DEVELOPMENT OF A PORTABLE INCUBATOR FOR THE DETECTION OF COLIFORM IN WATER USING IOT

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User Manual

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Introduction

Welcome to the user manual for our state-of-the-art Portable Incubator for Coliform Detection. This guide will walk you through the setup process, usage instructions, and provide important information to ensure optimal performance. By following this manual, you'll become a pro at using our incubator and monitoring coliform bacteria in water samples. Let's get started!

Guidelines/Directions

- Power Supply

i Connect the provided adapter to the power source (230V) by plugging in the cord, as the other end is soldered inside the incubator.

ii Our provided adapter is a 230VAC - 5V DC adapter, specifically designed for this incubator.

iii In the unlikely event that the provided adapter malfunctions, it is recommended to replace it with another adapter with the same specifications: 230V AC -5V DC, capable of handling a maximum current of 3A.

- Switching On the Incubator

i Press the power button to switch on the incubator.

ii The LCD screen will display an initial welcome message.

- Establishing a Connection

i The ESP32 will connect to a hotspot for data transmission.

ii Create a 2.4GHz hotspot with the following details:

iii Hotspot Name: Coliform

iv Hotspot Password: bacteria

- Visualizing Sensor Readings

Access the Blynk application to monitor sensor readings in real-time.

Visit **https://blynk.cloud/dashboard/login** on your device's web browser.

- Blynk Login Credentials

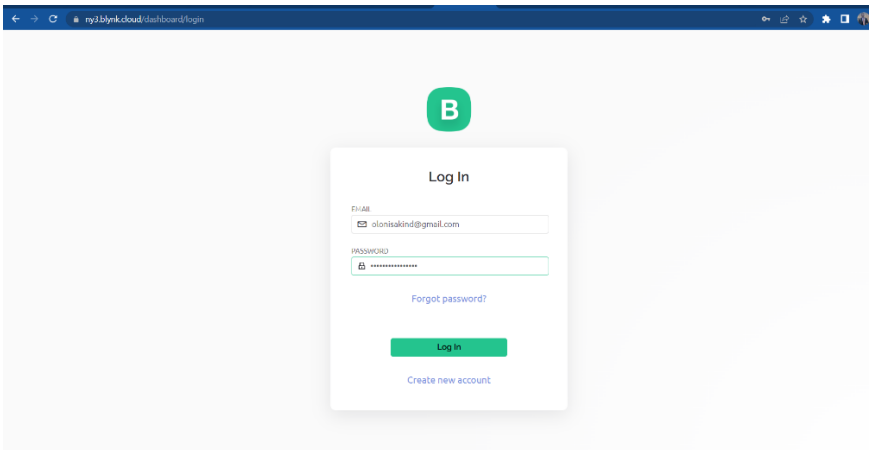
Use the following login credentials to access the Blynk application:

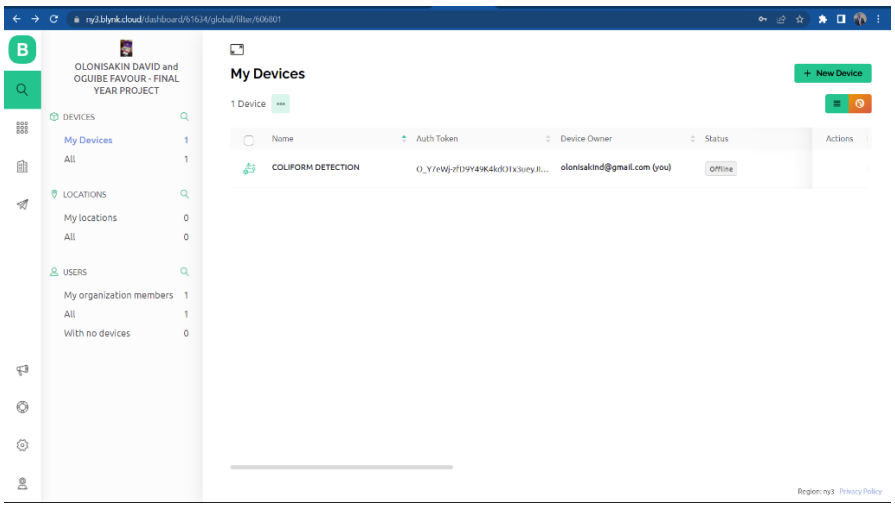
Username: olonisakind@gmail.com

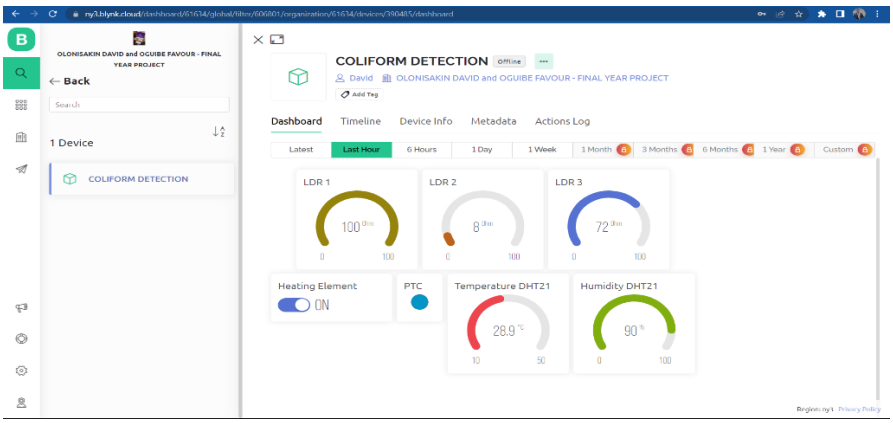
Password: coliformbacteria

- Visual Guidelines:

Refer to the attached pictures for visual instructions and guidance.







Precautions

i Always use the provided 230V-5V adapter to power the incubator.

ii In the event of adapter malfunction, replace it with another adapter with the same specifications: 230V-5V, capable of handling a maximum current of 3A.

iii Do not use adapters with different voltage or current specifications.

iv Avoid exposing the incubator to water or other liquids.

v Keep the incubator away from extreme temperatures and direct sunlight.

vi Ensure proper ventilation during operation.

vii Follow electrical safety guidelines and use a stable power source.

Summary

When all is done well you should have your incubator working as the image attached below:

Congratulations! You are now equipped with the necessary knowledge to operate our Portable Incubator for Coliform Detection. By following the guidelines and precautions provided in this manual, you can effectively monitor sensor readings and contribute to improved water quality assessment. If you have any further questions or need assistance, please refer to this manual or reach out to us on linkeldn

GitHub Link

For accessing the project files, including the code and other related files, visit the GitHub repository: https://github.com/olonisakindavid/FinalYearProject

You can explore the repository to find detailed information about the project implementation and access the necessary resources.

Using Coliform Detect Powder for Testing

We used a Coliform Detect Powder for testing, which can be purchased from liofilchem, an online store based in Italy. Visit their website for more information. http://www.liofilchem.net/

To perform the test, mix the Coliform Detect Powder with a 100ml water sample in a beaker. After incubating for 16 hours, observe a bluish-green color to indicate the presence of coliform bacteria. You can continue using Blynk and the LCD for visualization during the incubation process.