Informational Furniture

Quietly displaying information using Arduino, LEDs and networked sensors

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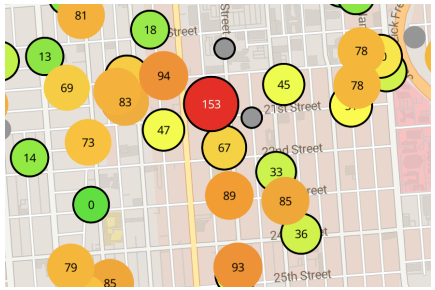
What's the AQI right now?!?!?

- In later Summer 2020 the West Coast was affected by dangerously bad air quality due to widespread wild fires
- Checking PurpleAir for the latest Air Quality Indictor (AQI) became a pastime
  - When should we open or close windows
  - When could we kick the kids outside / call them inside
  - Decide to turn on the air purifiers



  - This lead to mindless **doomscrolling** / netflix watching / etc…
  - Let's FIX this!

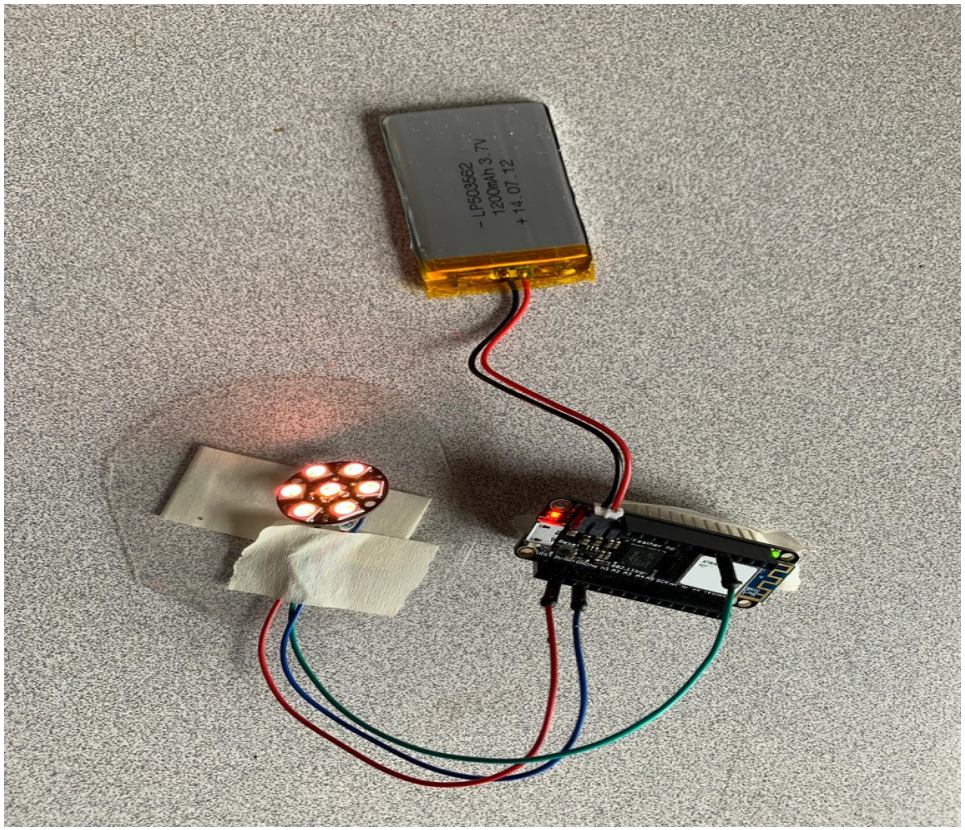
Let’s make a low attention display for AQI information!

- Goals:
  - Remove need to get on computer / phone
  - Simple color display in common area
  - Use things already on hand
  - Could be used as a base for other projects

(band conditions, bus arrival

Bill of materials

- Adafruit Feather M0 WiFi with header pins
- LiPo battery
- Adafruit Jewel 7 LED board
- USB cable
- Coffee can
- Plastic lid
- Connection wires / jumpers
- Parchment Paper



Arduino Software walkthrough

- Setup: Get the Feather on Wifi (w/ secrets saved to external file)
- In the “forever’ loop, contact PurpleAir JSON feed for a sensor in my Neighborhood
- Get PM2.5 value from the JSON response
- Map this value to a RGB color based on published levels / mapping
- Delay for 10 minutes, go to top of loop
- Libraries:
  - NeoPixel for LEDS and ArduinoJSON for JSON
- Only 240 lines of source w/ comments

Thanks and Q&A

- Instructions and write up
- https://www.instructables.com/PurpleAir-Air-Quality-Status-LED-Display/

- Source code:
- https://github.com/jeff-luszcz/PurpleTheopolis