Gateway

Features:

1. **Power Supply**

Power Source	Battery & 12V , 2 Amp AC Adaptor
Battery Type	Rechargeable / Replaceable
Battery Voltage	4* 3.7V

2. **Sensor Interface**

Interface Type	Placement on PCB
Communication Interface	Digital (I2C)
Type	Temperature & Humidity Sensor (HTU21D)

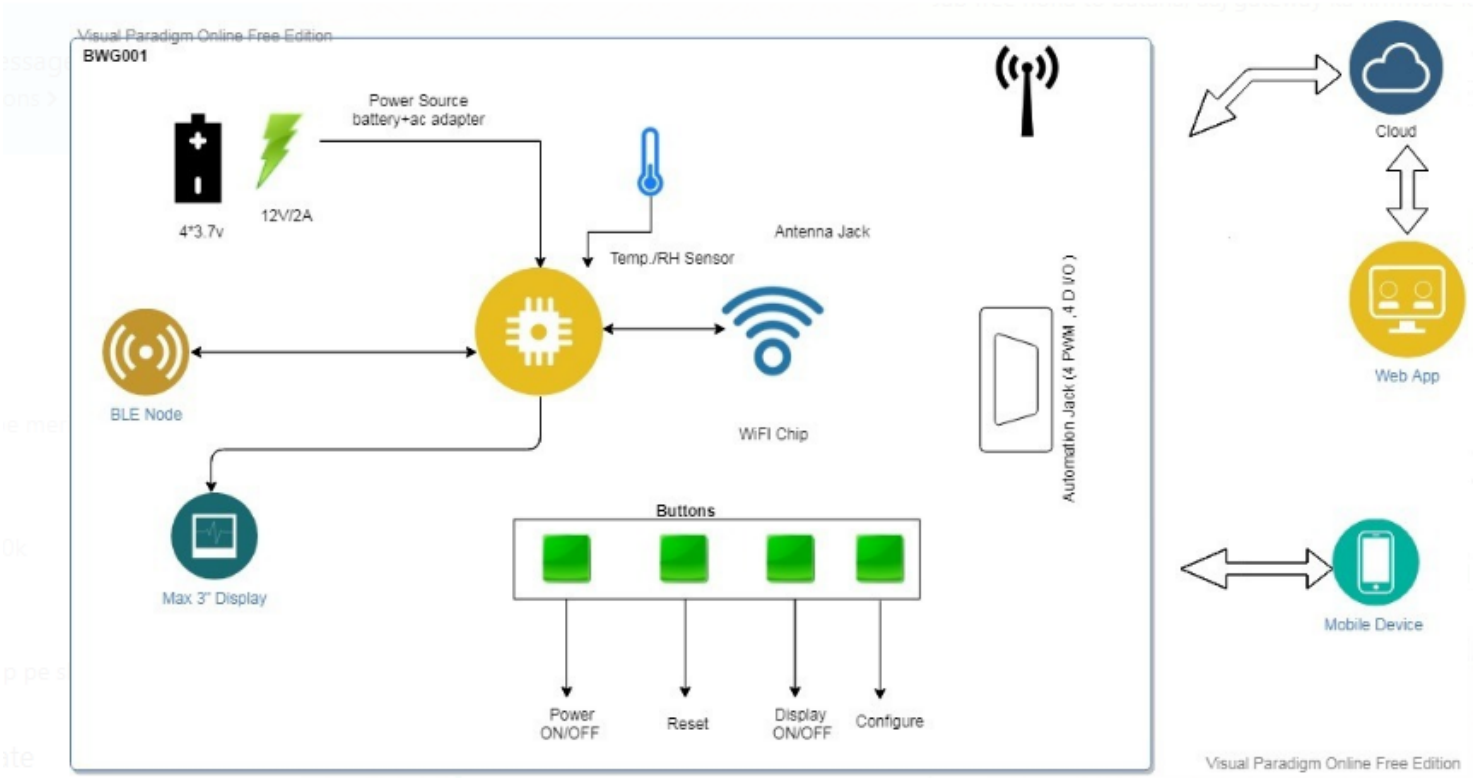
3. **Communication**

Mode	Wireless
Technology	Bluetooth Low Energy (BLE) & Wi-Fi
Range	Upto 100 meter (outdoors)

4. **Display**

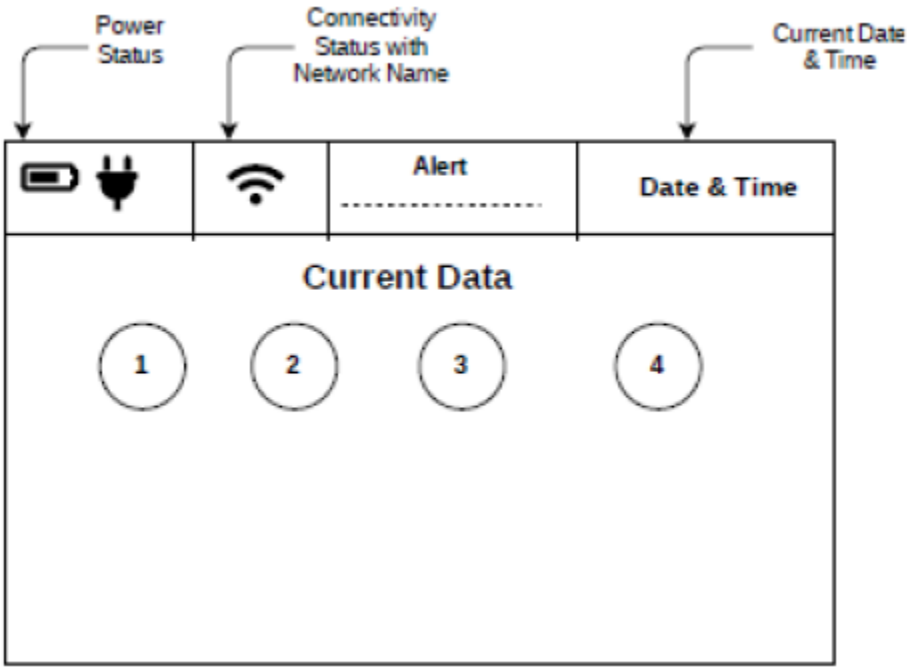
Size	Depend on characteristic shown on display .
Type	TFT
Interface	I2C or SPI

Block Diagram:



Functionality:

1. Receiving & Store Data from 8 BLE Nodes Concurrently. (BLE Node: its a device which can transfer Sensors like Temp.& Humidity,Light intensity ,Co2 data to Mobile device & gateway via bluetooth low energy)
2. Display Screen shown in below fig.

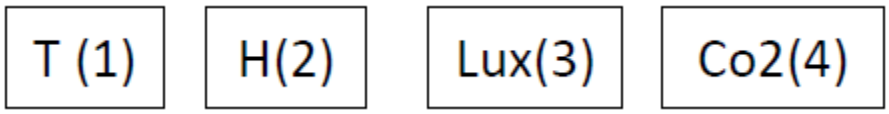


This symbol will show whether the gateway connected to AC Adaptor or Battery. If its connected to Battery then it will also show battery level.

It will show connectivity Status with Network Name &

Alert : Now any of the received parameter T, H, Lux, and Co2 has crossed any threshold over the display we can visualize using any icon like

Current Data: 1, 2, 3, 4 use for Current Mean Values of the all connected Nodes Sensor of the Farm



Date & Time: Show current time & data for gateway, we can set up date & Time Via internet.

3. Configuration Page for Setting Wi-Fi Credential :Use any device with a WiFi connection with a browser (computer, smartphone, tablet) to connect to the configuration page. If the configuration interface is protected by a password, you must first enter the password & now Enter the sensor threshold values & Automation Conditions,save all the data. The MCU will restart and connect to the configured WiFi network.

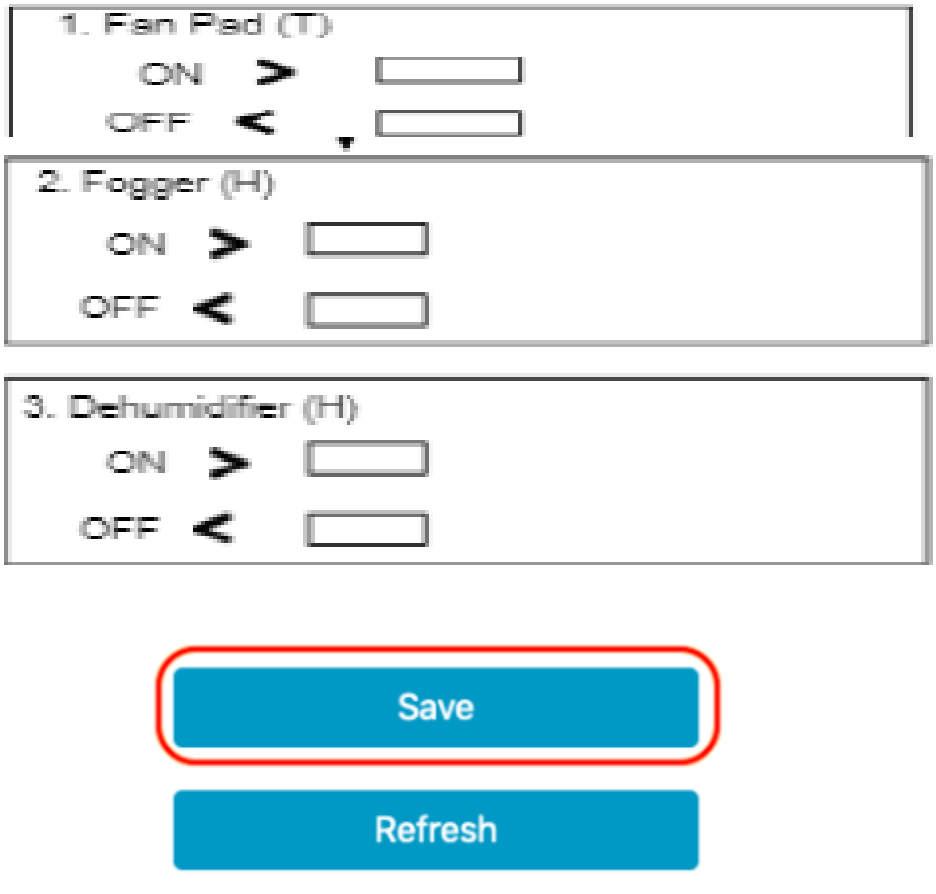
   Example:

Click on configure Wi-Fi ,you will get the configure html page. Info button used for Tutorial purpose to show users how to connect with wi-fi & Save alert data , Exit buttons use for exit from the configure page.

Alert :

Sensor	Max	Min
T	Float data	Float data
H	Float data	Float data
Lux	Integer Data	Integer Data
Co2	Integer Data	Integer Data

Automation:



Select the WiFi network & enter the password & Save sensor threshold values & Automation Conditions . Click on Save to save data in memory. I will also provide data flow algo for showing how to generate alerts on TFT Display.

4. If the user buys just a gateway then it comes with features of sensing & logging Temperature & Humidity. We use HTU21D (o/p = I2C) in BLE Node, so we can also use this sensor in our gateway.
5. Connecting Cloud for Data Pushing. Data can be published in a Json document or Packet of declared Variables.
6. OTA Firmware Update.
7. Four Buttons use in block diagram

   Reset: it reset the settings of gateway & device will start from its default state; Default state will be starting of your firmware algo & it will erase data stored in memory.

   Configure button: it will be used as a manual interrupt to firmware for Wi-Fi & Alert Data Update by User.

   Power : It will be used as a Power On & Off Button for the gateway.

   Display: it will use On or Off The display on the gateway.
8. We should leave four analog and four digital pins for future use.