

# ***CCL Project:* Pilot BU Indoor Air Quality Sensor and Portal**

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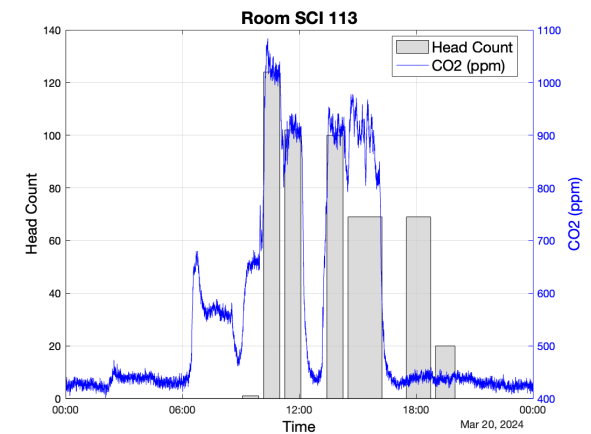
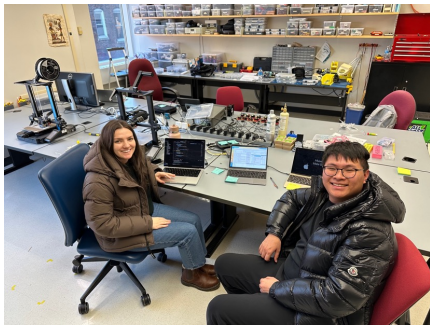
# Project Goals

To assess the effectiveness of using a continuous air quality monitor in BU classrooms to provide real-time feedback to occupants, data analysis against room occupancy use, regional air quality data, and HVAC cycling.

Phase 1: Build device;  
Phase 2: Build portal

... install and collect data  
for 6 months...

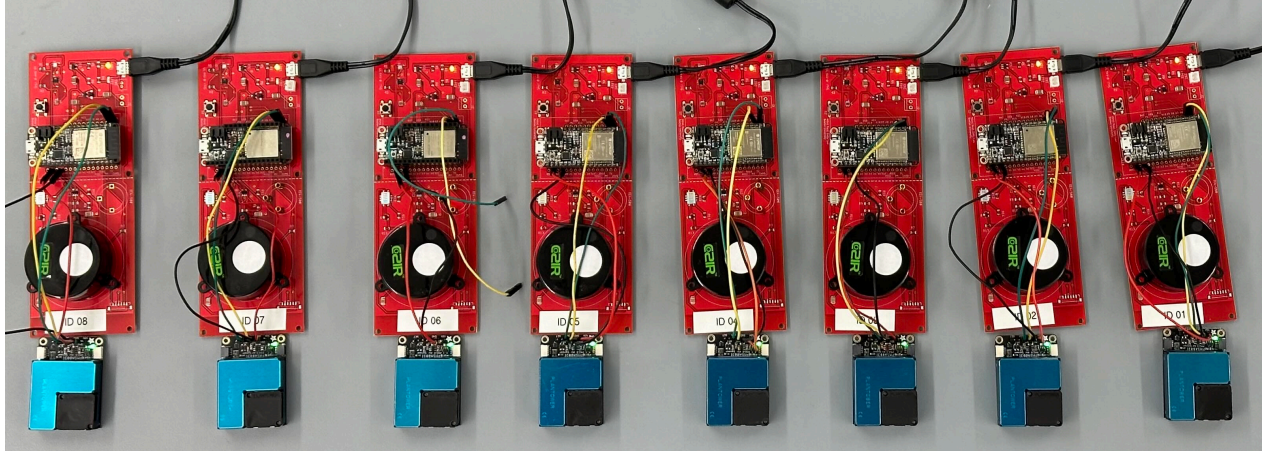
Phase 3: Analyze Data



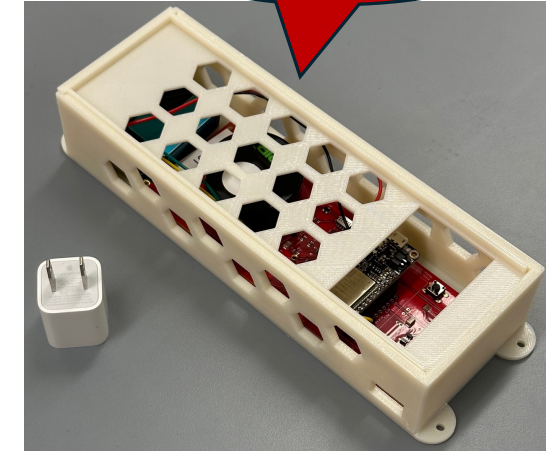
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# What does this look like? A set of sensors



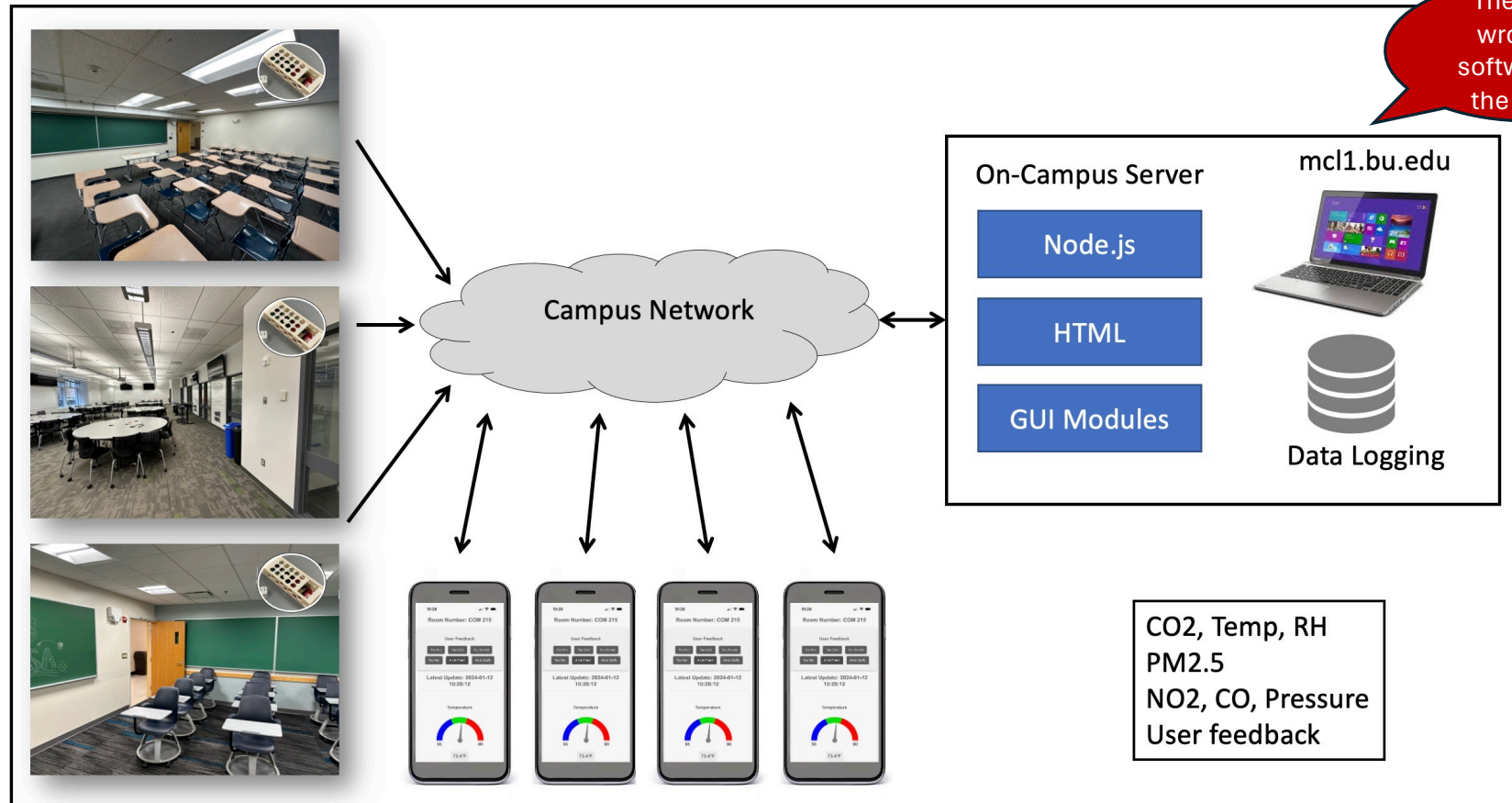
The team created all firmware for the device



## Why build and not buy?

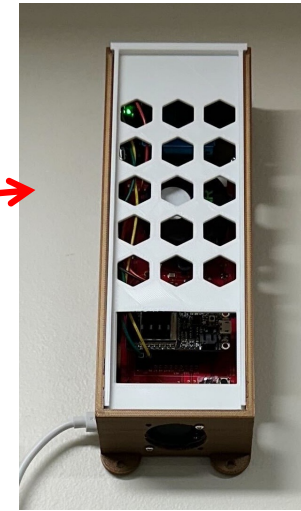
- Full control over the design and enhancements
- Manage security and privacy risks
- Tailor to user feedback
- No monthly fees
- A great learning experience for building a production device
- Opportunity to have campus impact

# What does this look like? A network of computing devices

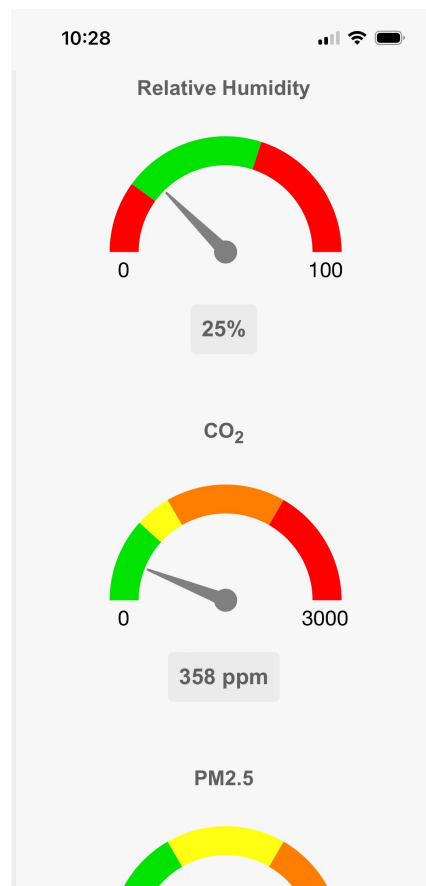
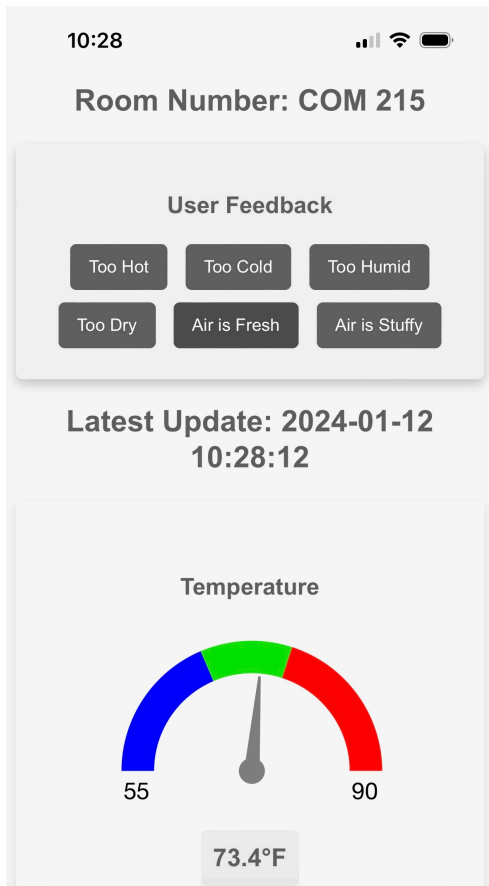




# It's calibrated, installed, and it works!



# We designed a portal for air quality data and feedback



Scan me for  
live access to  
portal!

Too hot? Too cold?  
Too dry? Too muggy?  
Too stuffy?

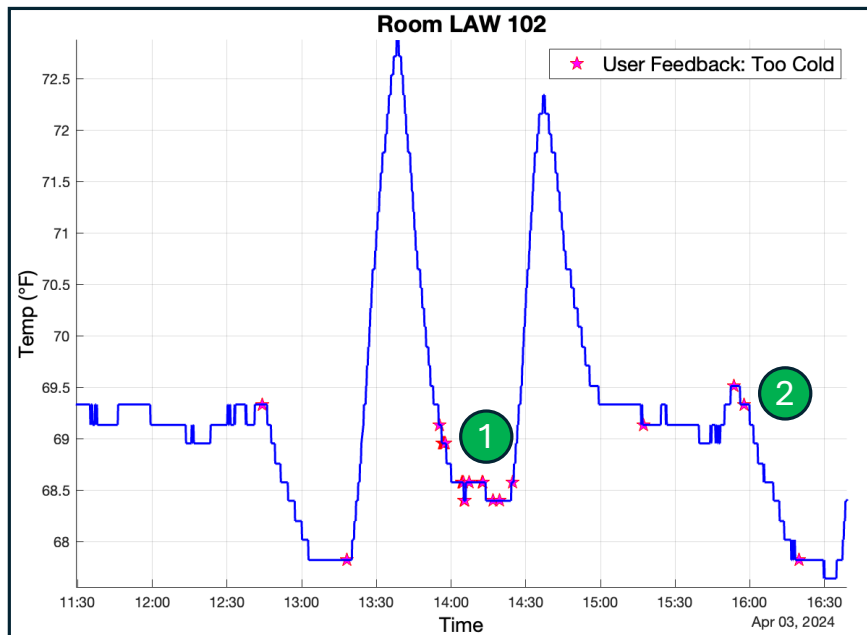
Check out the  
**room air quality**  
and tell us what you  
think.

Scan QR code for URL

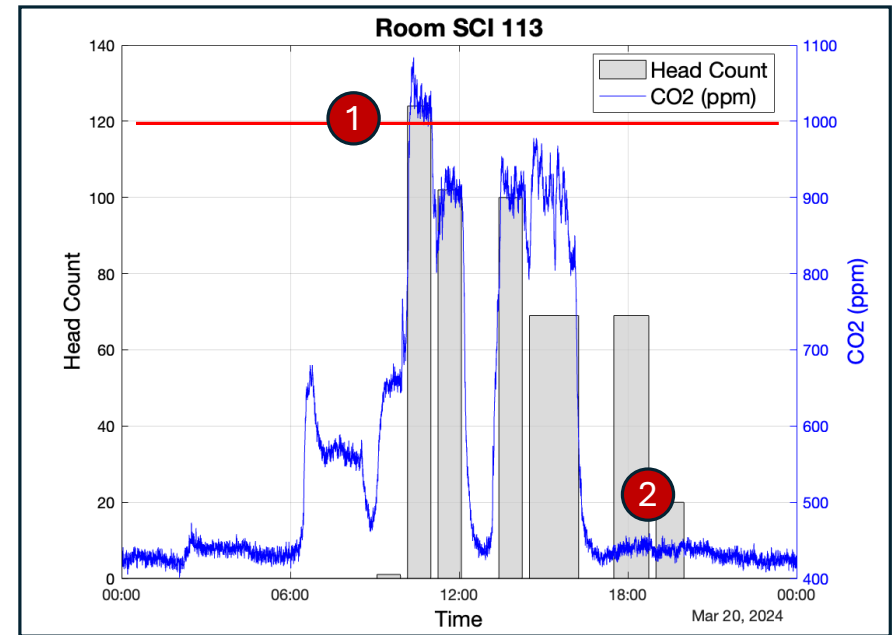


This is a project supported  
by the Campus Climate Lab  
of the BU Institute for Global  
Sustainability 0004

# Here is a sampling of data logged



- 1 Occupant feedback consistent with 'too cold'
- 2 Some filtering required



- 1 CO2 at levels associated with drowsiness even at fractional room capacity
- 2 25Live data not matching room occupancy (underutilization)

# Reflections on the project

## **In terms of climate, sustainability, and equity goals**

- Improve space utilization (resource efficiency)
- Improve environmental control to match occupancy (energy efficiency)
- Improve air quality exposure to humans (health and longevity)
- Improve access to healthy air (equity)

## **Future work**

- Detailed analysis of the data set currently being logged (Phase 3)
- Share as an open-source design, software, and portal



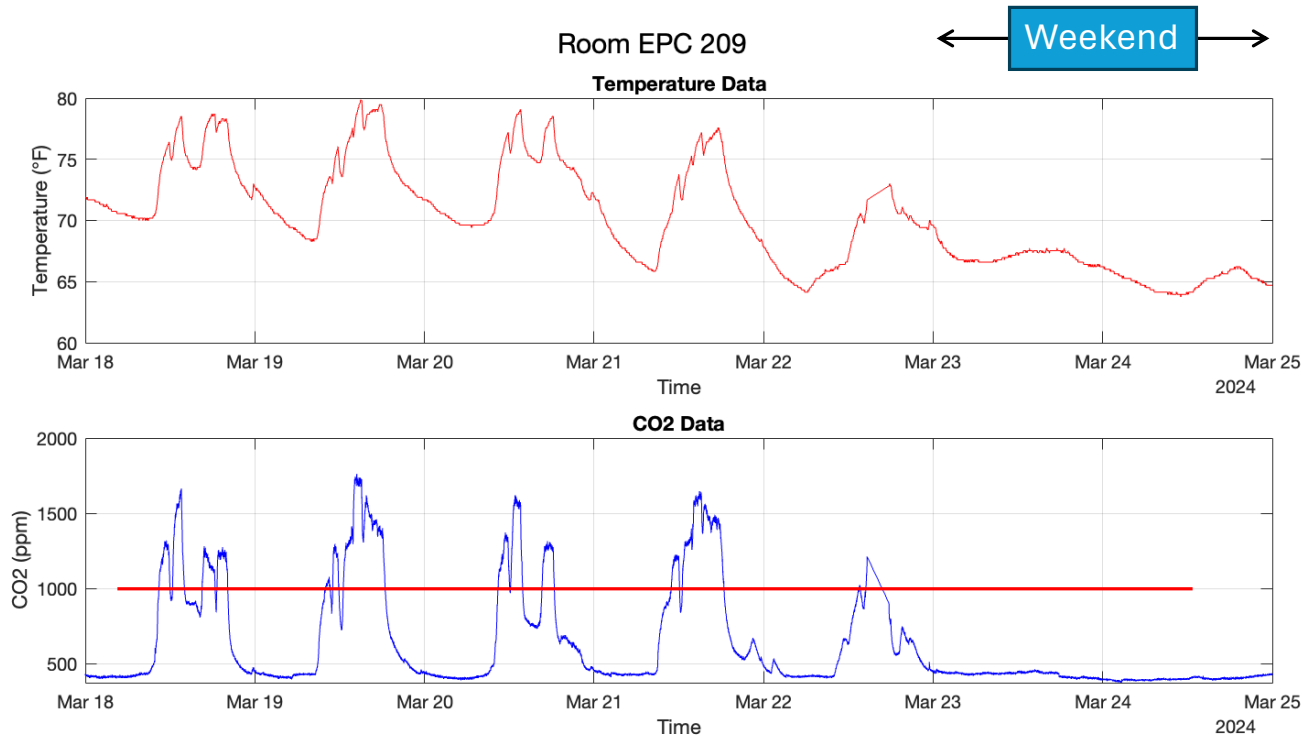
# Thank You!

This project is supported the Boston University Institute for Global Sustainability (IGS) in collaboration with BU Sustainability and the Office of Research for the period of October 2023 - May 2024. The AQM prototype device is based on work by E. Lam and M. Raut and supported in part by an Initiatives for Cities seed grant led by Dr. P. Fabian (2016).



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# Bonus slide



Attendance drops as the week progresses

CO2 level too high during classes