1) THE PROBLEM
Pinpointing the location of a water leak on a huge farm takes many man-hours. Workers comb through fields, hoping to stumble across a single noticeable leak.

With the current drought in California, it is vital to modernize this process.

2) OUR SOLUTION
PowWow can detect WHEN a water leak occurs, but NOT WHERE. To locate leaks, we send out a UAV (see bottom left) to take aerial pictures of the farm in both the visible and infrared spectrum.

Our image analysis algorithm first locates plant material using Normalized Difference Vegetation Index (NDVI).

The algorithm then searches for leaks and other problems:
1. Abnormality scores are found at all points.
2. Peaks of abnormality are calculated.
3. Hot points of possible danger are identified.

Visible
Infrared

3) DATA DISPLAY
The farmer receives GPS coordinates of possible problems.

A simple, intuitive web interface allows farmers to manage and update the status of their farms.

4) THE BIG PICTURE
Leaks are fixed faster. Precious water is conserved. Crops stay healthier. Money is saved by farmers, and for the consumers.

Web server: Django
Image Analysis: OpenCV in Python
Front end: Google Maps, jQuery, Bootstrap