

User Manual

Project

Smart Compost Monitoring System

Team

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for

Valley Verde

Delivered on

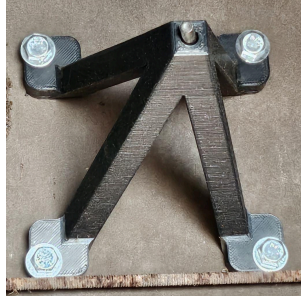
June 1, 2024

[Source Code](#)

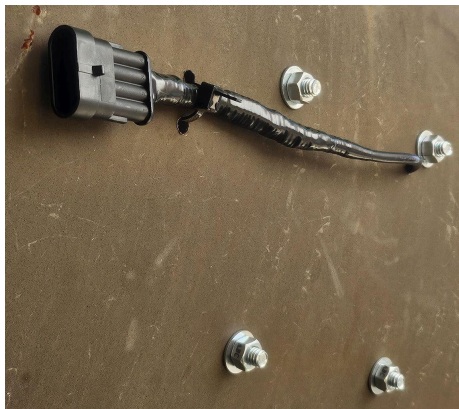
Smart Compost Monitoring System is an Arduino based, **Wi-Fi** enabled, low power, embedded system.

This system allows any number of users over the LAN (Local Area Network, usually users connected to the same Wi-Fi) to view compost information, including **temperature**, **relative humidity**, and their corresponding **date** and **time** when recorded.

The temperature and relative humidity sensor is placed inside the compost bin via a plastic mount. It is important to not damage them when filling in and removing compost. The plastic is ABS, with a glass transition temperature of 220 F, thus preventing deforming inside the compost.



The sensor has a waterproof connector, allowing the compost bin to move freely without dragging on the system.

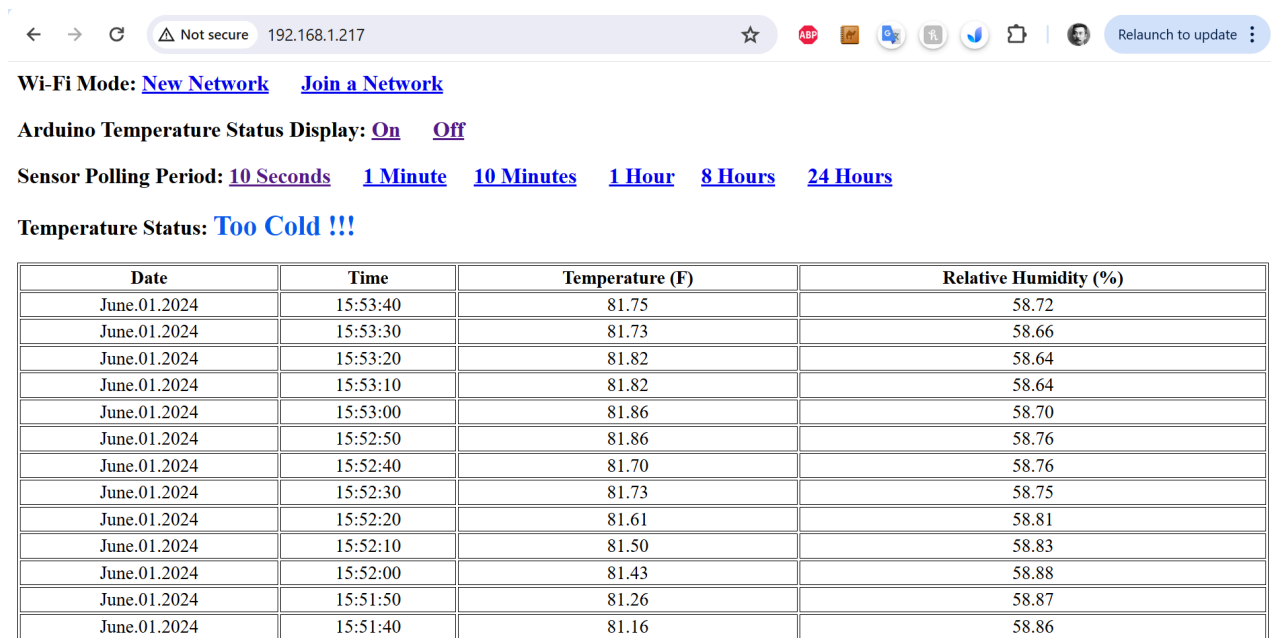


The power supply must be plugged in inside the house, or outside in a waterproof container. It is the only way to restart the system by the user.



The compost information is displayed on a website. To access it, go to a Browser's address bar and type in this IP address: **192.168.1.217**

You should see something like this below. The readings are formatted into a table that is visually easy to read and copy-paste compatible with Google Sheets.



Wi-Fi Mode: [New Network](#) [Join a Network](#)

Arduino Temperature Status Display: [On](#) [Off](#)

Sensor Polling Period: [10 Seconds](#) [1 Minute](#) [10 Minutes](#) [1 Hour](#) [8 Hours](#) [24 Hours](#)

Temperature Status: **Too Cold !!!**

Date	Time	Temperature (F)	Relative Humidity (%)
June.01.2024	15:53:40	81.75	58.72
June.01.2024	15:53:30	81.73	58.66
June.01.2024	15:53:20	81.82	58.64
June.01.2024	15:53:10	81.82	58.64
June.01.2024	15:53:00	81.86	58.70
June.01.2024	15:52:50	81.86	58.76
June.01.2024	15:52:40	81.70	58.76
June.01.2024	15:52:30	81.73	58.75
June.01.2024	15:52:20	81.61	58.81
June.01.2024	15:52:10	81.50	58.83
June.01.2024	15:52:00	81.43	58.88
June.01.2024	15:51:50	81.26	58.87
June.01.2024	15:51:40	81.16	58.86

If this interface does not appear, try these in order:

1. You are connected to the same Wi-Fi as the system: **ATTRwRxGs2**
2. Make sure the Wi-Fi password is the same as on June 1, 2024. Hint: begin with % and end with ?
3. Double check the IP address, and you are inputting in the address bar, not the search bar.
4. Unplug power supply, wait 10 seconds, plug it back in.
5. Contact a software engineer to connect to the Arduino with Arduino IDE, and read out the current IP address via Serial Monitor, as the IP address of the system has been changed by DHCP.

Explanation of User Interface

- Wi-Fi Mode
 - New Network
 - The system will create its own Wi-Fi, with the name **Compost Monitoring System by SCU**, and password **Go Broncos!**
 - Date and time do not work with this mode, as it requires Internet connection.
 - Join a Network
 - The system will join an existing Wi-Fi: **ATTRwRxGs2**
 - To join other Wi-Fi, contact a software engineer to modify the file **Secret.h**
- Arduino Temperature Status Display
 - Show a scrolling text on the Arduino LED Display every 10 seconds of the current temperature status: **COLD**, **HOT**, or **OK**
- Sensor Polling Period
 - Change how frequently the system is reading and recording temperature and relative humidity.
- Temperature Status
 - Show the current temperature status: **Too Cold !!!**, **Too Hot !!!**, or **Acceptable**
- Date and Time
 - If these two fields are blank, it means the system can not connect to the NTP (Network Time Protocol) server to update its date and time. First try unplugging and replugging the power supply. If this issue persists, then it is likely a Wi-Fi configuration / firewall issue. Contact a software engineer to fix it.
- Temperature and Relative Humidity
 - If these two fields show negative values, it is likely because the sensor wiring is disconnected. Contact an engineer to fix it.

Additional Information

- The system does not remember readings after power disconnection, so copy-pasting the readings once in a while is good practice.
- The system also does not remember settings after power disconnection, so do not forget to reapply your desired settings.
- Default Settings
 - Wi-Fi Mode: Join a Network
 - Arduino Temperature Status Display: Off
 - Sensor Polling Period: 10 Seconds