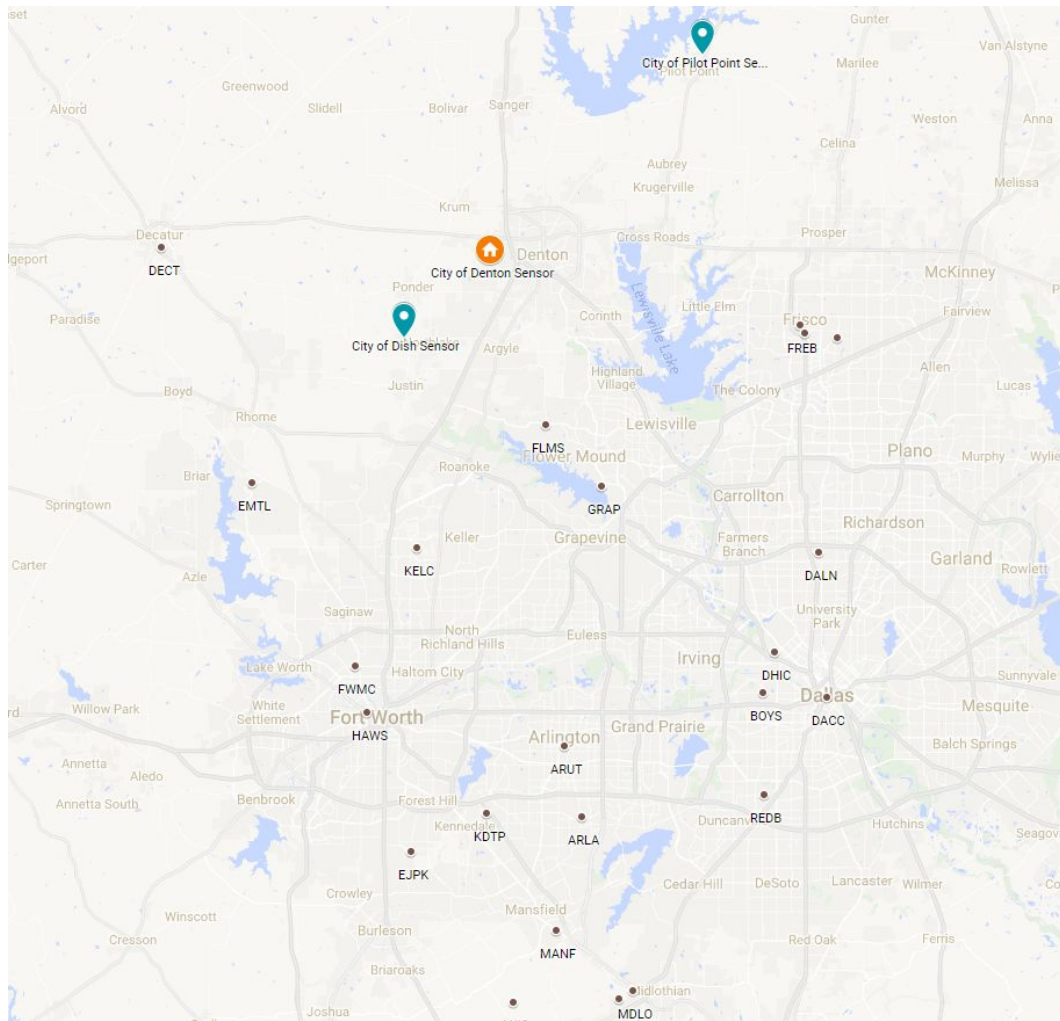

Project Aero

— Denton Air Monitoring Network —

“...the worst ozone levels were found in the northwest quadrant of the DFW area... caused by the predominant SE to NW winds that blow pollution from the coast up through the coal and gas patches of East and Central Texas, over the Midlothian Industrial Complex and North Texas central urban cores into Northwest Tarrant, Wise and Denton counties.”

The problem

- No sensors around the Denton area
- No sensors directly North of Denton
- Bottom-line: we have no idea how bad Denton's air really is



Introducing Project Aero

What is Project Aero?

- A network of Air Quality Sensors
- Allows citizens to create their own sensor and contribute their data
- Helps pinpoint where the worst air is in Denton

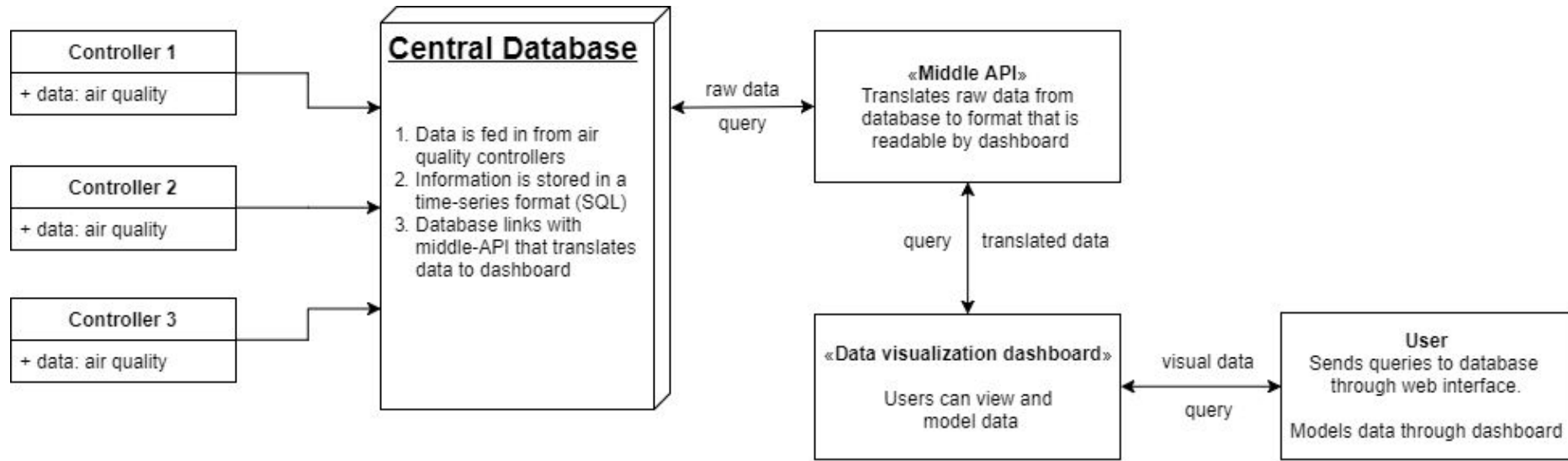
Main Goals

- System should be *scalable* or have the ability to increase or decrease in size on demand
- System should be *modular* in the sense that sensors can be added or removed as needed
- System should be *useable*, specifically, easy to use, understand, and access
- System should Publicly Available and made open source
- System should be secure
- Sensors should hardy

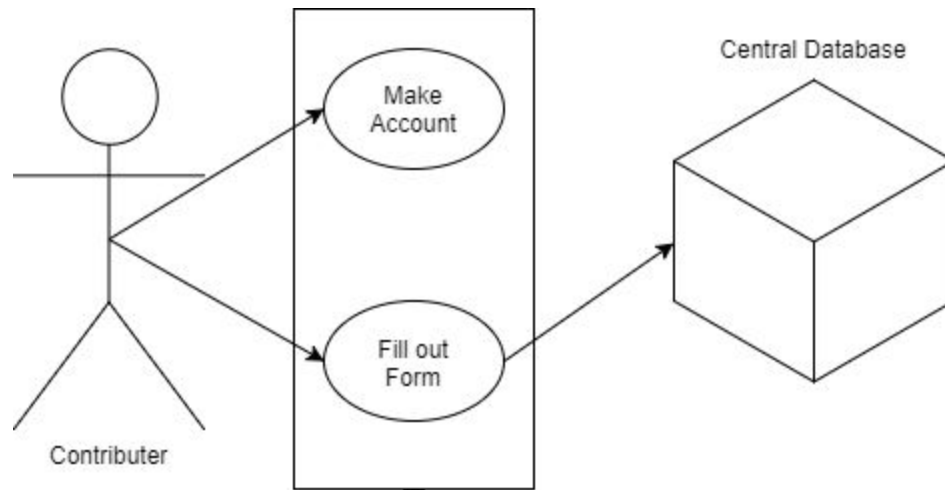
Denton's “average ozone level stands at about 80 ppb,” the highest in Texas in 2016.

Functional Requirements

- Open Source
 - Data in time-series format
 - Open API to collect and retrieve data
 - Web-based Front end
 - Should use graphs, meters, charts
 - Documentation and instructions
 - Secure
 - API should be restful
-



Software Requirements



User Requirements

Node(s)



Database Server



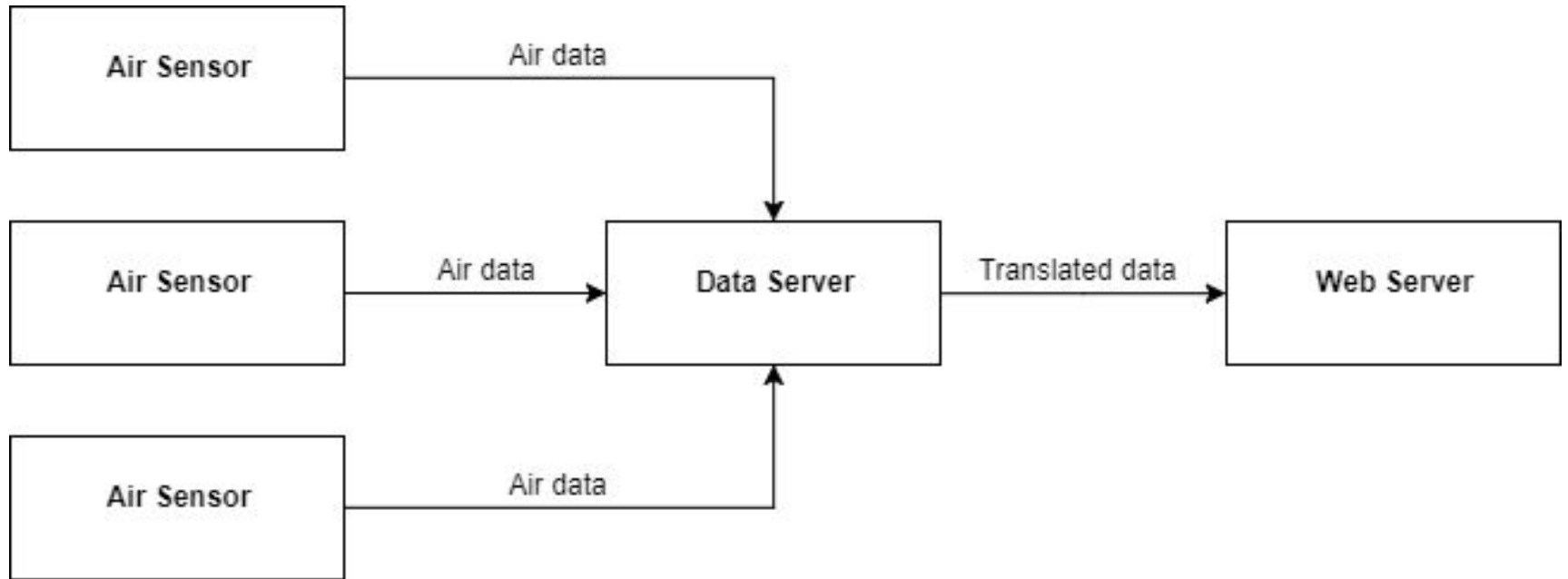
Application Server



End User



Communications Requirements



Hardware Requirements

Non-Functional Requirements

- Minimal downtime
- Updated in real time
- Easy to maintain past implementation
- Hardy system, resistant to erroneous data
- Documentation must be made available to the client

Sources & Further Reading

- 1: Dallas Observer: Why Denton's Air Quality Is the Worst in Texas
<http://www.dallasobserver.com/news/why-dentons-air-quality-is-the-worst-in-texas-7108471>
- 2: Denton Record Chronicle: Denton air ranks as state's dirtiest
<http://www.dentonrc.com/news/news/2016/11/29/denton-air-ranks-as-states-dirtiest>