

# Finding The Leaks

## Development for Sentinel Hydrosolutions



### ABOUT SENTINEL

Sentinel Hydrosolutions provides devices that detect water leaks on both residential and commercial properties. The devices are plumbed into the water main and can shut off water if a leak is detected. Sentinel has a very sophisticated and accurate algorithm to determine the presence of a water leak.

### ABOUT CALANCE

Calance is a global IT Services firm operating in the United States, Canada and India. Calance provides simple scalable integrations between Project Control and Financial systems for construction and other asset-intensive industries. With a long history of success, Calance is dedicated to improving project efficiency.

### CHALLENGE

Sentinel Hydrosolutions had a web application to act as an interface to their leak detection devices. The application was having issues due to the vendor selecting a third party software vendor that facilitated direct communication with the devices taking a different approach. The new approach meant that the system could no longer directly communicate with the IoT devices. There were also some data collection strategies that were not in sync. Sentinel Hydrosolutions desired historical data for the IoT device users but had no means to host the API or Application.

### SOLUTION

To resolve this issue, Calance built an API and web application. The API now serves as the gateway for the IoT devices. The IoT devices communicate with the API at regular intervals uploading data. The web application is a responsive design application that allows the user to complete several operations related to the IoT devices such as:

1. Register device(s) / create an account
2. View current device data for each device registered
3. Receive email or optional SMS messages in the event a leak is reported by a device
4. Send commands to a device
  - a. Clear Alarm
  - b. Change certain device parameters
  - c. Shut water off remotely

The API receives over 600K uploads a day, and is expected to increase as more devices come online. The web application was built using Rapid Application Development (RAD). Sentinel Hydrosolutions was able to test working variations of the application over the course of its development. RAD is particularly successful with new applications where the client has a high level vision but is not clear on particular details. The web application was written using MVC.Net, AngularJS and Bootstrap. The API as an MVC.Net API Project. For hosting, Calance assisted the client in setting up AWS EC2 instances. Calance also maintain and monitor the systems using our existing network software and tools available from Amazon.

### RESULTS

Immediately, Sentinel Hydrosolutions was able to get the application to release in very short time reducing the further delay. As time went on, Calance and Sentinel Hydrosolutions strengthened their partnership by continually improving the system thanks. This is, in part, due to Calance's strength to analyze a client's needs both immediate and future. This analyzation goes beyond acquiring specs from the client, rather engages the client with discussion on the intended use, rebuttal if a particular intention/desire seem unnecessary or detrimental and building upon ideas that are vague. Calance's provides all clients with the utmost attention despite differences in size or financial capacity. Calance strives to deliver the best product for a client's need.