Internet of Things Weather Station

IEEE Northern Virginia Section

Hands-On Professional Development Series

June 4, 2016

1   6/6/2016 Monday

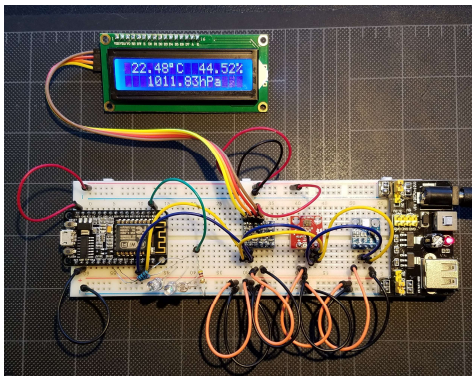# Sketch 05 – Smartphone Weather Station

Personal Computer

ThingSpeak Server

Blynk Server

Cloud

Weather Station

Local Wi-Fi

Smartphone

Cellular Service

22.48°C 44.52%
1011.83hPa

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Prerequisites & Conditions

› You must have an iPhone or Android-based phone.

› You must have an App Store or Google Play account.

› You must be able to receive email on your phone or laptop.

› You may incur service charges from your cellular provider.

› You may chose to purchase additional features from Blynk.

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Blynk Account

1. On your phone's app store – search for and install Blynk app.

2. Create New Account (use an email address accessible on your phone)

3. Create New Project
   - Assign a Project Name
   - Select Hardware: NodeMCU
   - Email AUTH TOKEN to yourself

Blynk Configuration – Part 1

➢ Drag and drop widgets
in this order:

1. LCD
2. Value Display M
3. Gauge
4. Button
5. Value Display S
6. Twitter
7. <u>Graph or History Graph</u>
8. Slider L

Blynk Configuration - Part 2

- LCD
  - Mode: Advanced
  - Input: Virtual V0
  - Color: Blue

- Value Display M
  - Label: Temperature (ºF)
  - Input: Virtual V2
  - Color: Red

- Gauge
  - Label: Humidity (%)
  - Input: Virtual V3
  - Color: Orange

- Button
  - Label: Press Me
  - Output: Digital D6
  - Mode: Switch
  - Labels: ON = Open
  - OFF = Closed

- Value Display S
  - Label: ADC
  - Input: Analog A0 (0–1023)

- Slider L
  - Output: Digital D5 (0 – 1023)
  - Send On Release: ON

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Blynk Configuration - Part 3

› Graph
  – Label: Temperature (^oC)
  – Input: Virtual V5 (10 – 35)
  – Style: Line

› History Graph (additional cost – 2,400 units for $1.99 suggested)
  – Green – leave blank
  – Blue – Virtual V4 – Press (inHg)
  – Red – Virtual V2 – Temp (^oF)
  – Orange – Virtual V3 – Humidity (%)
  – Show Legend: On

Blynk Programming

1. Run Arduino IDE.

2. Add Blynk & SmartTimer libraries:
   1. Sketch | Include Library | Manage Libraries…
   2. Search for Blynk, click install
   3. Download and install SimpleTimer from https://github.com/jfturcot/SimpleTimer

3. Open **IEEE_IoT_Sketch05_Smartphone**.

4. Cut and paste Authorization Token to line ≈44.

5. Upload to NodeMCU.

6. Open Blynk app and run your project.