

StillCold — Week 5 Progress

Reliable temperature data inside the system

A brief update on where the project stands

What Week 5 Was About

Goal: Make sure temperature and humidity data move reliably inside the device, from the sensor to the part that will later talk wirelessly.

- Have one small computer focus on **reading the sensor**.
- Have a second small computer focus on **holding and sharing the latest readings**.
- Build a simple, structured way for them to **talk to each other** and keep the data trustworthy.

This week was about the “plumbing” inside the box, not the app or Bluetooth yet.

The Two Main Pieces

Inside the StillCold system, there are now two clearly defined roles:

- **Sensing component (Arduino Nano)**
 - Reads temperature and humidity from the sensor.
 - Sends those readings out as simple text messages.
- **Communication component (ESP32-C6)**
 - Listens for those messages.
 - Stores the most recent temperature and humidity.
 - Shows the results on a computer screen for easy checking.

Think of it as one device doing the measuring, and another device preparing the data to be shared.

What Was Achieved

By the end of Week 5:

- **Internal data flow is reliable** — Readings consistently travel from the sensor board to the communication board without corruption.
- **Data has a clear, simple format** — Each reading is sent as a short text line like "temperature = X, humidity = Y".
- **Values are stored for later use** — The communication board keeps the latest numbers ready for when Bluetooth and apps are added.
- **The system is observable** — We can watch the data update on a computer screen every few seconds to confirm everything is working.

How the Data Moves (Plain Language)

Every few seconds:

1. The sensing board reads the **temperature and humidity**.
2. It creates a simple message:
 - "T = 20.6, H = 28.7" (for example).
3. It sends that message over a short wired link to the communication board.
4. The communication board:
 - **Listens for a full line** of text.
 - **Pulls out the numbers** for temperature and humidity.
 - **Stores** them and shows them on the screen.

This simple text format makes it easy to test, debug, and trust the readings.

Assumptions We Validated

- **Two-board design works well** — Splitting “sense the environment” and “share the data” across two devices is practical and reliable.
- **Simple text messages are enough** — Using clear text for readings makes it easy to confirm that the system is behaving correctly.
- **Regular updates are stable** — The system can send and receive new readings every few seconds without crashing or drifting.

What We Corrected or Clarified

- **Pin choices matter** — The communication board needed its data pins explicitly assigned so that it listened on the correct wires.
- **Power and ground must be shared** — Both boards must share a common reference (ground) so that the data link works consistently.
- **Upload vs. operation** — We confirmed that certain connections can interfere with reprogramming one of the boards, and adjusted our workflow to avoid that.

These details help prevent confusing behavior later, when more features are added.

Ready for the Next Step

Current state:

The StillCold prototype now has a **trustworthy internal data pipeline**:

Sensor → Sensing board → Safe voltage conversion → Communication board → Stored values → Screen output

- Data flows steadily and accurately.
- The relationship between the two boards is well understood and documented.
- We have confidence in the numbers we see.

Next:

Use this stable internal data stream to **expose readings over Bluetooth** and support user-facing applications.

Summary

Area	Status
Internal data pipeline	Working; sensor-to-board link is reliable
Data format & storage	Defined, simple, and tested
Hardware interactions	Verified pins, shared ground, safe levels
Foundation for wireless	In place and ready to build on

StillCold is on track, with a solid internal data flow ready for wireless and app integration.

Thank you

StillCold — *Environmental monitoring without opening the door*

There are also images of my code and output in my weekly_presentations folder