



Own tomorrow™

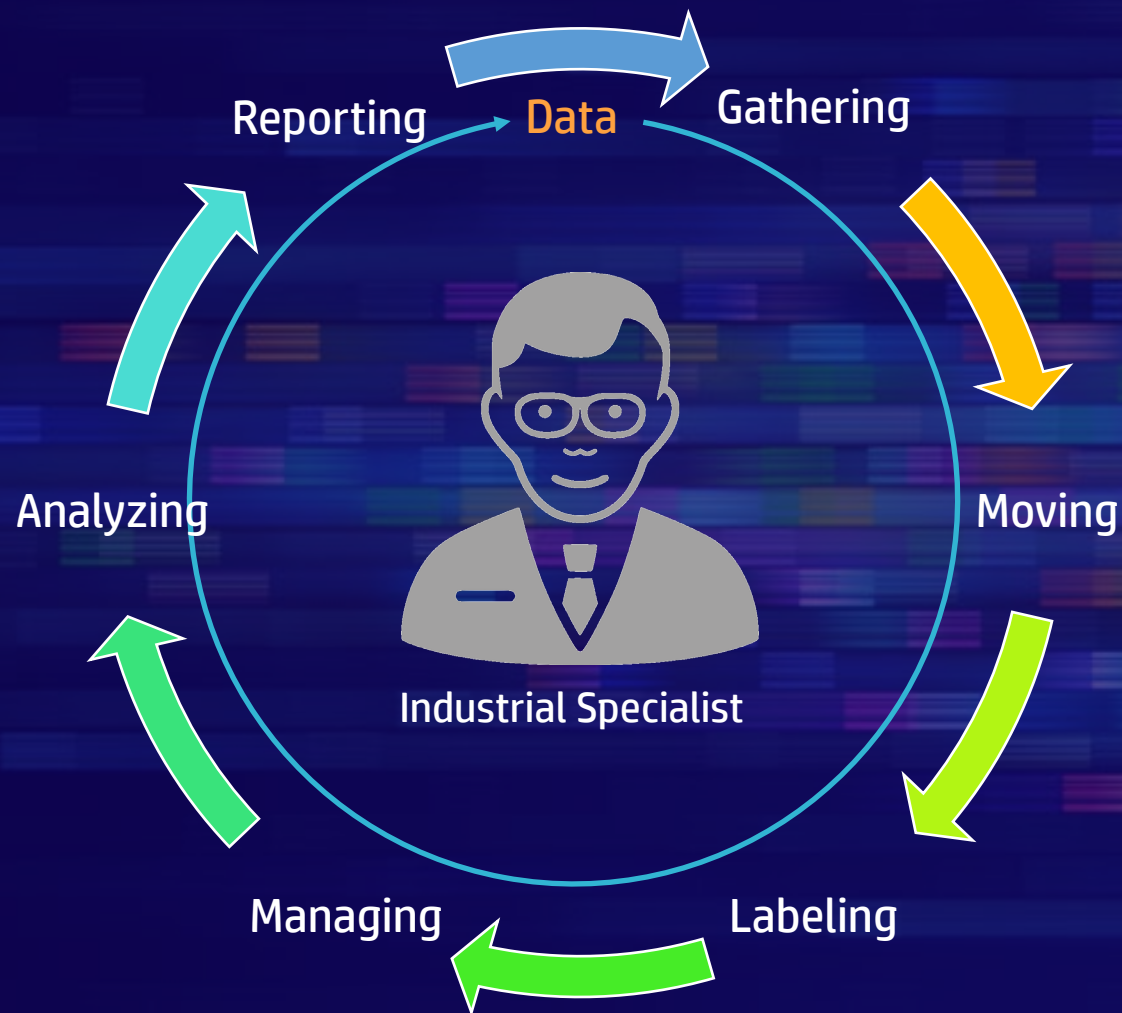
PREDICTIVE
SENSING
AUTOMATION
POWERED BY AI

2020 EDISON AWARDS GOLD WINNER
Energy & Sustainability

PREDICTIVE SENSING AUTOMATION

Predicting industrial failures is critical for improving outcomes

Current solutions do not scale because they need a human somewhere in the loop



UNLIMITED SCALING UNLIMITED APPLICATIONS

We are the first fully autonomous prediction solution
that delivers unlimited scalability with
high specificity, accuracy, and precision

any industry, any application, any condition



Power



Oil & Gas



Renewables



Water



Food



Manufacturing



Process



Mining



Healthcare

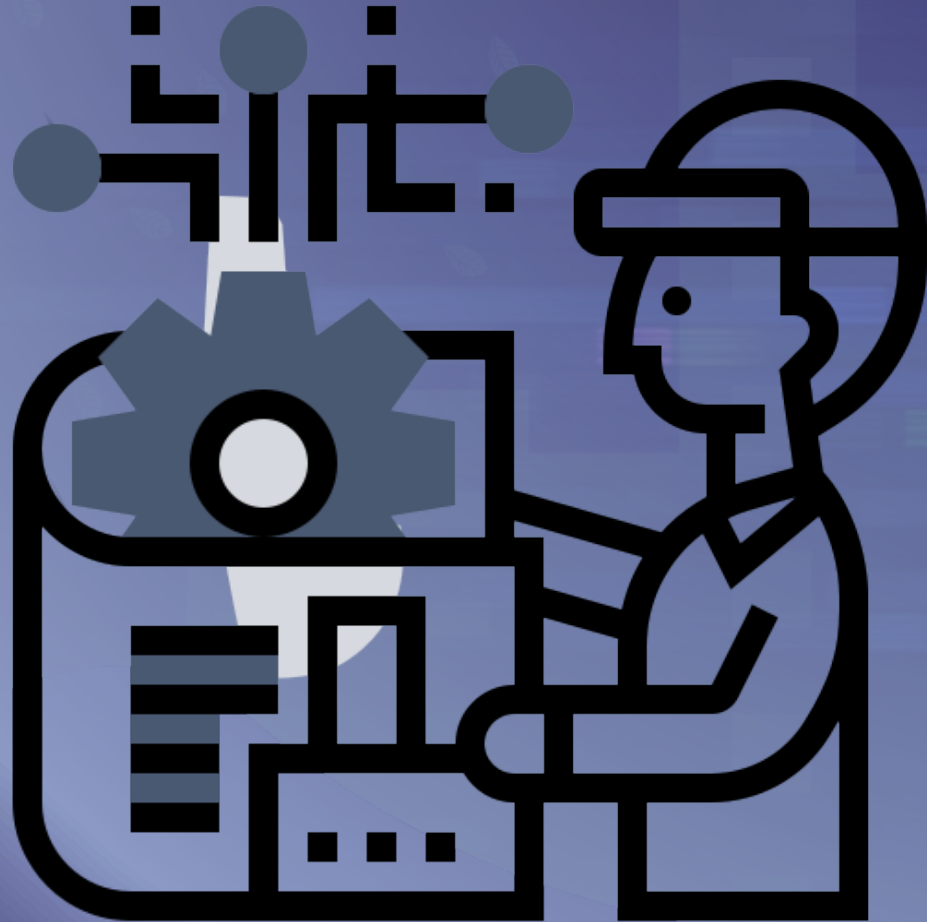


Datacenter

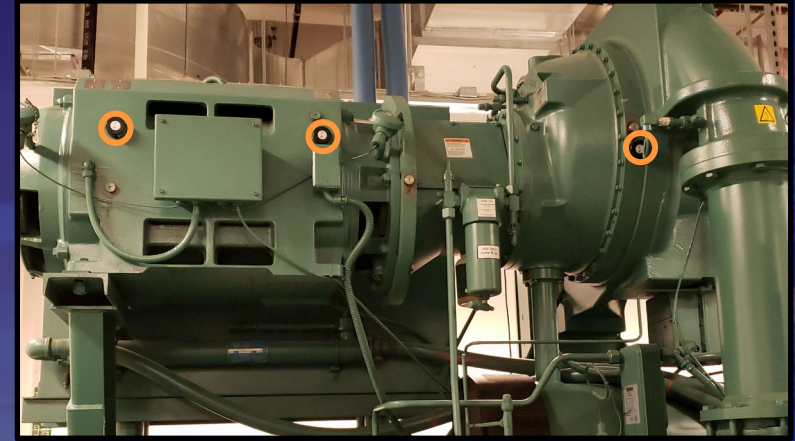


Education

It is like having a specialist diagnosing your machine 3 to 6 time every hour



Compressor



Transformer



VIE CUSTOMERS – REMARKABLE RESULTS

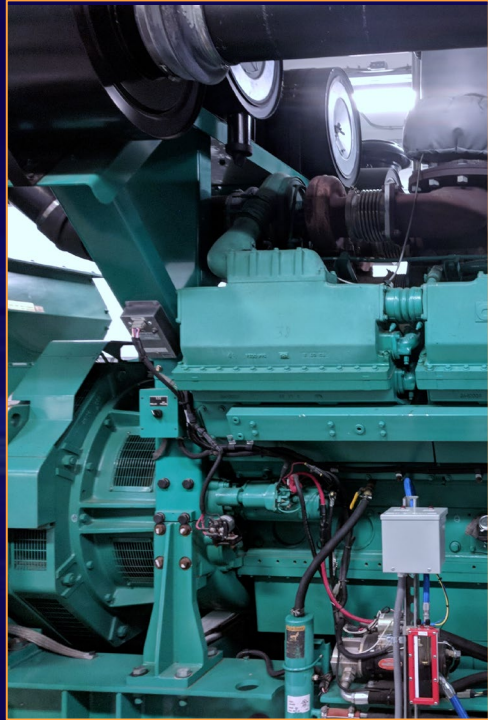
Morgan Stanley
12.5x Rol in 6 mos.

Greenville Water
8x Rol in 12 mos.

Credit Suisse
10x Rol in 12 mos.

Tyson Foods
10x Rol in 3 mos.

CyrusOne
9x Rol in 6 mos.



Avoided replacing 2 cooling tower cells at global HQ by finding VFD resonance

Avoided digging up an underground pump by finding motor imbalance

Saved 1.2MW generator repairs by predicting shaft misalignment

Avoided loss of revenue by predicting 800 ton compressor bearing issue

Avoided data center load drop by identifying failures in 4 ABB 2500KVA transformers

5 – 10x ROI



Up to 50% lower maintenance costs



Up to 30% increase in uptime and throughput



Lower capex by 20% increase in asset life



Improved worker safety



Increased energy savings



Improved spare parts management



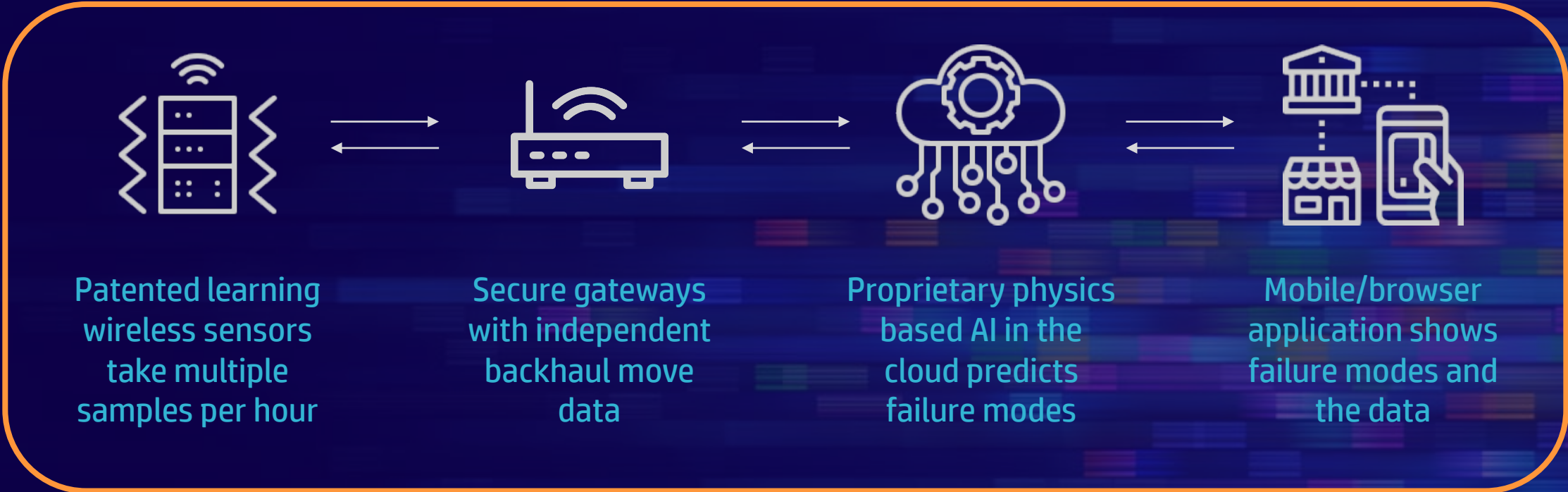
Lower opex by fewer major repairs



Evidence based warranty claims and repair validation

TECHNOLOGY & SOLUTION

U.S. Patents 11,348,013 and 11,598,896



Works on all **rotating machinery** and **industrial transformers** regardless of age, size, application, manufacturer, or condition

MyVIE SPIN

The world's smallest
sensor in its class

Fits in most tight spots

3-6 samples per hour



3-axis Vibration and
Temperature Sensor

10+ years battery life

Identifies failure modes in

- Industrial **transformers**
- Any **rotating machinery**

Motors

Pumps

Compressors

Generators

Turbines

Fans

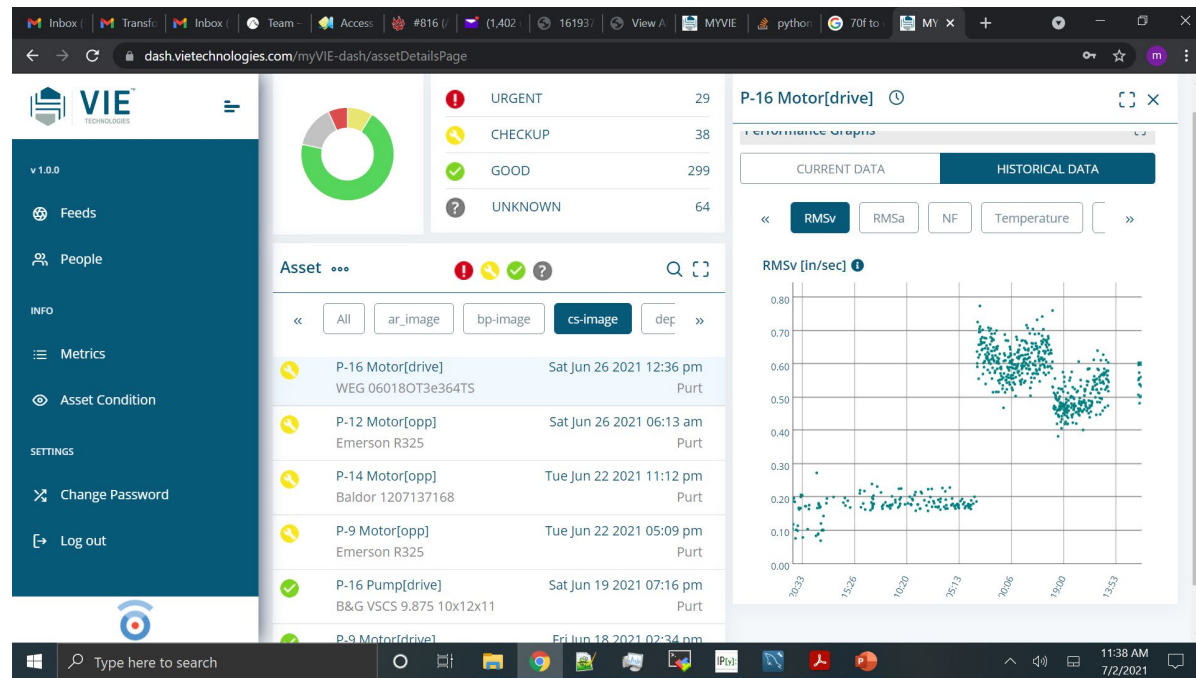
Belts

Gears

Pulleys

And much more...

MyVIE APP & DASHBOARD



Quantitative data

- Identifies specific failure modes
- Shows data, graphs, and charts
- Validates maintenance & repair

with

Qualitative Context

- Comment on assets or activities
- Store detailed asset information
- Document maintenance feedback

Others

Wired + human data interpretation

Wireless + human data interpretation

Wireless + threshold based anomaly detection

Wireless + statistical anomaly detection

Wireless + supervised learning with human labeled data

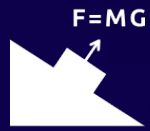
Wireless + unsupervised learning without context

Wireless + physics based unsupervised learning with intelligent edge analytics



Obsolete





Physics Based

- Creates component level software replica of the equipment
- Generates vibration models for each equipment type
- Maps operational dependencies in each sub-system



Unsupervised Learning

- Precise and accurate human independent analysis
- Predicts mechanical, electrical, or structural problems
- Learns new equipment type without human labeled data



Edge Intelligence

- Data and analytics stored for the duration of contract
- Smallest sensor in the industry fits in tight spaces
- 10 year battery life with 5 reported samples per hour

Scalable:
Easy unlimited scaling
across the full enterprise



Intelligent:
Enhances humans
with AL & ML



Versatile:
All rotating machines
+ transformers



Flexible:
Integrates with
other software
via APIs



Secure:
End-to-end
encrypted



Wireless cloud
connectivity

Precise:
Identifies 40+
specific failure
modes



Rugged:
IP68
-40°C to 80°C



Resilient:
Tolerates up to
80% data loss



FEATURES

ENGAGEMENT & COMMERCIAL MODEL

EASY to buy, EASY to scale



Simple Pricing

Buy or lease sensors and gateways

Then pay for annual service per sensor that includes:

- Data backhaul
- Cloud storage
- AI analytics
- Application licenses
- App and cloud upgrades

THE MATH IS SIMPLE

OPTION 1

Maintain Status Quo

CHALLENGE

Typical losses due to unplanned downtime attributed to machine failure is more than 3.5% of scheduled runtime

Some industries e.g., food, lose as high as 12%

OPTION 2

Hire one maintenance per shift per plant to find issues

CHALLENGE

Industrial maintenance of workers shortage =
65,000 out of 501,500

Fully loaded spend on 3 (1 per shift) maintenance headcount = \$300,000

These employees will miss 80%+ of the issues till it is too late

OPTION 3

Install the VIE solution

BENEFITS

24/7 machine failure prediction for all your equipment for less than the hired workers

VIE will find and report more 90%+ of the issues months in advance



Own tomorrow™

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