Smart Farmer - IoT Enabled Smart Farming Application

SPRINT DELIVERY-4

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8. RECEIVING OUTPUT IN IBM CLOUD USING PYTHON PROGRAM

- IBM cloud will receive the data such as soil moisture, Temperature and humidity.
- It also receives commands like Motor On and Motor Off when we press the button in MIT App or Node-RED web.

Recent Events

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
IoTSENSOR	{"soil_moisture":87,"temperature":16,"humidity"...	json	a few seconds ago
IoTSENSOR	{"soil_moisture":21,"temperature":-3,"humidity"...	json	a few seconds ago
IoTSENSOR	{"command":"motoron"}	json	a few seconds ago
IoTSENSOR	{"command":"motoron"}	json	a few seconds ago
IoTSENSOR	{"soil_moisture":6,"temperature":57,"humidity":...	json	a few seconds ago

State

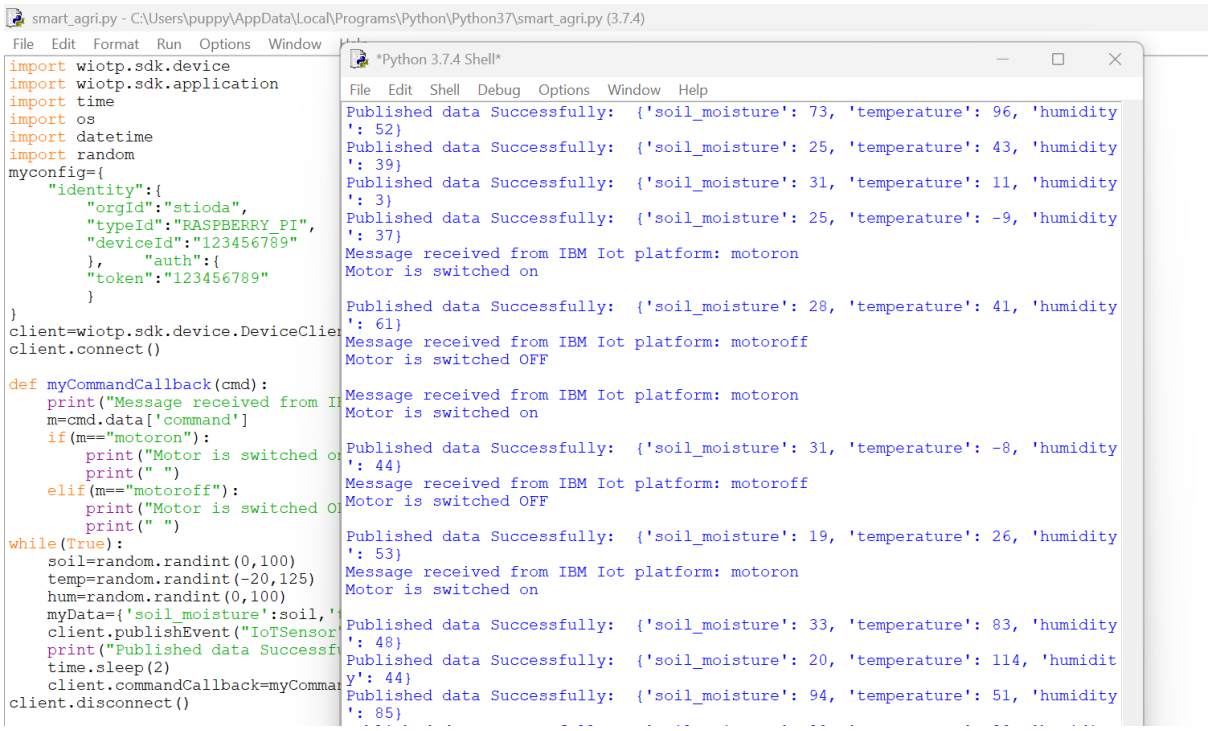
This table shows a list of data points that are reported by this device.

Showing Raw Data | No Interfaces Available

Property	Value	Type	Event	Last Received
soil_moisture	79	Number	IoTSENSOR	a few seconds ago
temperature	7	Number	IoTSENSOR	a few seconds ago
humidity	69	Number	IoTSENSOR	a few seconds ago

Message	Timestamp
Token auth succeeded: ClientID='d:stioda:RASPBERRY_PI:123456789', ClientIP=223.181.239.133, ClientPort=3056, ConnectionId=109919193	Nov 17, 2022 9:55 PM
Closed connection. The connection was closed by the client or network (5)	Nov 17, 2022 9:53 PM
Token auth succeeded: ClientID='d:stioda:RASPBERRY_PI:123456789', ClientIP=223.181.239.133, ClientPort=2905, ConnectionId=109911464	Nov 17, 2022 9:49 PM
Closed connection. The connection was closed by the client or network (5)	Nov 17, 2022 9:33 PM
Token auth succeeded: ClientID='d:stioda:RASPBERRY_PI:123456789', ClientIP=223.181.239.133, ClientPort=2983, ConnectionId=153187490	Nov 17, 2022 8:35 PM
Closed connection. The connection was closed by the client or network (5)	Nov 17, 2022 8:35 PM

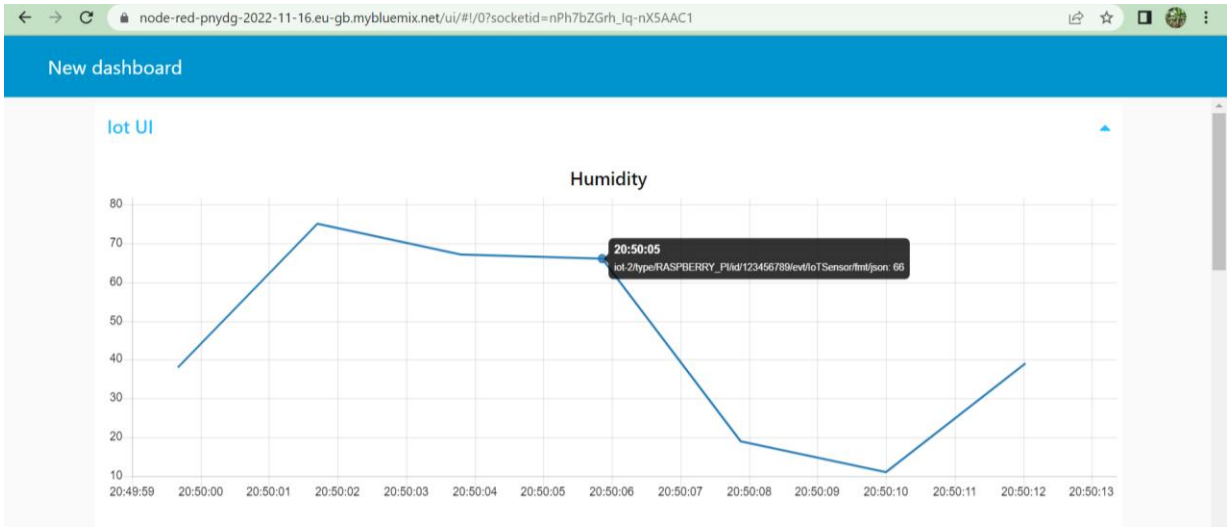
9. PYTHON OUTPUT:

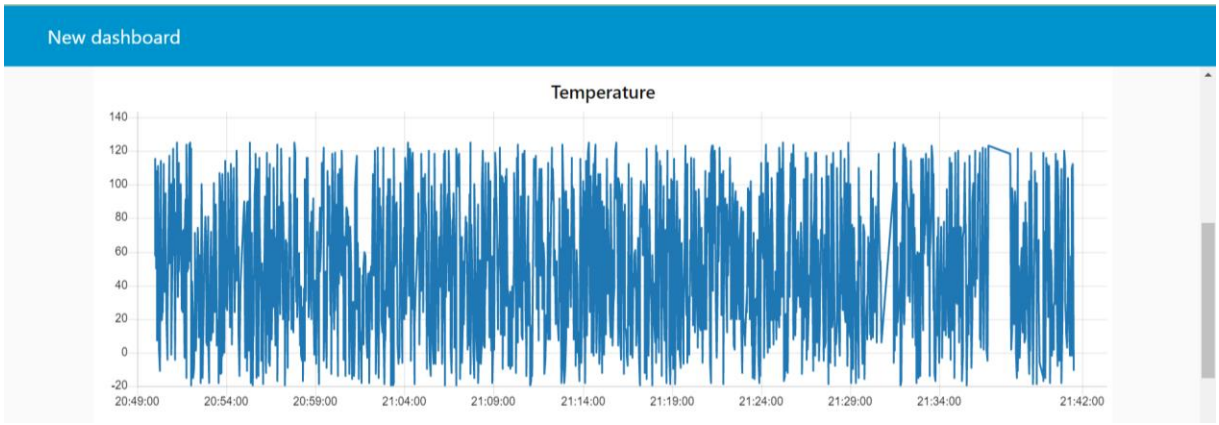


10. NODE-RED OUTPUT

Web Application Output:

- Temperature and Humidity values was uploaded in the Node-RED and it was shown in the design of Graph with changing random values.
- Soil Moisture was shown using the gauge node.





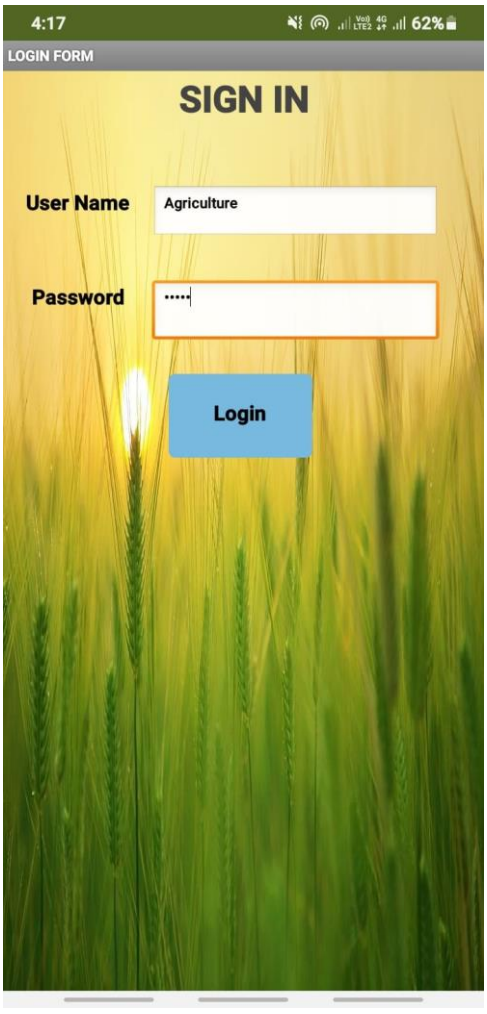
11. MIT APP INVENTOR OUTPUT

SIGN UP WINDOW:

- The sign-up window will pop up first when we open the app. Fill the username and password and press the sign up window

LOGIN WINDOW:

- The login window was filled with updated username and password.

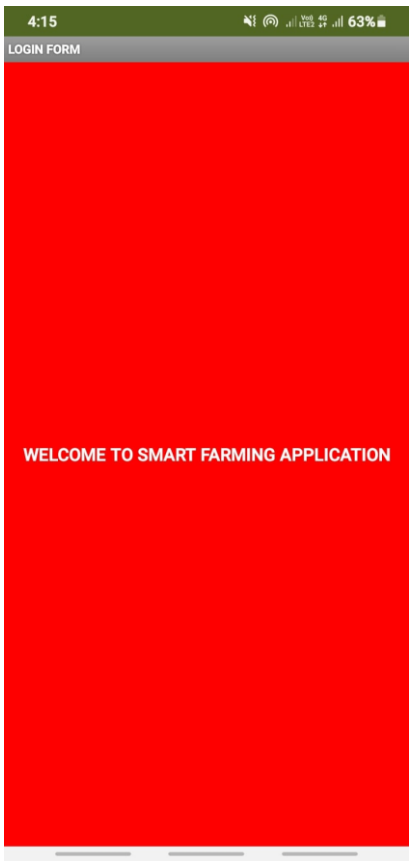


LOGIN WINDOW:

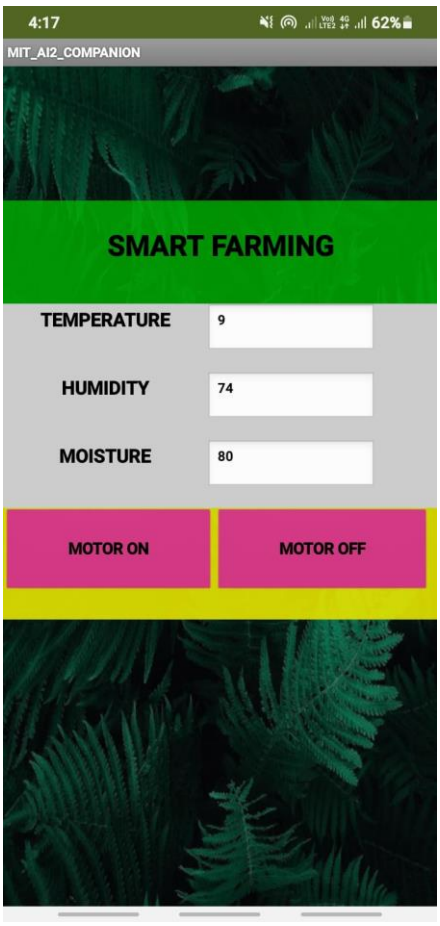
- Error will come if we give wrong username or wrong password.

APP OPENING WINDOW:

- A red coloured screen was opened when you give the right username and password and this will indicate the successful opening of main screen.

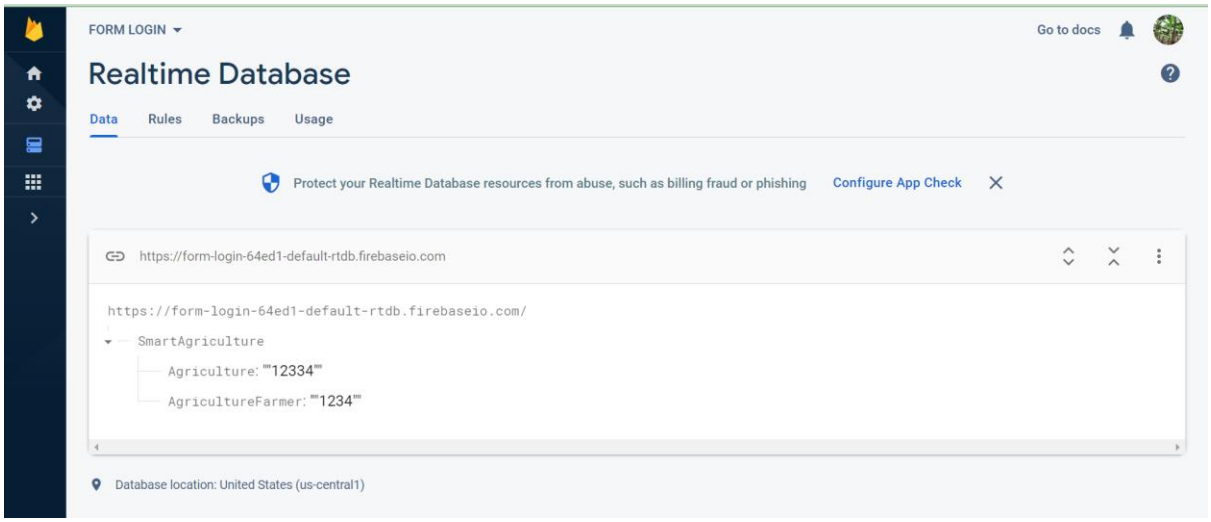


MAIN SCREEN:



12. DATABASE FOR STORING LOGIN ID INFORMATION

- Username and Password was stored successfully in Firebase database.



13. ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

- It allows farmers to maximize yields using minimum resources such as water, fertilizers, seeds etc.
- Solar powered and mobile operated pumps save cost of electricity.
- Smart agriculture use drones and robots which helps in many ways. These improves data collection process and helps in wireless monitoring and control.
- It is cost effective method.
- It delivers high quality crop production.

DISADVANTAGES:

- The smart agriculture needs availability of internet continuously. Rural part of most of the developing countries do not fulfil this requirement. Moreover internet connection is slower.
- The smart farming based equipments require farmers to understand and learn the use of technology. This is major challange in adopting smart agriculture farming at large scale across the countries.
- The Cost Involved in Smart Agriculture.
- There could be wrong Analysis of Weather Conditions.
- Increased channel maintenance.

14. CONCLUSION

Thus, the objective of the project was implemented successfully using IoT technology. The required Software simulation was done using Node-RED and MIT App Inventor which will help farmers to turn on motor on and off in their place with help of mobile application.

15. BIBLIOGRAPHY

IBM WATSON CLOUD: https://cloud.ibm.com/login

NODE-RED: https://node-red-pnydg-2022-11-16.eu-gb.mybluemix.net/red/#flow/0af9f7b1c2a47c1b

MIT APP INVENTOR: http://ai2.appinventor.mit.edu/#5561748011483136