



# SITE COMMUNICATION SOLUTIONS

- COMMUNICATION IS THE KEY TO MAXIMIZING EFFICIENCY AND SAFETY ALONG WITH IMPROVING THE ROI
- YOU HAVE 3 MAIN TYPES OF COMMUNICATION IN USE AT THIS TIME
- AUDIO, VIDEO AND DATA THROUGH VARIOUS RF SOLUTIONS AND INFRASTRUCTURES
- PRIMARY OBJECTIVE USE EXISTING INFRASTRUCTURE



# VIDEO COMMUNICATION SOLUTIONS FOR FIREWATCH OUR FIRST TOPIC

- BY USING VIDEO ANALYTICS MONITORING PIXEL LIGHT INTENSITY
- SMOKE AND FLAME AND FLAME REFLECTION CAN BE DETECTED
- ALSO STEAM LEAKS AND FUEL SPRAY CAN ALSO BEEN IDENTIFIED
- THERMAL DETECTORS CAN ALSO BE ADDED TO THE SYSTEM
- THE TECHNOLOGY WE ARE ABOUT TO DISCUSS IS IN USE AT DUKE MCGUIRE STATION AND DARLINGTON

# I.I.S. Remote Fire Watch System



Reduce the total  
number of personnel  
required for fire watches  
with The I.I.S.  
Remote  
Fire Watch System.



Permanently Installed

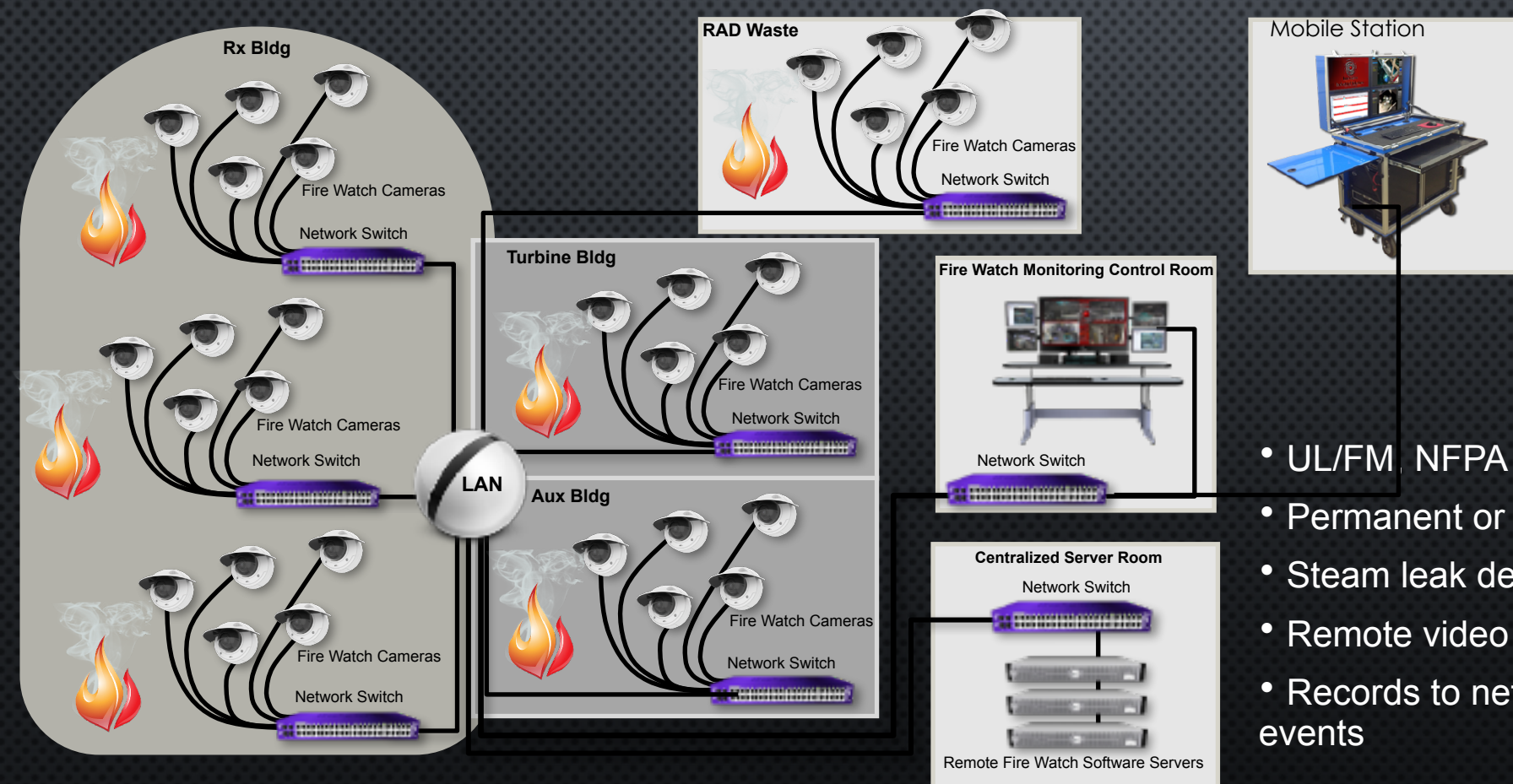


Temporary Mobile



## I.I.S. Remote Fire Watch System Architecture

With the use of fixed Onvif cameras and built in analytics the Video Management Software (VMS) will alert and alarm when smoke/fire is present.



- UL/FM, NFPA compliant flame and smoke detection
- Permanent or Temporary remote fire watch
- Steam leak detection
- Remote video and alarm monitoring
- Records to network video recorder 24/7 and tracks events



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## Video Analytics in action - Effective detection area

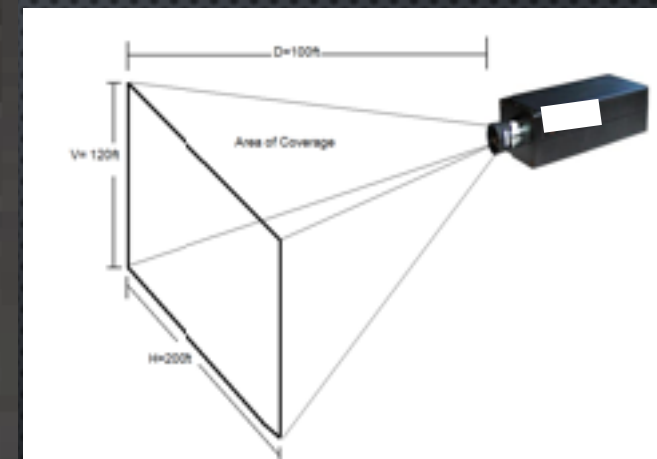
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CCC-R1:12-R2:ECA-R3:-A-95-0C 10.0.0.151 CC:18:54:50:00:35 1.036 121/1



SignFire IP 50-09-30 16:04:29 10.771 (20.012)

Effective  
Detection





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# REFLECTED FLAME FILTER



Filter removes residual light,  
leaving only light that is  
originated from flames.

[8]





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## Reflected Flame

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000-R1:12J-R2:90A-R3:45-W-20-00 10.0.0.102 02:10:5A:02:20:5A 1.032 144 1



Sig: Fire IP 06-03-26 12:15:15 18.44% (14.863)



# MAGNESIUM PLANT

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020 R1:12 R2:004 Z1: A 00 00 192.168.2.102 00:1B:5A:00:02:AC 1.848.60 015|1|88



SignFire IP 11 05 15 11:45:57 13.45 (54.79%) \_1J



# NATURAL GAS PROCESSING PLANT

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# TURBINE DECK SMOKE

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100-R1:12-R2:50-R3:-A-9C-00 10.C.O.130 2013:5A:00:00:1 1.832 2011



Signifire LP 02-03-06 15:58:14 16.530 (14.958)



# WASTE CENTER SMOKE

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# Fuel Mist Detection

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# THERMAL OIL HEATER – AXIS HD CAMERA





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# Large Volume Space Testing





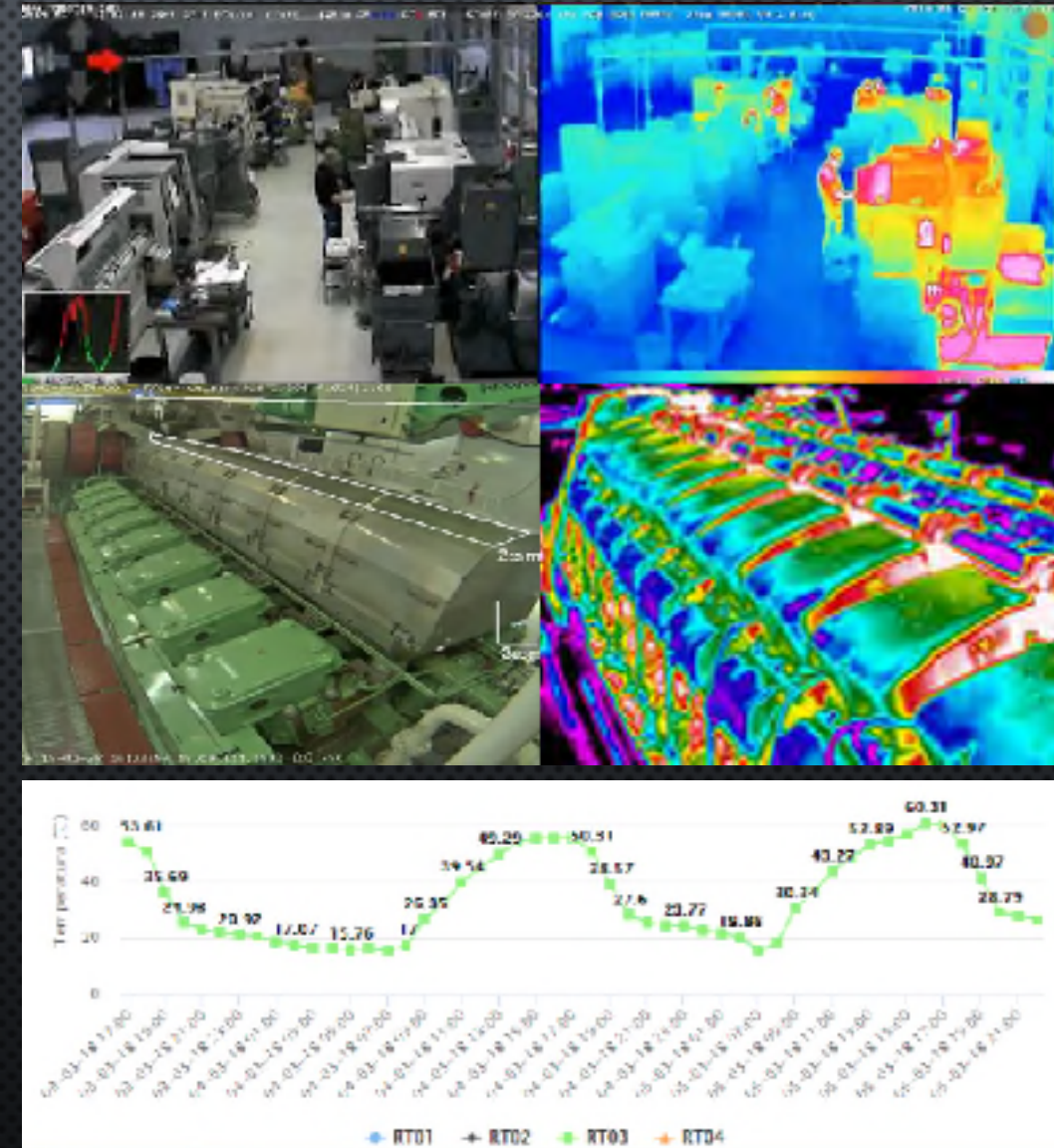
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- Detection range between  $-40^{\circ}\text{F}$  to  $+1022^{\circ}\text{F}$
- Alarms on temperature increase or decrease
- Data logging of temperatures
- Relay output



## I.I.S. Remote Fire Watch System: Thermal Radiometry



# Fike Thermal – Applications

Motors, rotating equipment and engine monitoring

Conveyors

Bucket elevators

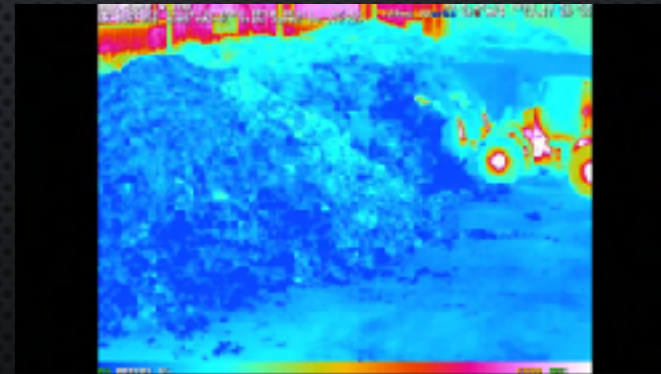
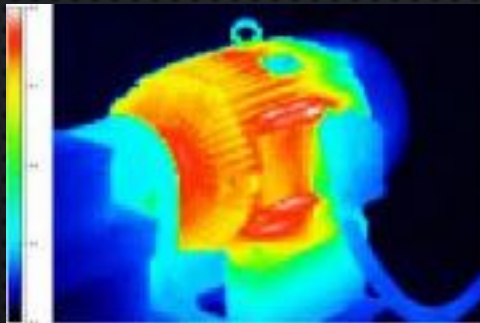
Food processing, textile plants, hammer mills

Manufacturing processes, transport duct and piping

Dust collectors

Belt driven fans,

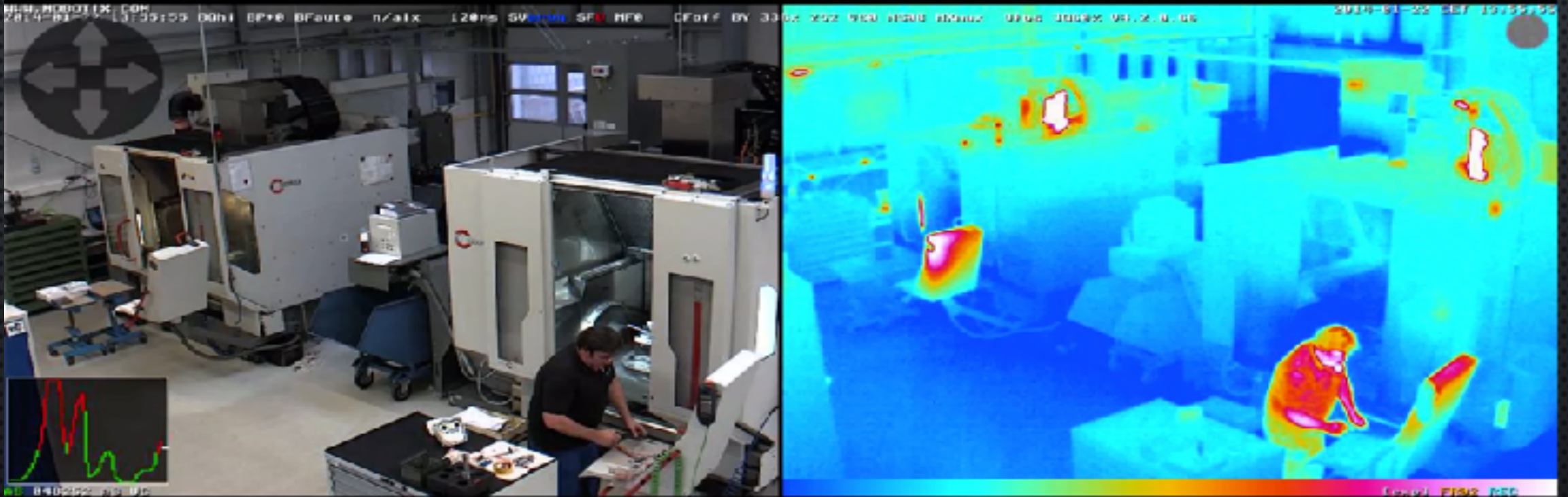
Electrical/electronic equipment





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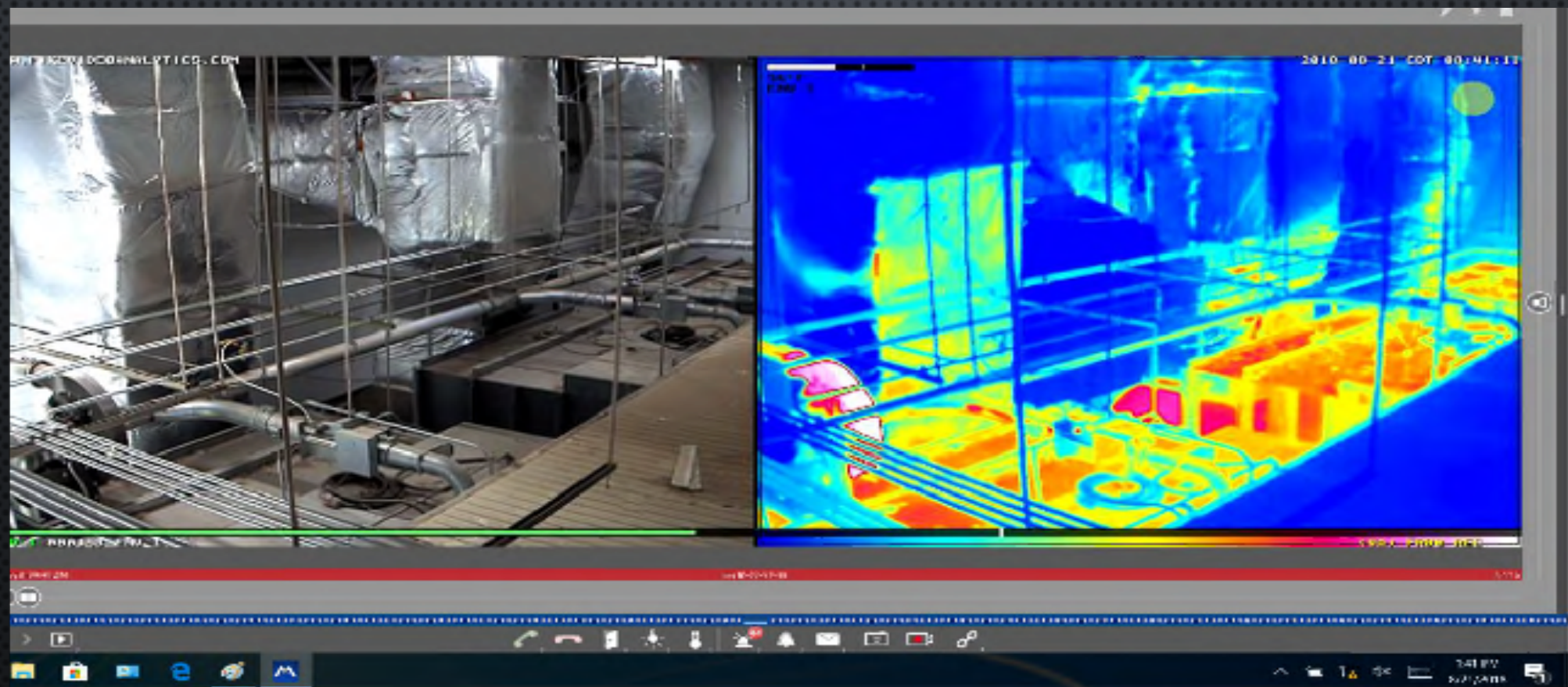
# THERMAL PROCESS MONITORING





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## FILTER HOUSES AND MOTOR MONITORING LIVE VIDEO/THERMAL MONITORING

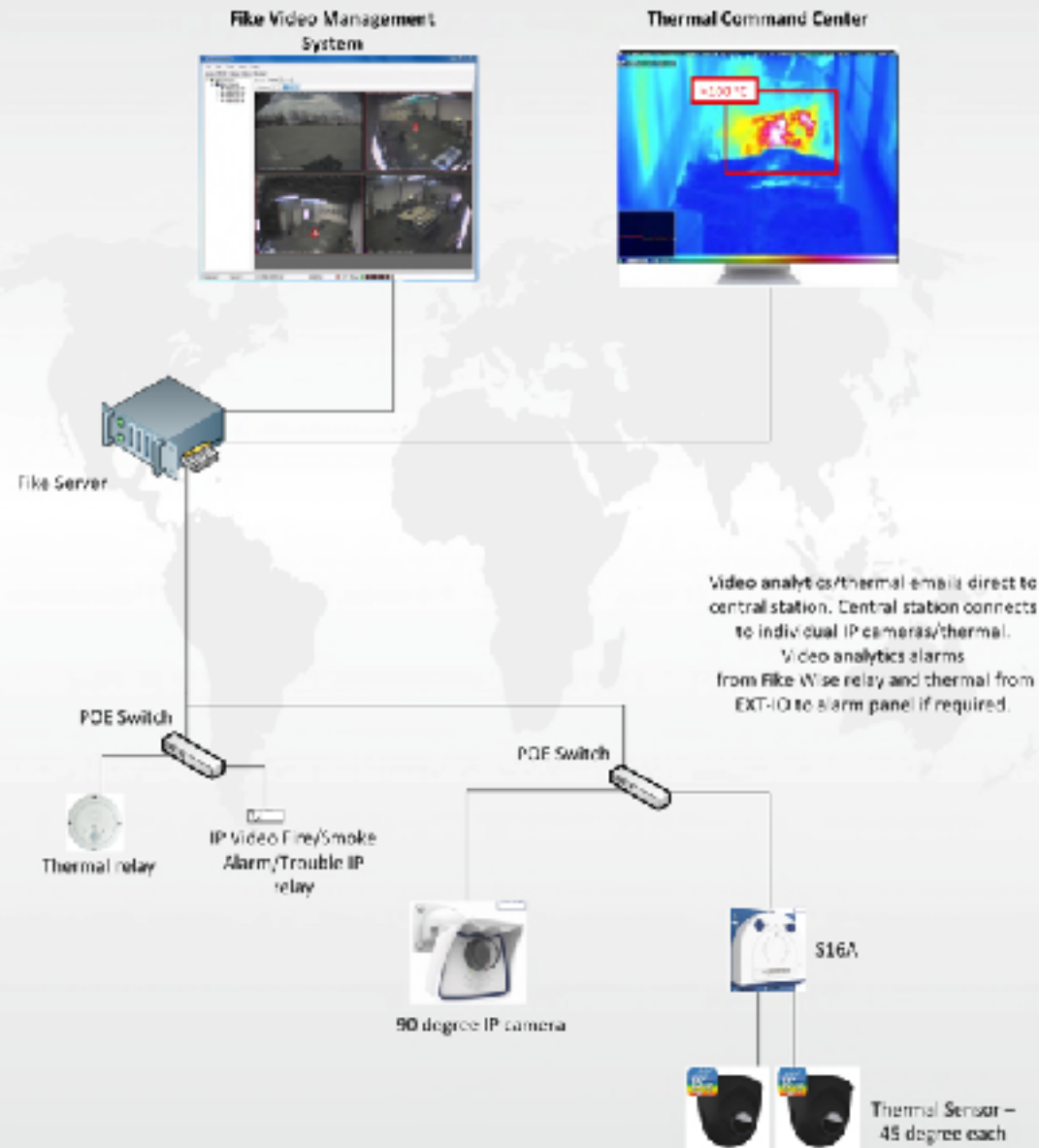




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## Fike Video Analytics Thermal/IP Video Monitoring





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# ROI

- MOST OF THE PLANTS IN OUR INDUSTRY ARE SPENDING IN EXCESS OF \$1,000,000 A YEAR ON FIRE WATCHES
- FOR AN INVESTMENT OF \$350-\$500K YOU WOULD HAVE A PAY BACK OF 6 MONTHS FOR AN INITIAL INVESTMENT. THIS INCLUDES SERVERS THE SITE WOULD REQUIRE TO RUN THE ANALYTICS



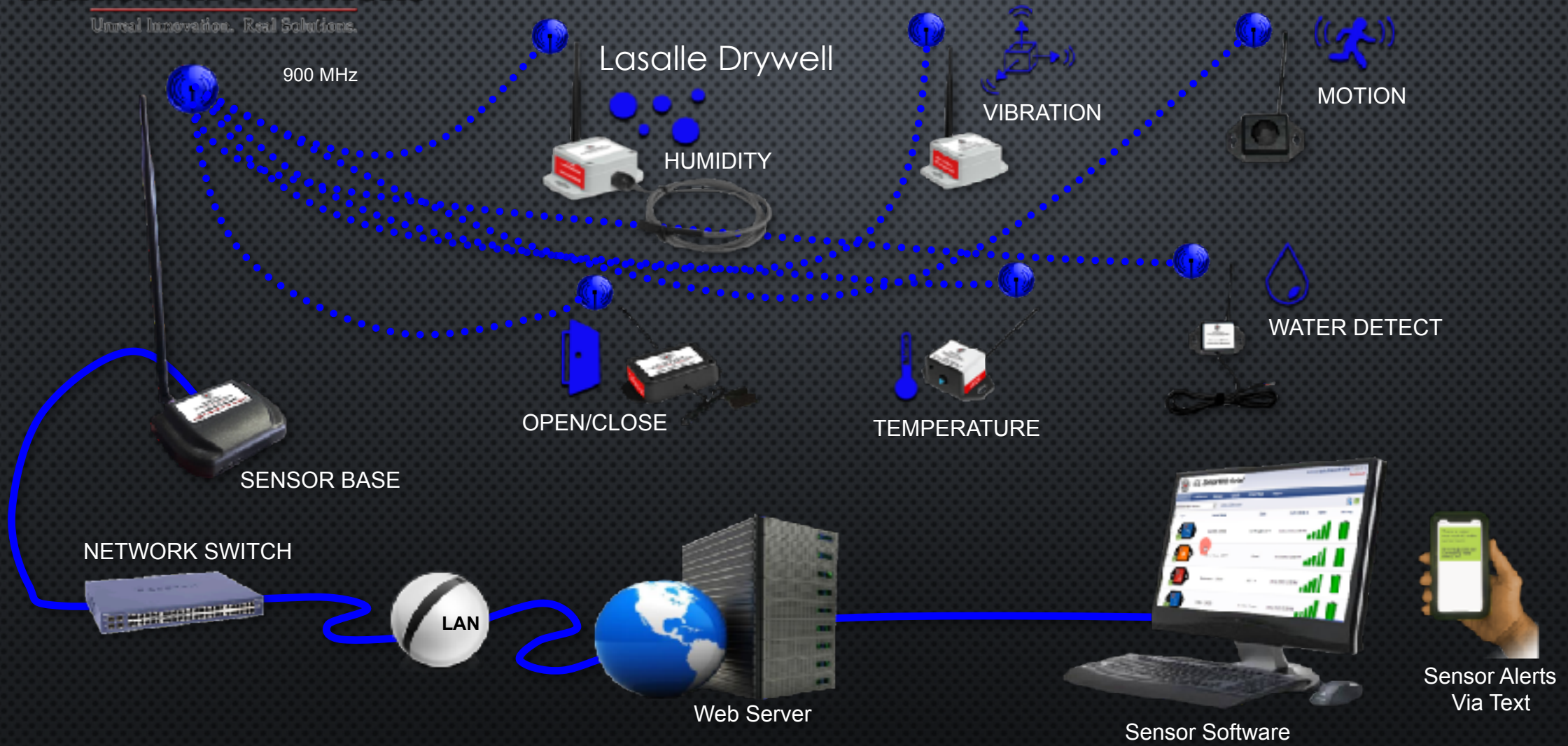
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# REMOTE SENSORS

# I.I.S. Wireless Sensor Monitoring System





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# VIBRATION SENSOR FOR PREDICTIVE MAINTENANCE



# I.I.S. Wireless Sensor Monitoring System

<div>  <b>Innovative Industrial Solutions</b>  <small>Unreal Innovation. Real Solutions.</small>  <b>Wireless Sensor Portal</b> </div> <div>Administrative </div>						
<div>Overview</div> <div>Notifications</div> <div>Manage</div> <div>Administration</div>						
<input type="text"/> View Gateways				  		
All 	Type	Sensor Name	Data	Last Check In	Signal	Battery
<input type="checkbox"/>		Far Back Warehouse Humidity - 434746	43.82% @ 67.2° F D: 44.4° F	10/24/2018 2:31 PM		
<input type="checkbox"/>		Server Room Humidity - 434756	47.41% @ 62.2° F D: 42° F	10/24/2018 2:30 PM		
<input type="checkbox"/>		Vibration Meter 434747	X-Axis 0.7 mm/s 12 Hz, Y-Axis 0.5 mm/s 19 Hz, Z-Axis 4.6 mm/s 13 Hz, Duty Cycle 100 %	10/24/2018 2:30 PM		

Displays a list of all your deployed sensors



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# I.I.S. Wireless Sensor Monitoring System

Notifications page of  
each sensor's readings.

Overview

Notifications

Manage

Administration

Notification List

?

Add Notification

Type	Notification Name	Last Sent	Sending To	Test
<div><div></div>ON</div>	Moved	10/17/2018 10:10 AM		<div></div> <div></div>
<div><div></div>ON</div>	testnotify	10/24/2018 11:01 AM		<div></div> <div></div>

History

Settings

Schedule

Sent From

People to Notify

Recently Sent Notifications

Date Range: 10/24/2018 - 10/24/2018

Date Sent	Status	Sent To	Reading	Acknowledged
10/24/2018 11:01 AM	Email Sent	Roy Rose	<a href="#">Email</a> 40.17% @ 78.3° F D: 52.1° F	Roy Rose 10/24/2018 11:02 AM
10/24/2018 11:01 AM	SMS via SMTP Sent	Stan Robinson	<a href="#">SMS</a> 40.17% @ 78.3° F D: 52.1° F	Roy Rose 10/24/2018 11:02 AM
10/24/2018 10:59 AM	Email Sent	Roy Rose	<a href="#">Email</a> 49.76% @ 70.6° F D: 51° F	Roy Rose 10/24/2018 11:01 AM
10/24/2018 10:59 AM	SMS via SMTP Sent	Stan Robinson	<a href="#">SMS</a> 49.76% @ 70.6° F D: 51° F	Roy Rose 10/24/2018 11:01 AM
10/24/2018 10:58 AM	Email Sent	Roy Rose	<a href="#">Email</a> Notification Test	Roy Rose 10/24/2018 10:58 AM



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# I.I.S. Wireless Sensor Monitoring System

History page of each  
sensor's readings.

History	Chart	Notifications	Export	Edit	Scale
<u>Missed Communications</u>		Date Range: 10/24/2018 - 10/24/2018			
Date	Signal	Battery	Sensor Reading		
10/24/2018 2:41 PM	57	100	43.32% @ 67.2° F D: 44.1° F		
10/24/2018 2:31 PM	70	100	43.82% @ 67.2° F D: 44.4° F		
10/24/2018 2:21 PM	70	100	43.81% @ 67.1° F D: 44.4° F		
10/24/2018 2:11 PM	57	100	44% @ 67.1° F D: 44.5° F		
10/24/2018 2:01 PM	42	100	44.88% @ 67.1° F D: 45° F		
10/24/2018 1:51 PM	51	100	45.17% @ 67° F D: 45.1° F		
10/24/2018 1:41 PM	42	100	45.71% @ 66.9° F D: 45.3° F		
10/24/2018 1:31 PM	62	100	46.35% @ 66.6° F D: 45.4° F		
10/24/2018 1:21 PM	69	100	47.4% @ 66.4° F D: 45.8° F		
10/24/2018 1:11 PM	66	100	49.05% @ 66.3° F D: 46.6° F		
10/24/2018 1:01 PM	42	100	51.47% @ 66.2° F D: 47.8° F		
10/24/2018 12:51 PM	21	100	51.44% @ 66° F D: 47.6° F		

# I.I.S. Wireless Sensor Monitoring System

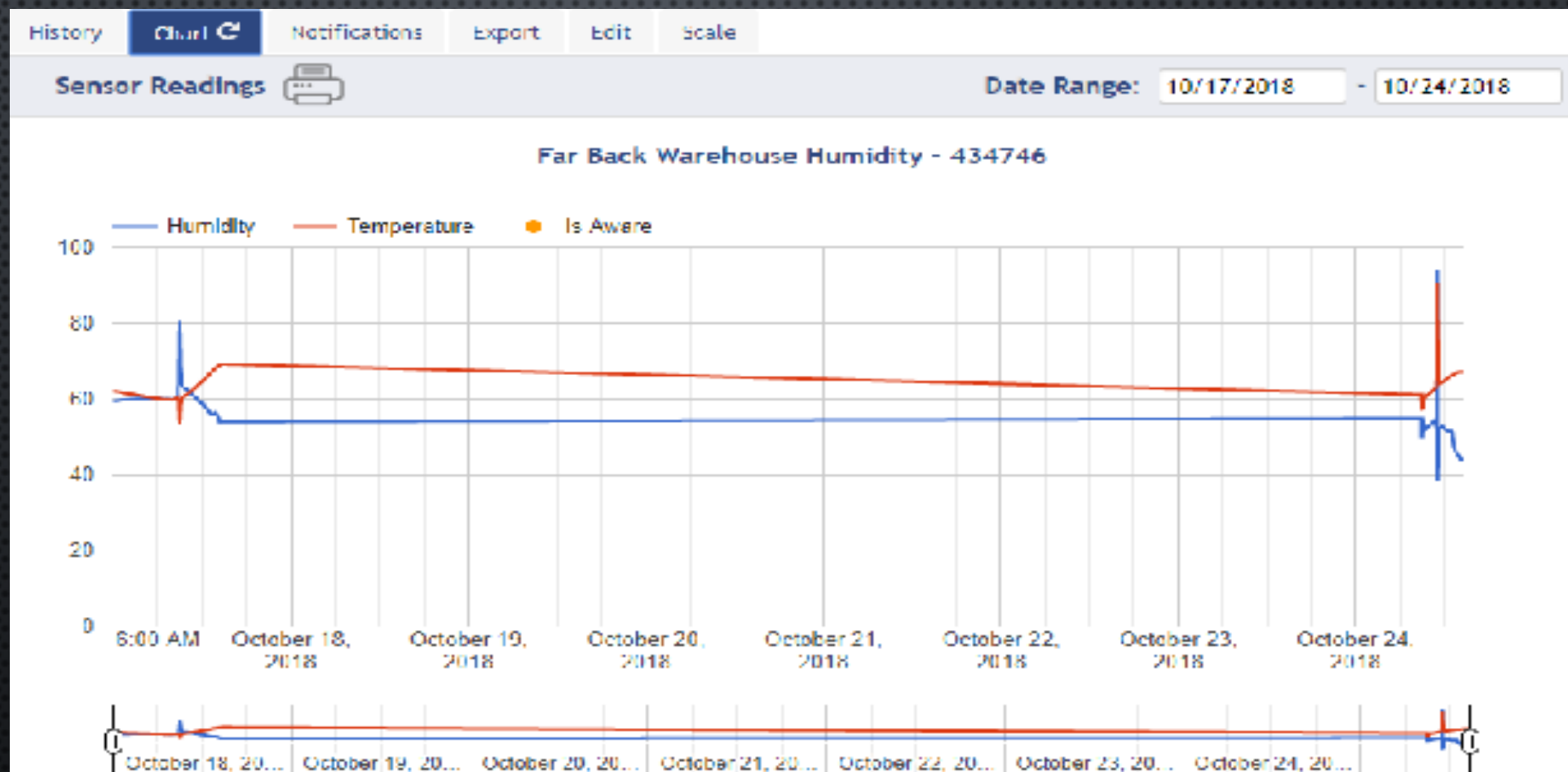


Chart display of  
deployed sensor



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# I.I.S. Wireless Sensor Monitoring System





# EXELON LASALLE

- LASALLE ELIMINATED TAKING WET BULB READINGS ON EACH OF THE 5 ELEVATIONS IN THEIR DRYWELL THIS PAST OUTAGE FOR HEATS STRESS STAY TIME CALC INFO HUMIDITY AND TEMPERATURE SAVED 800 MREM
- CURRENTLY LASALLE HAS SOME HUMIDITY SENSORS DEPLOYED IN THE HEATER BAY TO ASSIST IN STEAM LEAK DETECTION



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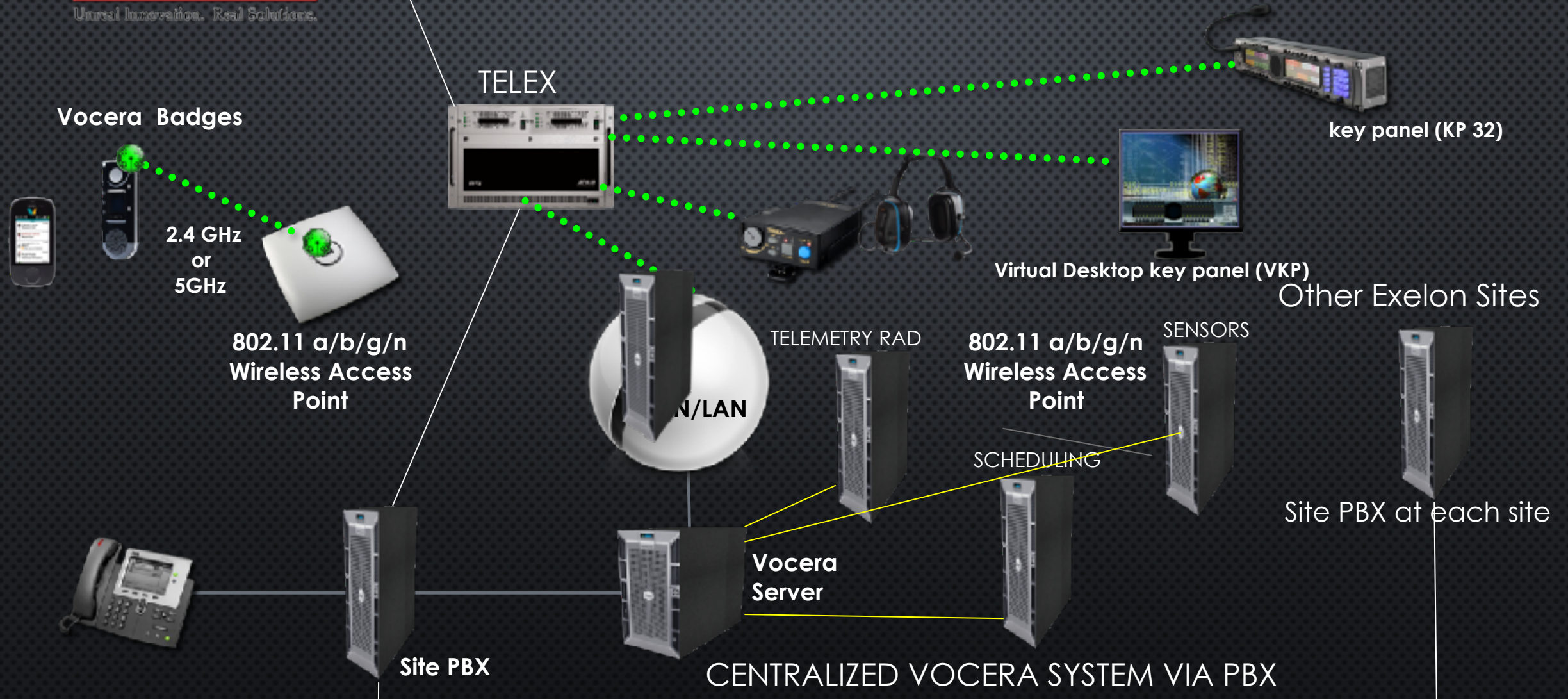


ENTERPRISE  
SITE  
IP COMMUNICATION  
SYSTEM



Plant paging system

# FULLY INTEGRATED SITE COMMUNICATION SYSTEM INFRASTRUCTURE





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## Features

### Calling Features:

- Call by name, function, or group
- Broadcast calls
- Locate individuals
- Conference Calls
- Call Block
- Call Forward and transfer
- Call Waiting

### Telephony Features:

- Outbound calling to external numbers
- Call internal PBX extensions
- Receive telephone calls on the badge
- Outbound paging

### Remind Feature:

- Record a reminder and set intervals when you will hear that reminder played back on your badge or in your headset

### Messaging Features:

- Voice mail
- Voice email from badge
- Text messaging
- Record messages for yourself

### Update Features:

- Dose and or Dose Rate
- Schedule status for projects



# B3000n Communication Badge

## Features:

- Dual band radio: 2.4 GHz and the 5GHz Wi-Fi spectrum.
- Illuminated Halo around the call button; visual indication of the Badge call status.
- A large front facing speaker provides hands-free audio in order to clearly hear the conversation without having to hold the Vocera Badge in the hand.
- Four microphone design and integrated Acoustic Noise Reduction (ANR) reduce background conversations
- Multi-user operation (shared device) permits a Vocera Badge to be passed to another user at the end of a shift.





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# Headset Options

Under the hardhat high  
noise cancelling headset



Bone Conduction



Lightweight



Bluetooth Noise Cancelling



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## VOCERA BENEFITS

MULTIPLE REFUELING OUTAGE SUCCESSES

- AVERAGE DOSE SAVINGS PER OUTAGE 5-7 REM
- 2013 TIP AWARD LASALLE STATION EST ROI \$3 MIL ON TIME SAVED
- DEPLOYED AT ALL FP&L SITES
- ENTERPRISE LEVEL SYSTEM NO LIMIT ON # OF DEVICES
- DATABASE FRIENDLY TAKES A VIEW AND SENDS INFO TO BADGE
- CAN RUN AS CENTRALIZED SYSTEM OR AT EACH SITE STAND ALONE
- RECENTLY DEPLOYED AT PERRY PLANT FOR MARCH OUTAGE
- SEABROOK STATION PLANNING TO ELIMINATE DESK PHONES
- USING EXISTING INFRASTRUCTURE PLANNED FOR ELECTRONIC WORK PACKAGE
- PILOT CURRENTLY RUNNING AT PSEG 40 BADGES WITH DEMO SOFTWARE FOR CURRENT OUTAGE



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What's New with Vocera:

Auto Update & V 5000 Smart Badge



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## What's New with Vocera: Auto Update



Workers can stay focused on the job and receive Dose and Rate Notifications right to their Vocera badge



Anytime job status has changed in your scheduling software you will receive notification on your Vocera Badge



# ADDITIONAL UPDATE CAPABILITY

- VOCERA CAN ALSO RECEIVE UPDATES FROM:
- THE IIS SENSOR SYSTEM
- THE IIS REMOTE FIRE WATCH SYSTEM
- SINCE ALL THESE SYSTEMS ARE UTILIZING DATABASES THE INFORMATION IS EASILY SHARED.

# V 5000 SMART BADGE

TEXTING OR CALLING  
WEIGHS 89 G



ACTIVE DEVICE AND MESSAGE LIST  
EXTENDED TALK TIME 4 HOURS STBY40

