

AVEVA PI WORLD

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# Making Older Equipment Smart with Low-Cost Sensors

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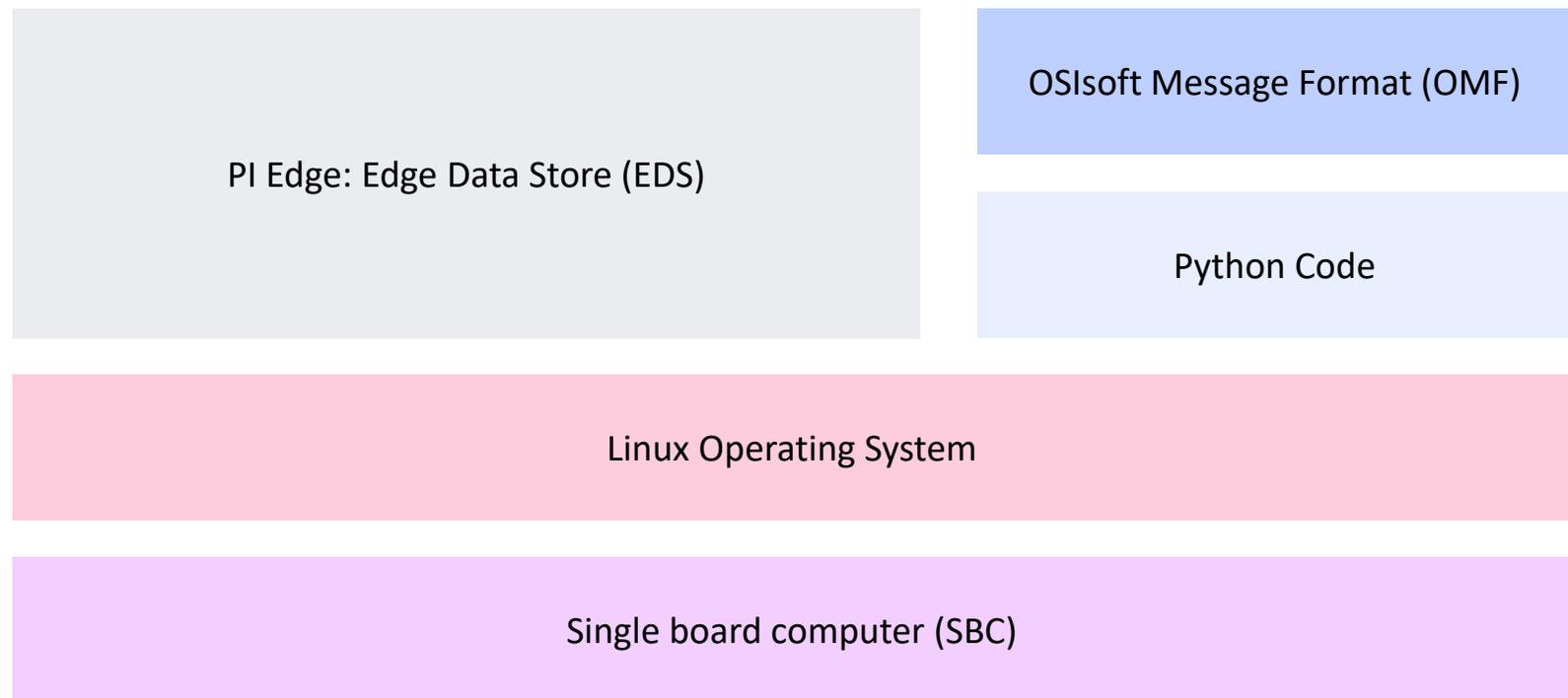


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## Powerful & Impactful Business Value

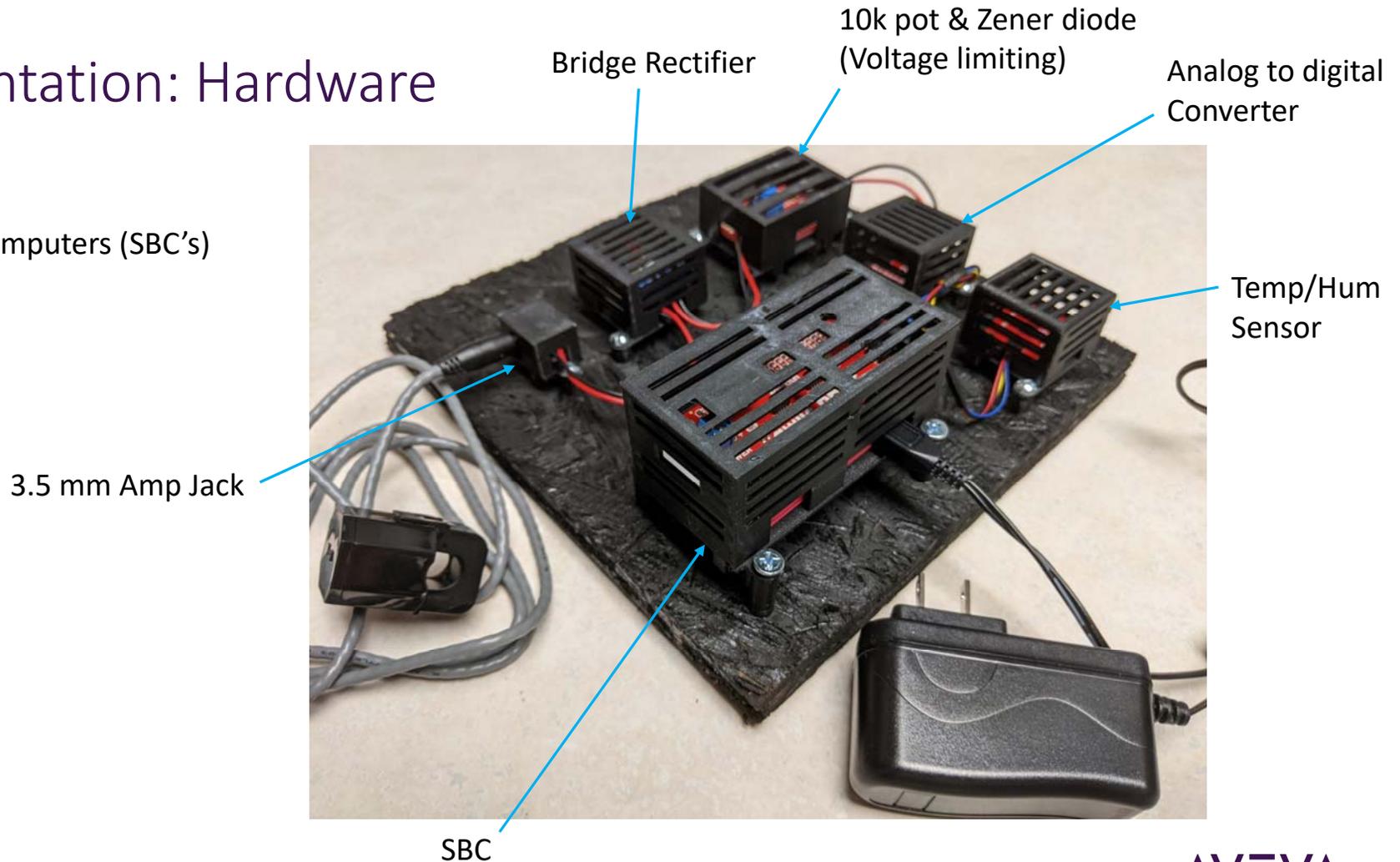
- Achievable by **anyone**
- **Little coding** ability needed
- Use of **inexpensive** sensors
- Implemented in a **short time**
- **Reliable**

# Implementation: Software



# Implementation: Hardware

- Single Board Computers (SBC's)
- Sensor Boards



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## Business Value: The problems this has solved!



### Fuel leak

in car while in garage



### Coolant leak

in HVAC system



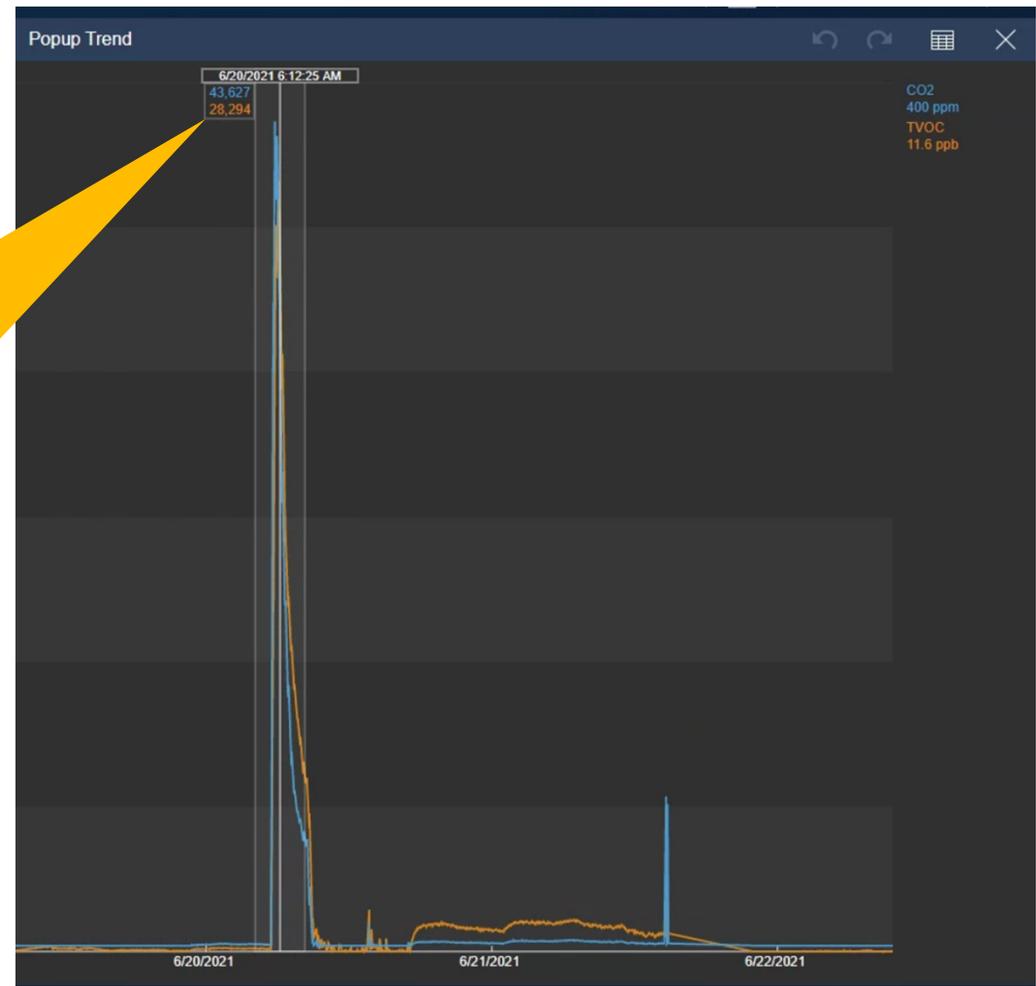
### Failed dehumidifier

in basement

# Fuel Leak in Car

43,627  
28,294

- Limited exposure to **harmful vapors**
- Potential **explosion** of the house
- Helped point out fuel line **deterioration** issue that could have caused vehicle to be stranded or fire

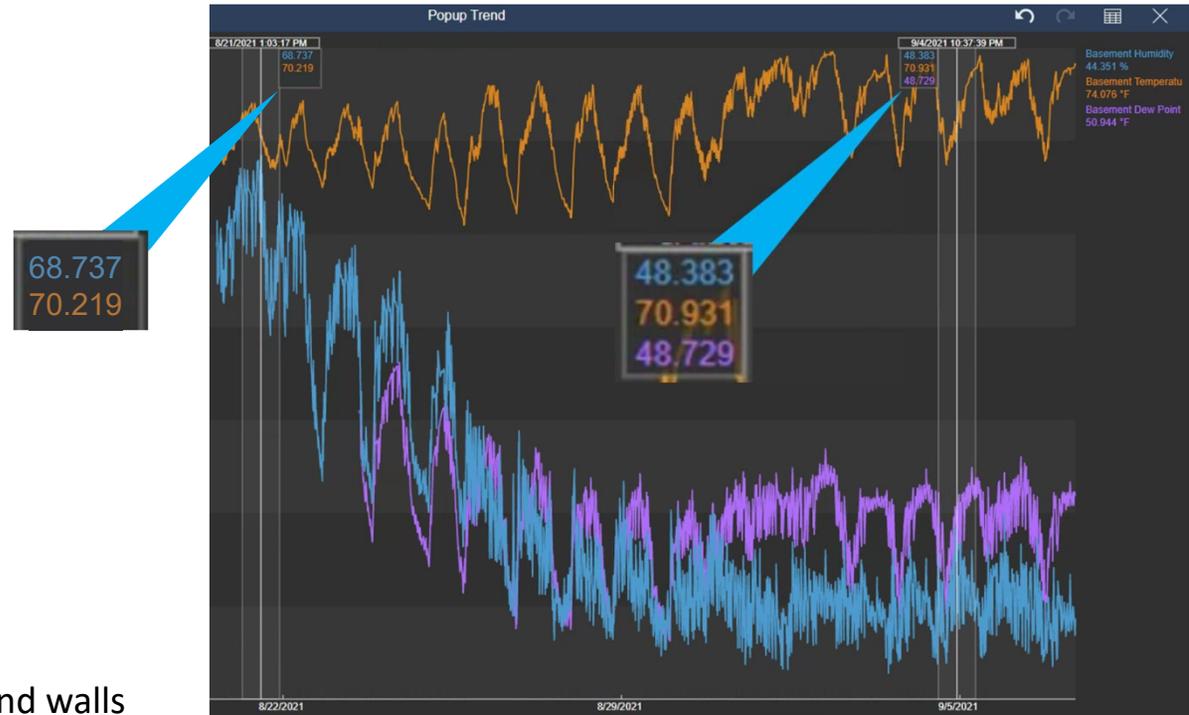


## Coolant Leak in HVAC System



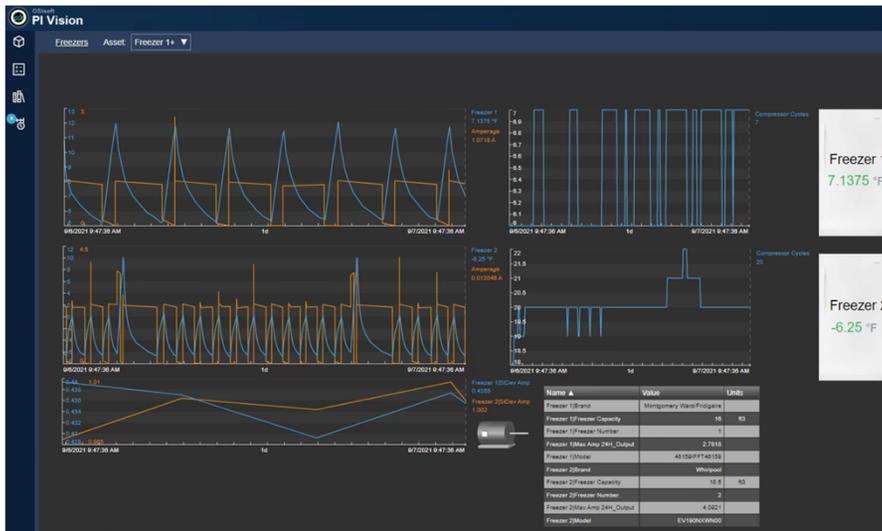
- **Manufacturer** issue: minimum bend radius violation caused **cracking**

# Failed Dehumidifier

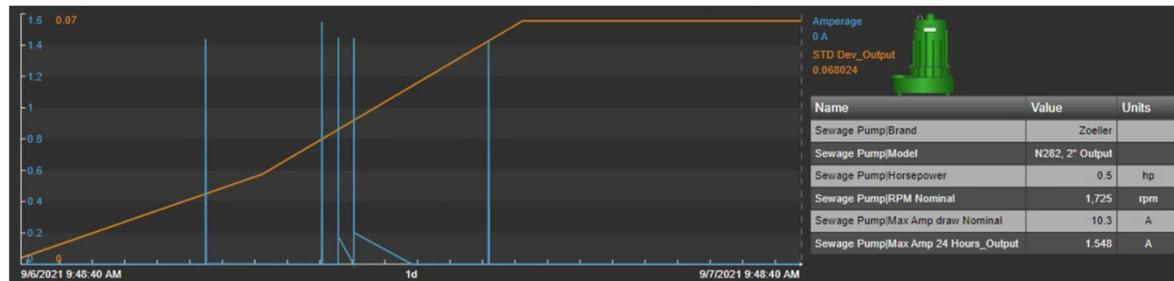


- Prevented **mold** growth
- Prevented **damage** to furnishings and walls
- Helped improve **air quality** to prevent allergies

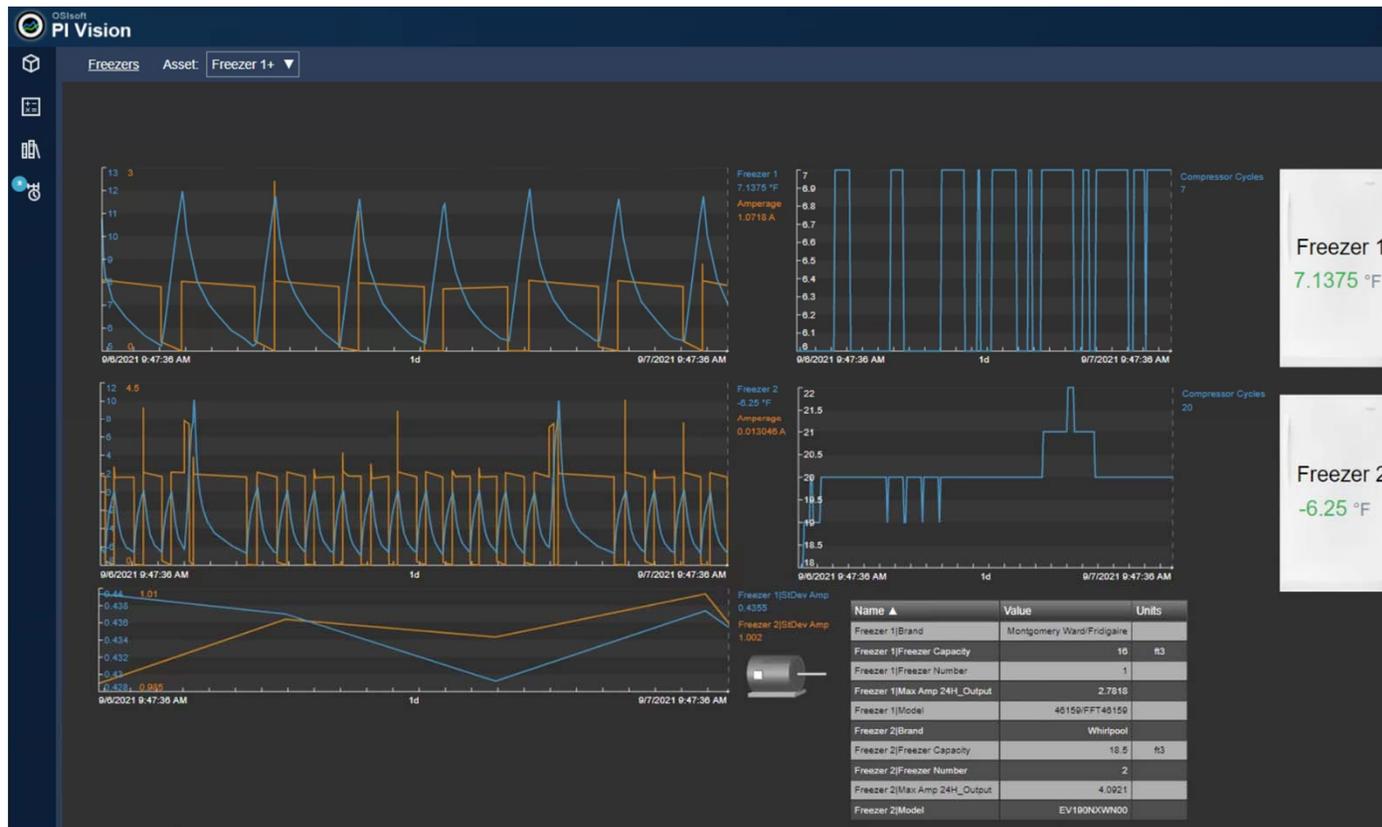
# Other things that are monitored



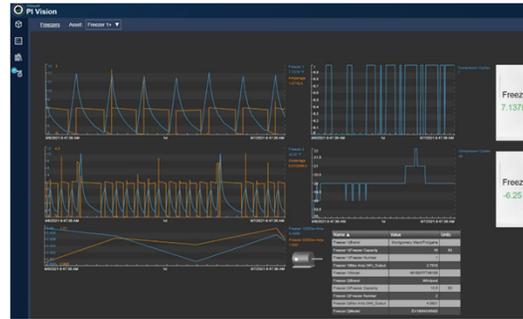
- Weather
- Freezers
- Sewage Pump



# The Power of Simple Calcs & the Way Data is Presented



# Summary



## Challenges

- How do I monitor a wide variety of equipment **without smart abilities**?
- How do I get notified **of out-of-range data**?
- How do I **predict failures** and **save money** by doing it?

## Solution

- SparkFun **sensors** to gather data using **OMF** and single-board computers (**SBC**)
- **Edge Data Store** to send data to **PI Data Archive**
- PI Data Archive for **Analyses** and **Notifications**

## Business Value

- **Monitor** older equipment
- **Save money**
- Get alerts about **harmful environmental** levels
- Get alerts about equipment **failure**



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