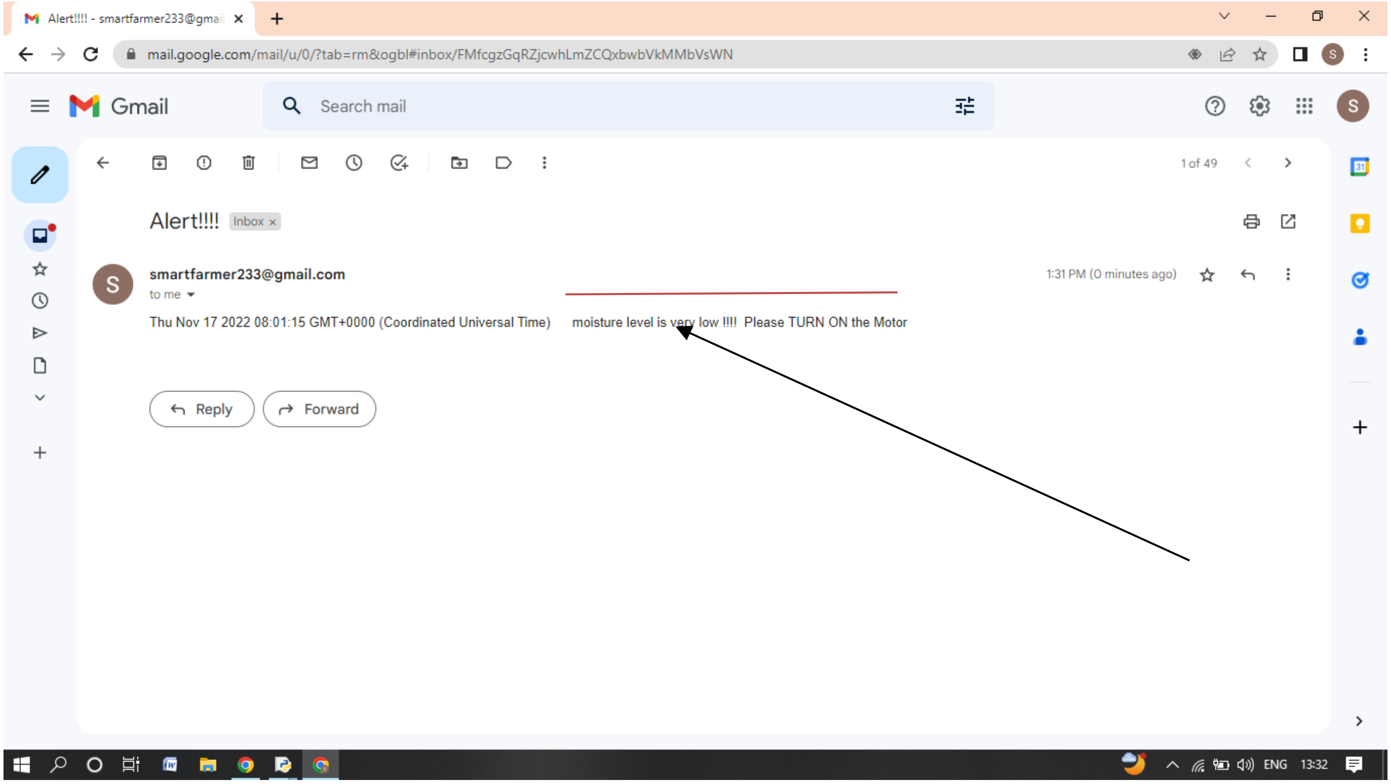
WEATHER INFORMATION

Temperature : 25.9 C

Humidity : 44 %

Location : Hosūr

Description : The weather in Hosūr at


Alert!!!! - smartfarmer233@gmai
mail.google.com/mail/u/0/?tab=rm&ogbl#inbox/FMfcgzGqRZjcwhLmZCQxbwbVkMMbVsWN
Gmail
Search mail
1 of 49
Inbox ×
Reply
Forward
ENG
13:32

Alert!!!!

smartfarmer233@gmail.com

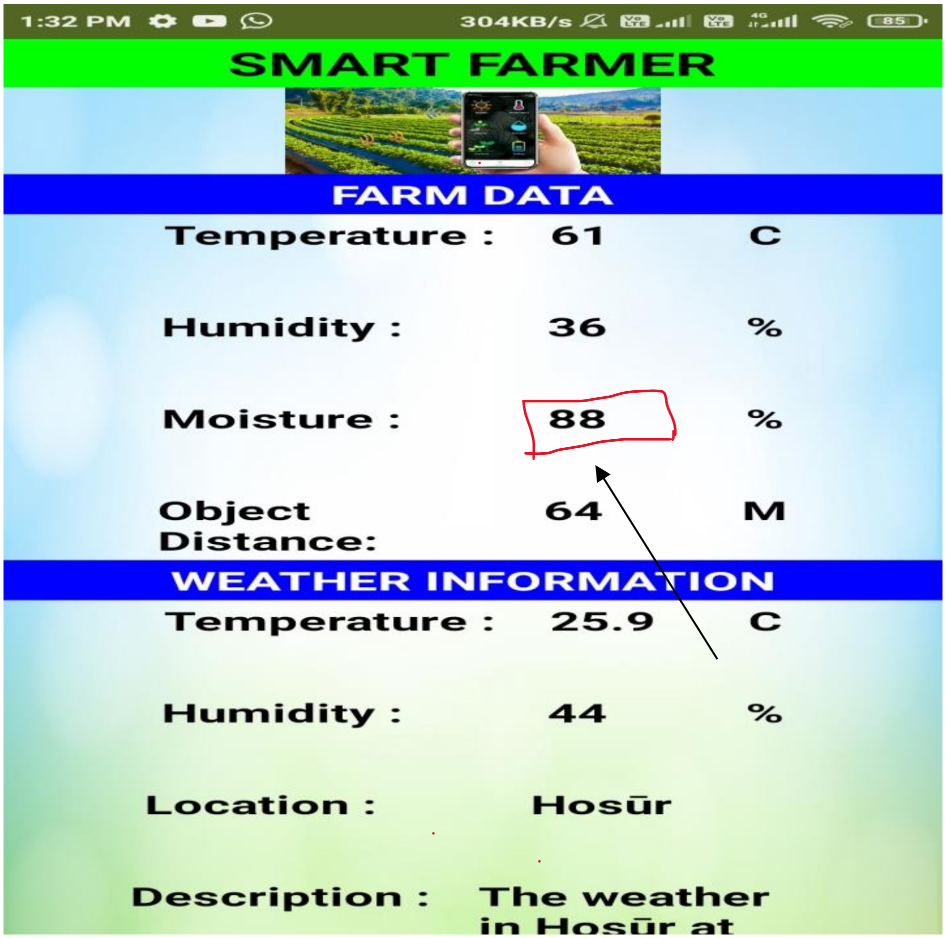
to me

1:31 PM (0 minutes ago)

Thu Nov 17 2022 08:01:15 GMT+0000 (Coordinated Universal Time) moisture level is very low !!!! Please TURN ON the Motor

Step-5

If the moisture level is above 60% then automatically an email notification will be sent to the registered email id of the farmer which was stored in the database while getting the details during the sign-up process.



SMART FARMER

FARM DATA

Temperature : 61 C

Humidity : 36 %

Moisture : 88 %

Object Distance: 64 M

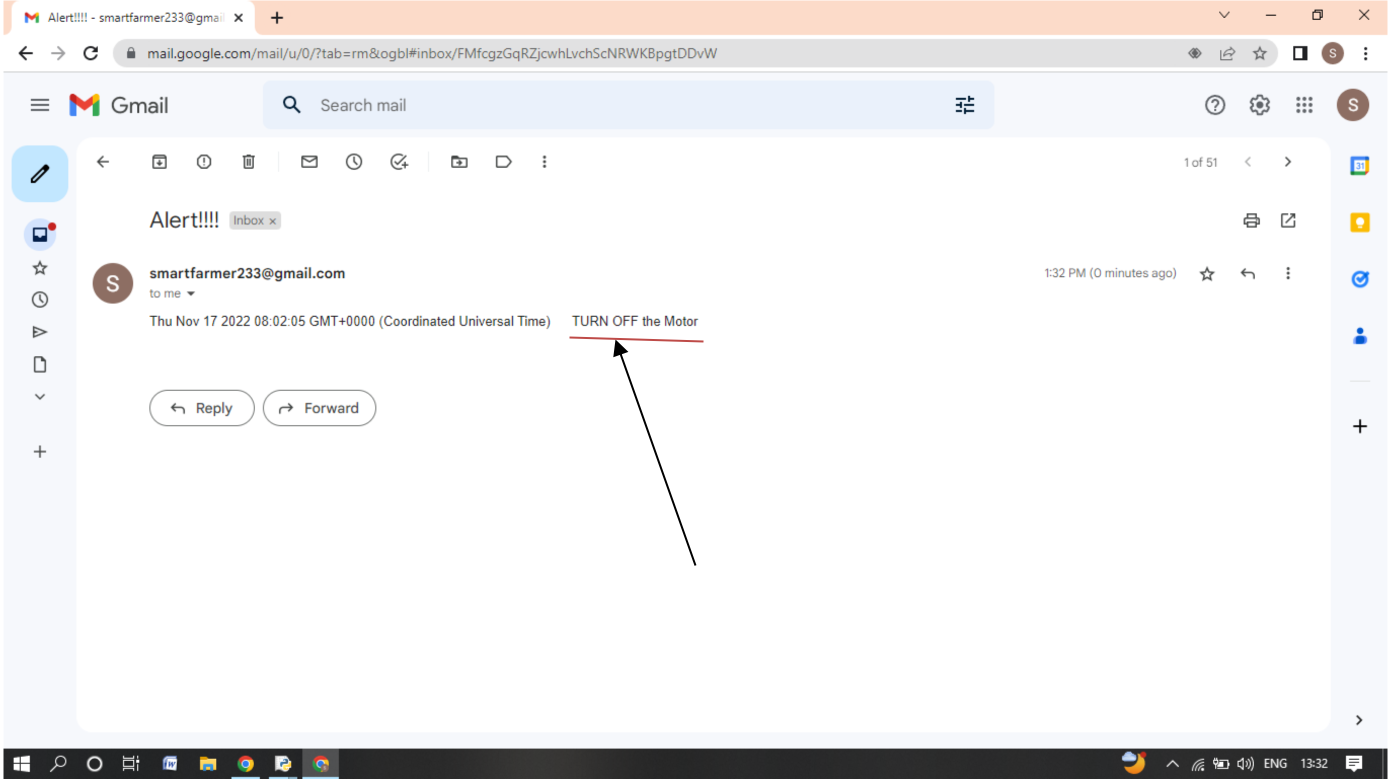
WEATHER INFORMATION

Temperature : 25.9 C

Humidity : 44 %

Location : Hosūr

Description : The weather in Hosūr at


Alert!!!! - smartfarmer233@gmai
mail.google.com/mail/u/0/?tab=rm&ogbl#inbox/FMfcgzGqRZjcwhLvchScNRWKBpgtDDvW
Gmail
Search mail
1 of 51
Inbox ×
Reply
Forward
ENG
13:32

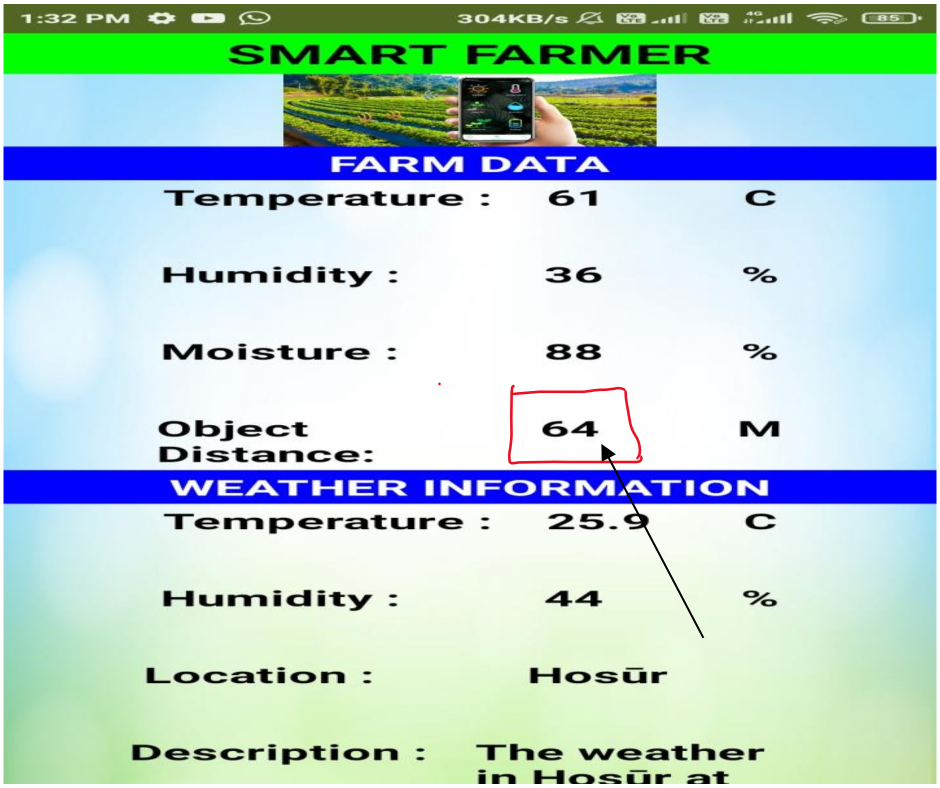
Alert!!!!

smartfarmer233@gmail.com
to me

1:32 PM (0 minutes ago)

Thu Nov 17 2022 08:02:05 GMT+0000 (Coordinated Universal Time) TURN OFF the Motor

If the Ultrasonic sensor detects any object around a radius less than or equal to 100m then automatically an email notification will be sent to the registered email id of the farmer which was stored in the database while getting the details during the sign-up process.



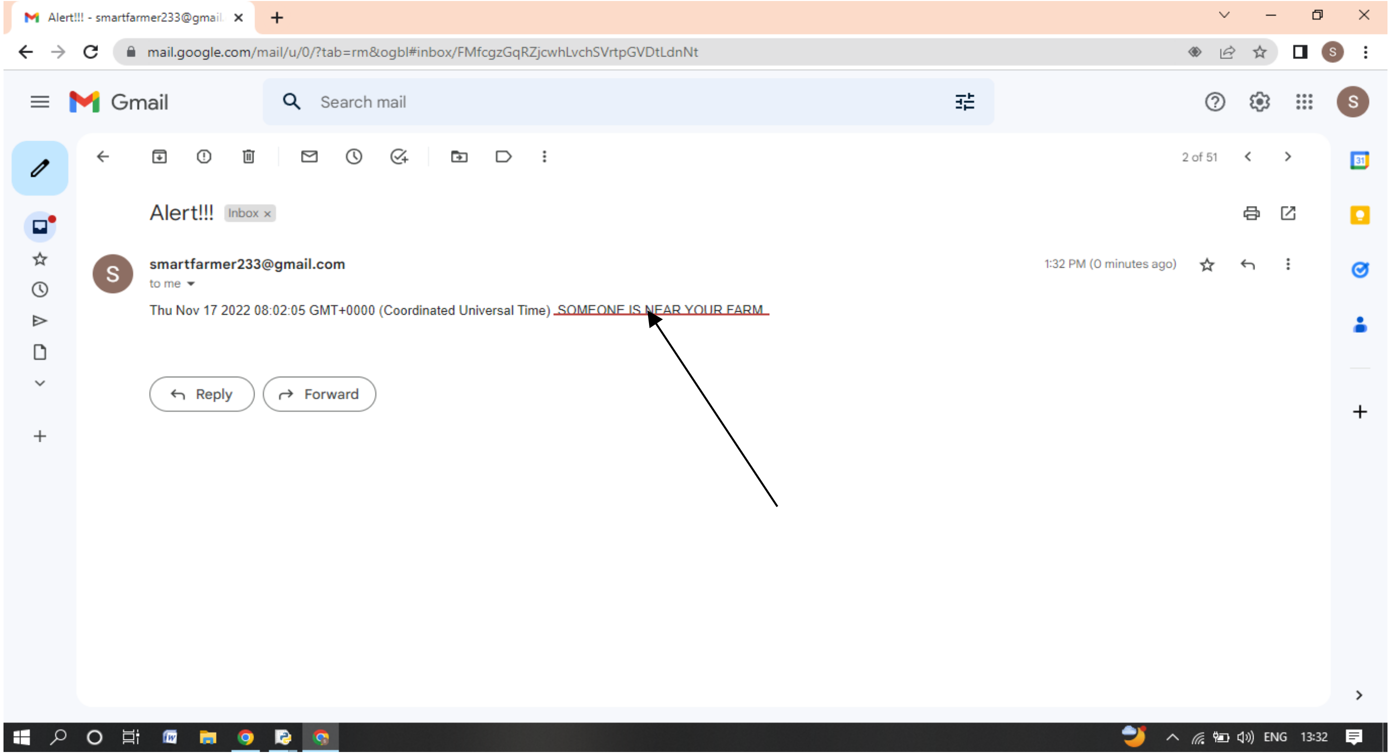
SMART FARMER

FARM DATA

Temperature :	61	C
Humidity :	36	%
Moisture :	88	%
Object Distance:	64	M

WEATHER INFORMATION

Temperature :	25.9	C
Humidity :	44	%
Location :	Hosūr	
Description :	The weather in Hosūr at	



Alert!!! - smartfarmer233@gmail.
mail.google.com/mail/u/0/?tab=rm&ogbl#inbox/FMfcgzGqRZjcwhLvchSVrtpGVDtLdnNt
Gmail
Search mail
2 of 51
Inbox ×
to me
1:32 PM (0 minutes ago)
Reply
Forward
ENG
13:32

Alert!!!

smartfarmer233@gmail.com

Thu Nov 17 2022 08:02:05 GMT+0000 (Coordinated Universal Time) SOMEONE IS NEAR YOUR FARM