

PurpleAir.com

Making Sense of Sensors

Building a robust, low cost, community based PM sensor network



Background

PurpleAir came about after dust from a local gravel pit made us ask: "How much dust is blowing over Bluffdale?".

There were no state sensors in the area and little chance of one being placed there so we decided to build our own.

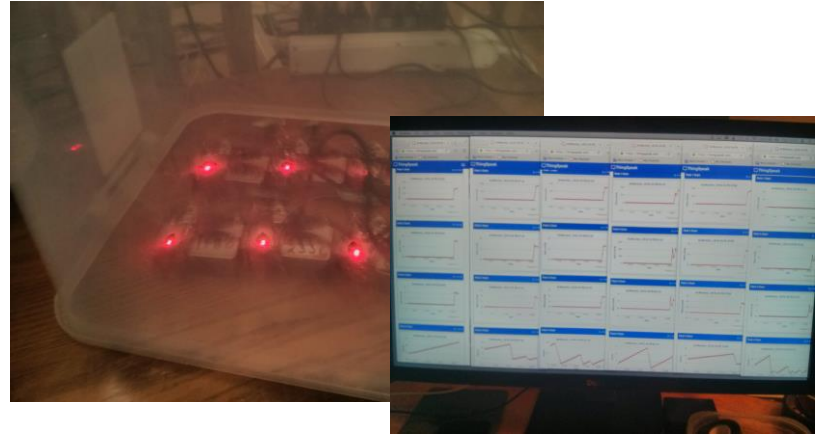
In 2015, Surely there was a reliable and accurate sensor to detect dust?



Our Approach

We set about experimenting with several different detectors from very cheap infrared to more expensive laser counters.

When we found several laser counters agreed with each other, we built around twenty sensors and placed them with volunteers around the Salt Lake Valley, eventually sending them for validation testing with universities and dedicated low cost sensor testing programs.

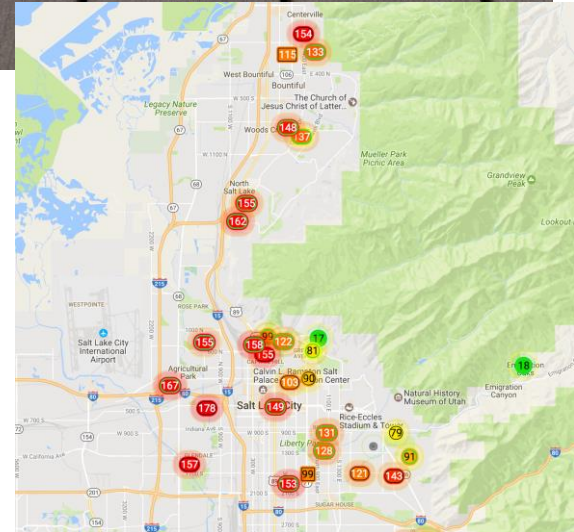


Findings

After initial validation came back with positive results we built more prototypes and enhanced the fault tolerance of the device by adding a second detector in every sensor.

Demand increased from the local community, schools and educational institutions.

Initial findings were that particulates vary a lot more than expected from place to place and changes can happen fast.

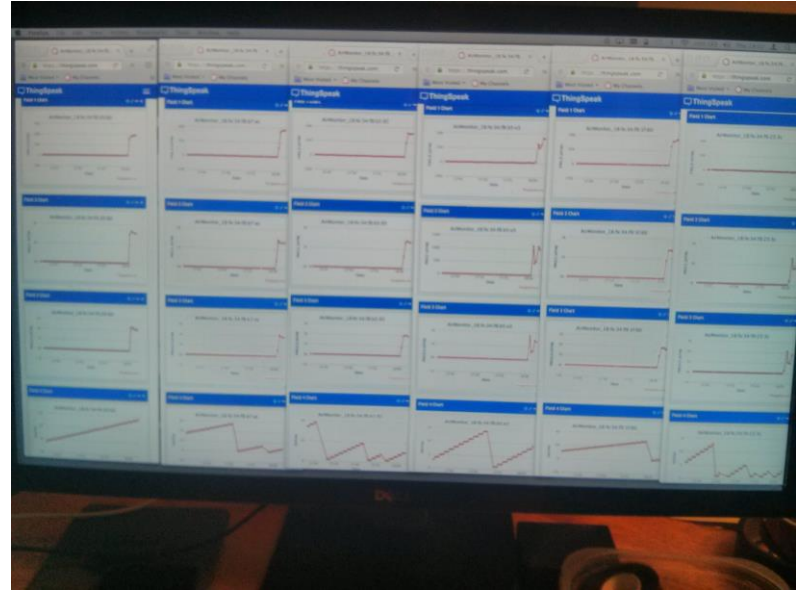


Big Data

At the moment, PurpleAir has around half a billion rows of data from our devices, collected over the last two years.

One of the biggest challenges is making that data accessible and analysing it for trends. The data can also help determine things like sensor health, pollution sources and other insights.

Analyzing the data is the next big challenge for us and our partners.



Conclusion

High resolution, real time data helps people make decisions.

From where to buy a house to playtime for children with asthma.

Athletes use the map to determine where and when to do their exercises.

In the future, we will gain additional insights that were not available without high resolution data.



Thank you