

L'Internet of Things (IoT) e la Realtà Aumentata (AR) come evoluzione del telecontrollo: sfide e opportunità

Rockwell Automation

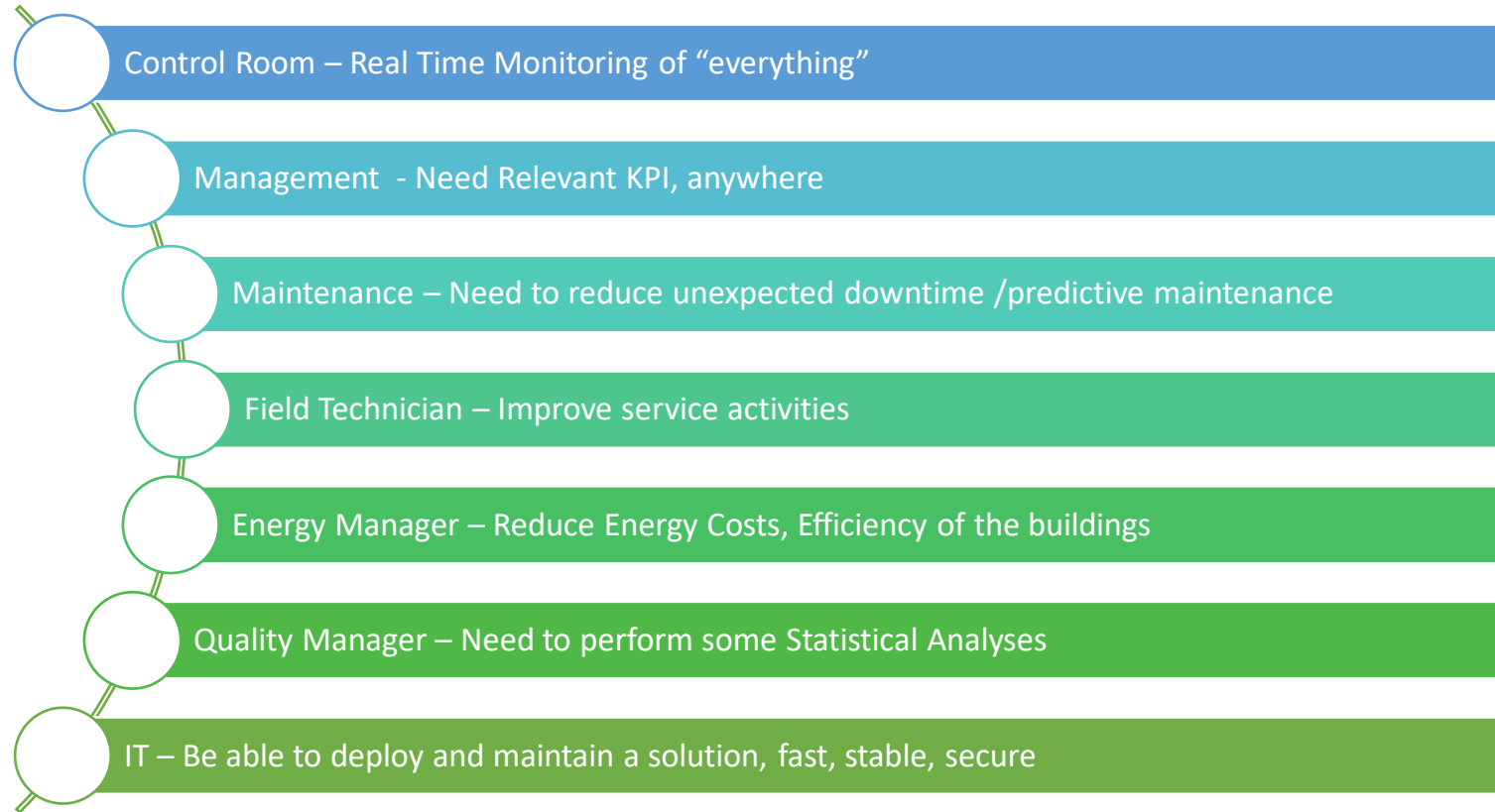
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Industrial Internet of Things (IIoT)

Why IIOT: Business Requirements



Why IIOT: Complex Existing Landscape

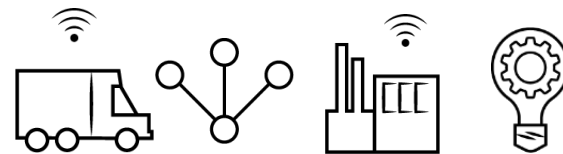
IT Systems, External data feeds



ERP, CMMS, LIMS, different DBs

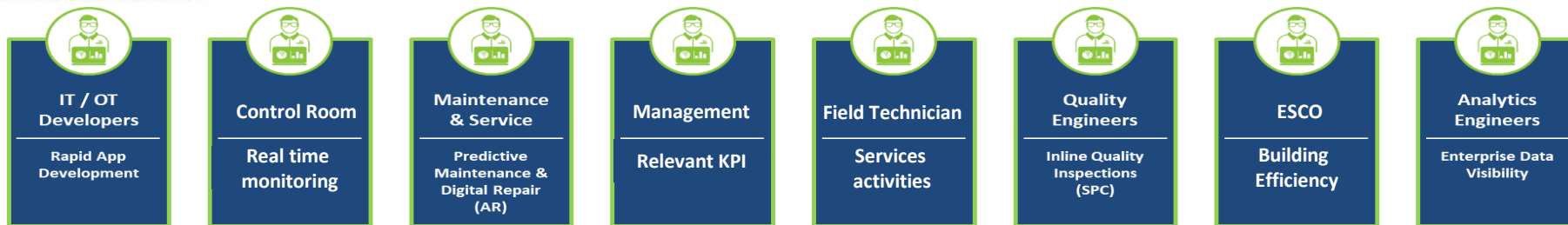


OT Systems, Assets

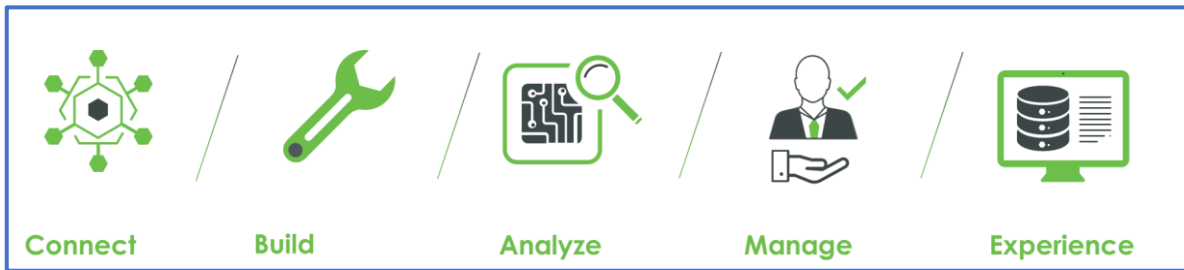


PLC, SCADA, DCS, Historian
New Sensors,
Fleet management,...

IIOT: Empowering People with **ALL** the Valuable Information



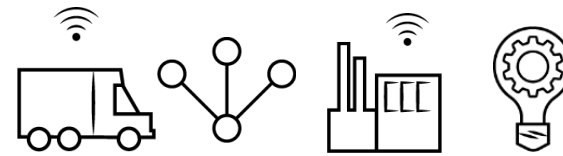
Industrial IoT Platform




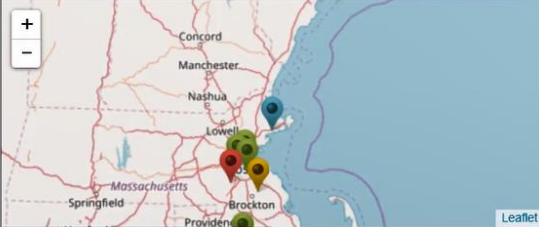
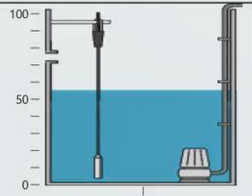



Empowering people with a variety of information from existing landscape

IT Systems, External data feeds

OT Systems, Assets



Global view of the pumping stations

Station Overview			Alerts & Efficiency	
 <p>MWRA Braintree-Weymouth P... 6 Bridge Street, Weymouth, MA</p>	<p>Station Status: ! (Warning)</p> <p>Pump flow issue. Backup pump</p>	<p>Alert Details: Intermittent power failure. Pump service required.</p>	<p>Efficiency Score: C</p>	<div style="text-align: center;"> <p>Location</p>  </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Operating Status</p> <ul style="list-style-type: none"> Online: 5 Offline: 0 Part Failures: 0 </div> <div style="width: 45%;"> <p>% of Operating Capacity</p>  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <p>Equipment Breakdown</p>  <ul style="list-style-type: none"> ■ Pumps ■ Gateways ■ SCADA Instances ■ Remote Terminals </div> <div style="width: 45%;"> <p>Service Tickets Past Year</p>  <ul style="list-style-type: none"> ■ Mechanical ■ Electrical ■ Faulty Part ■ Maintenance </div> </div>
 <p>Pumping Station 61 Jeffrey's Neck Road, Ipswich, MA</p>	<p>Station Status: Globe</p> <p>Normal</p>	<p>No Alerts Detected.</p>	<p>Efficiency Score: A</p>	
 <p>Saint Mary Street Pump Station 137 Central Avenue, Needham, MA</p>	<p>Station Status: ! (Warning)</p> <p>Pump failure! No backup.</p>	<p>Alert Details: Pump mechanical failure.</p>	<p>Efficiency Score: F</p>	
 <p>Gillis Pump Station 2 Woodland Road, Stoneham, MA</p>	<p>Station Status: Globe</p> <p>Normal</p>	<p>No Alerts Detected.</p>	<p>Efficiency Score: A</p>	
 <p>Brattle Court Pumping Station 18 Brattle Court, Arlington, MA</p>	<p>Station Status: Globe</p> <p>Normal</p>	<p>No Alerts Detected.</p>	<p>Efficiency Score: B</p>	
 <p>MWRA Charlestown Pumping S... 172 Alford Street, Charlestown, MA</p>	<p>Station Status: Globe</p> <p>Normal</p>	<p>No Alerts Detected.</p>	<p>Efficiency Score: A</p>	
 <p>Dighton Town Offices 979 Somerset Avenue, Dighton, MA</p>	<p>Station Status: Globe</p> <p>Normal</p>	<p>No Alerts Detected.</p>	<p>Efficiency Score: A</p>	

Global view of the pumping stations

Drill down to identify pumps with anomalies

↶

FILTERS <<

1 - 5 of 5 Assets

Monitor Status

- Unplanned Downtime (2)
- Warning (1)
- Unavailable
- Planned Downtime
- Running (12)
- Not Configured

More

- Location

Needham, MA

Saint Mary Street Pump Station - CNTRF104M824322

Location:	Needham, MA
Serial Number:	CNTRF104M824322
Description:	Pump for station 8675309
Model Number:	CNTRF104M
Customer:	MWRA
Group:	

✖ Unplanned Downtime: 7 hrs 47 mins

🔔 Alerts: No active
Weekly total: 0

Saint Mary Street Pump Station - CPXN89285554

Location:	Needham, MA
Serial Number:	CPXN89285554
Description:	Pump for station 8675309
Model Number:	CPXN
Customer:	MWRA
Group:	

✖ Unplanned Downtime: 10 mins

🔔 Alerts: No active
Weekly total: 13

Saint Mary Street Pump Station - SBMRSBW1150X890083

Location:	Needham, MA
Serial Number:	C668KH806
Description:	Pump for station 8675309

✔ Running: 26 days 10 hrs

Global view of the pumping stations

Drill down to a specific pump

↶

Performance

Monitored Properties

Additional Properties

Remote Access


File Transfer

Remote Commands

Service History

Logs

Saint Mary Street Pump Station - CPXN89285554



Location:	Needham, MA
Serial Number:	CPXN89285554
Description:	Pump for station 8675309
Model Number:	CPXN
Customer:	MWRA
Group:	

✖ **Unplanned Downtime:** 10 mins

🔔 **Alerts:** No active

Weekly total: 13

Performance

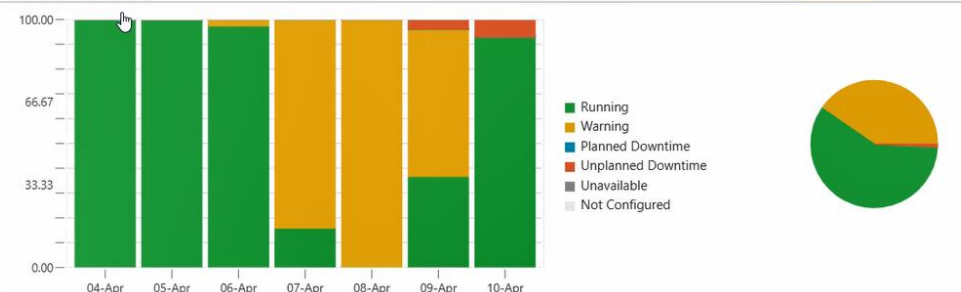
78% ↓

Availability

Updated 2018-04-10 02:16:00 (every 10 minutes)

Status This Week

%
Hours



Date	Running (%)	Warning (%)	Planned Downtime (%)	Unplanned Downtime (%)	Unavailable (%)	Not Configured (%)
04-Apr	100	0	0	0	0	0
05-Apr	100	0	0	0	0	0
06-Apr	95	5	0	0	0	0
07-Apr	15	85	0	0	0	0
08-Apr	0	100	0	0	0	0
09-Apr	35	65	0	0	0	0
10-Apr	90	10	0	0	0	0

Drill down to a specific pump – Service History

←

Performance

Monitored Properties

Additional Properties

Remote Access


File Transfer

Remote Commands

Service History

Logs

Saint Mary Street Pump Station - CPXN89285554



Location:	Needham, MA
Serial Number:	CPXN89285554
Description:	Pump for station 8675309
Model Number:	CPXN
Customer:	MWRA
Group:	

✖ **Unplanned Downtime:** 11 mins

🔔 **Alerts:** No active

Weekly total: 13

Service History

Service Date

Service Type

Service Operator

Service Location

Status

Update

📅 2018-Apr-09 22:22:52

Service Date	Service Type	Service Operator	Service Location	Status
2018-03-14 12:09:03	Maintenance	Tech 0810	Onsite	Complete
2018-03-14 16:41:17	Unexpected Downtime	Tech 0710	Remote	Complete
2018-03-14 16:45:23	Unexpected Downtime	Tech 0710	Onsite	Complete
2018-04-09 14:37:01	Unexpected Behavior	Tech 0910	Remote	In work
2018-04-09 22:18:19	Unexpected Behavior	TBD	TBD	In work

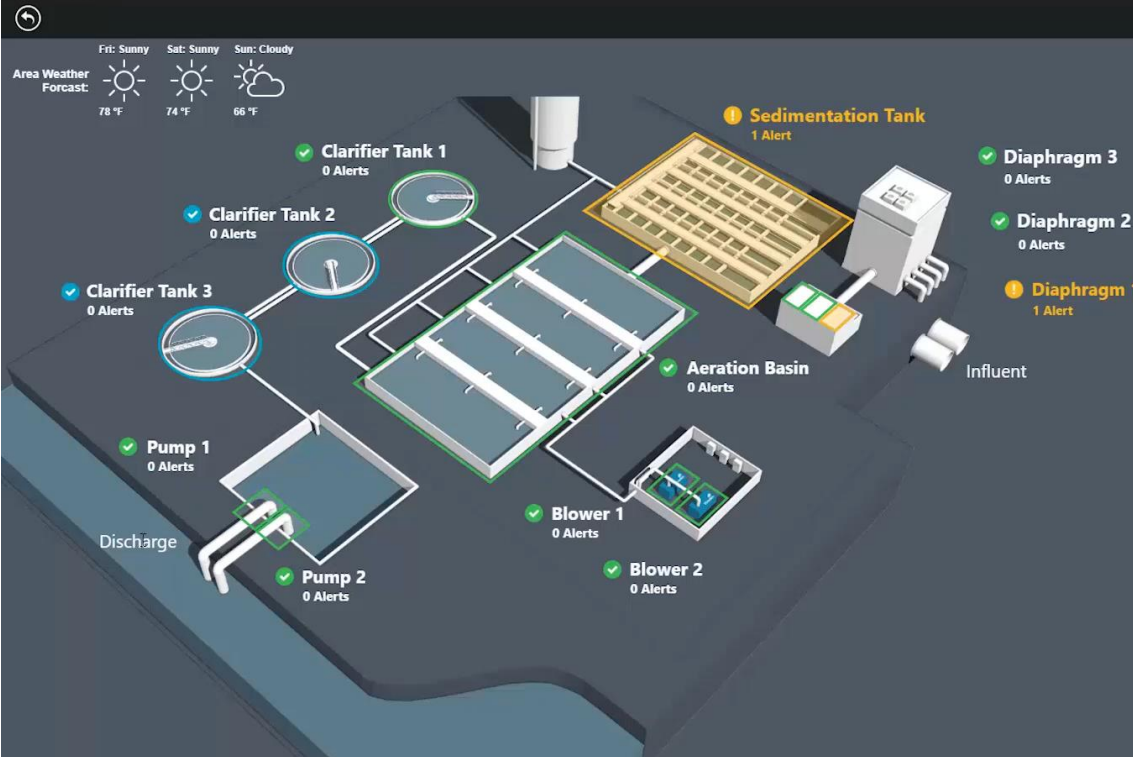
Waste Water Treatment Plant

Area Weather Forecast:

Fri: Sunny 78 °F

Sat: Sunny 74 °F

Sun: Cloudy 66 °F



Clarifier Tank 1 0 Alerts

Clarifier Tank 2 0 Alerts

Clarifier Tank 3 0 Alerts

Pump 1 0 Alerts

Pump 2 0 Alerts

Blower 1 0 Alerts

Blower 2 0 Alerts

Aeration Basin 0 Alerts

Sedimentation Tank 1 Alert

Diaphragm 3 0 Alerts

Diaphragm 2 0 Alerts

Diaphragm 1 1 Alert


Influent

Discharge


powered by

<input checked="" type="checkbox"/>	Planned Downtime:	2 hrs 18 mins
<input checked="" type="checkbox"/>	Alerts:	No active
	Weekly total:	0

AerationBasin1

	Model Number:	AB812y918698162
	Serial Number:	2u1o201028018021
	Description:	Aeration Basin 1
	Location:	Main Aeration Basin
<input checked="" type="checkbox"/>	Running:	51 days 6 hrs
<input checked="" type="checkbox"/>	Alerts:	No active
	Weekly total:	0

Sedimentation Tank

	Model Number:	ST71279271972
	Serial Number:	312397129371
	Description:	Main Sedimentation Tank
	Location:	Main Sedimentation Tank
<input checked="" type="checkbox"/>	Warning:	46 mins 23 secs
<input checked="" type="checkbox"/>	Alerts:	1 active
	Weekly total:	2

Augmented Reality (AR)

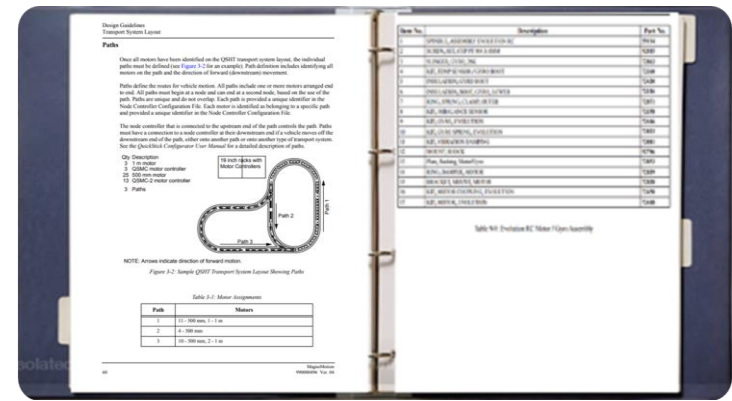
What is Augmented Reality (AR)?

Connecting digital information with the physical environment

Traditional Methods



Mixed Reality



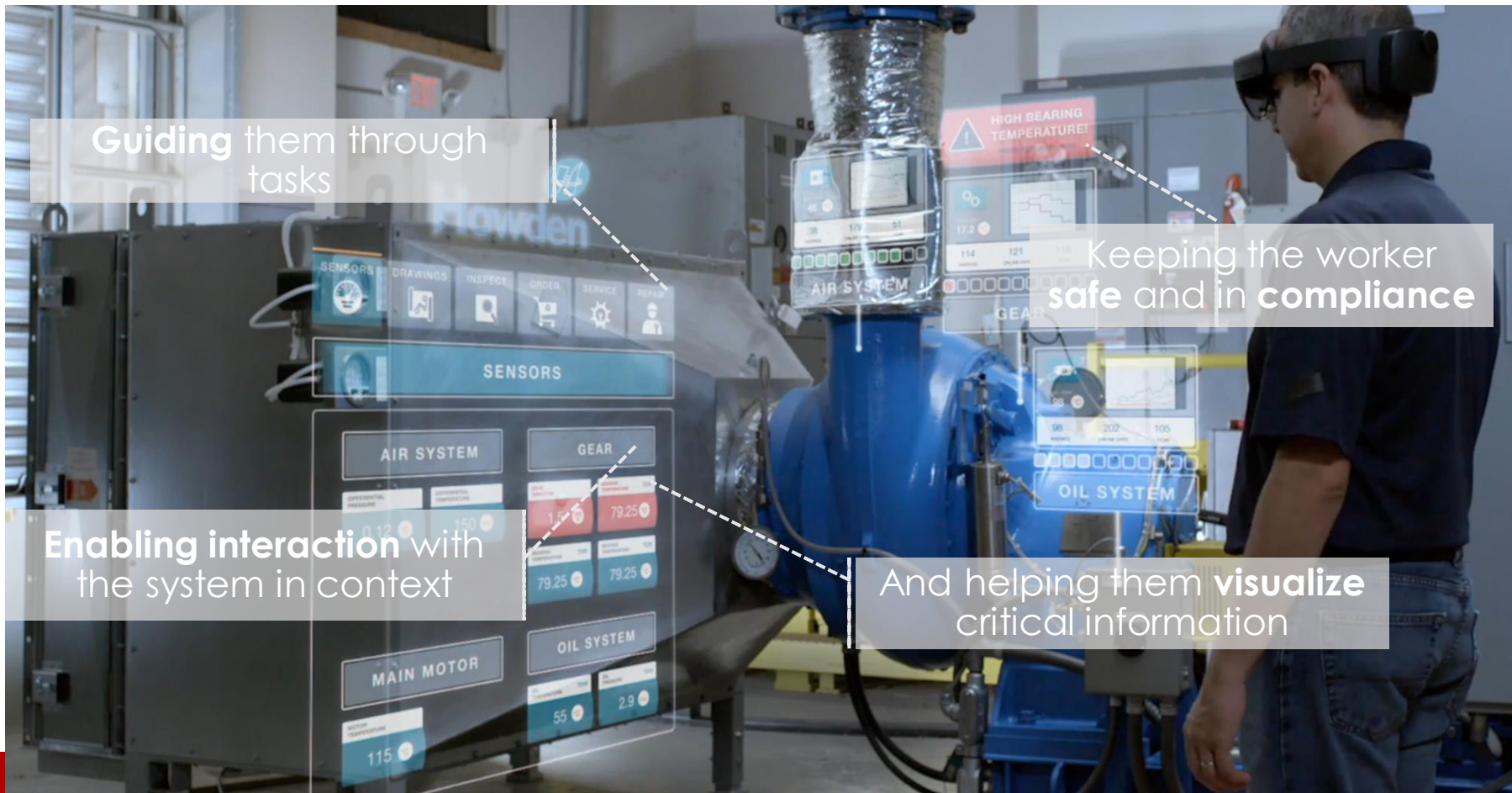
Connecting Frontline Workers With Critical Information

Guiding them through tasks

Keeping the worker safe and in compliance

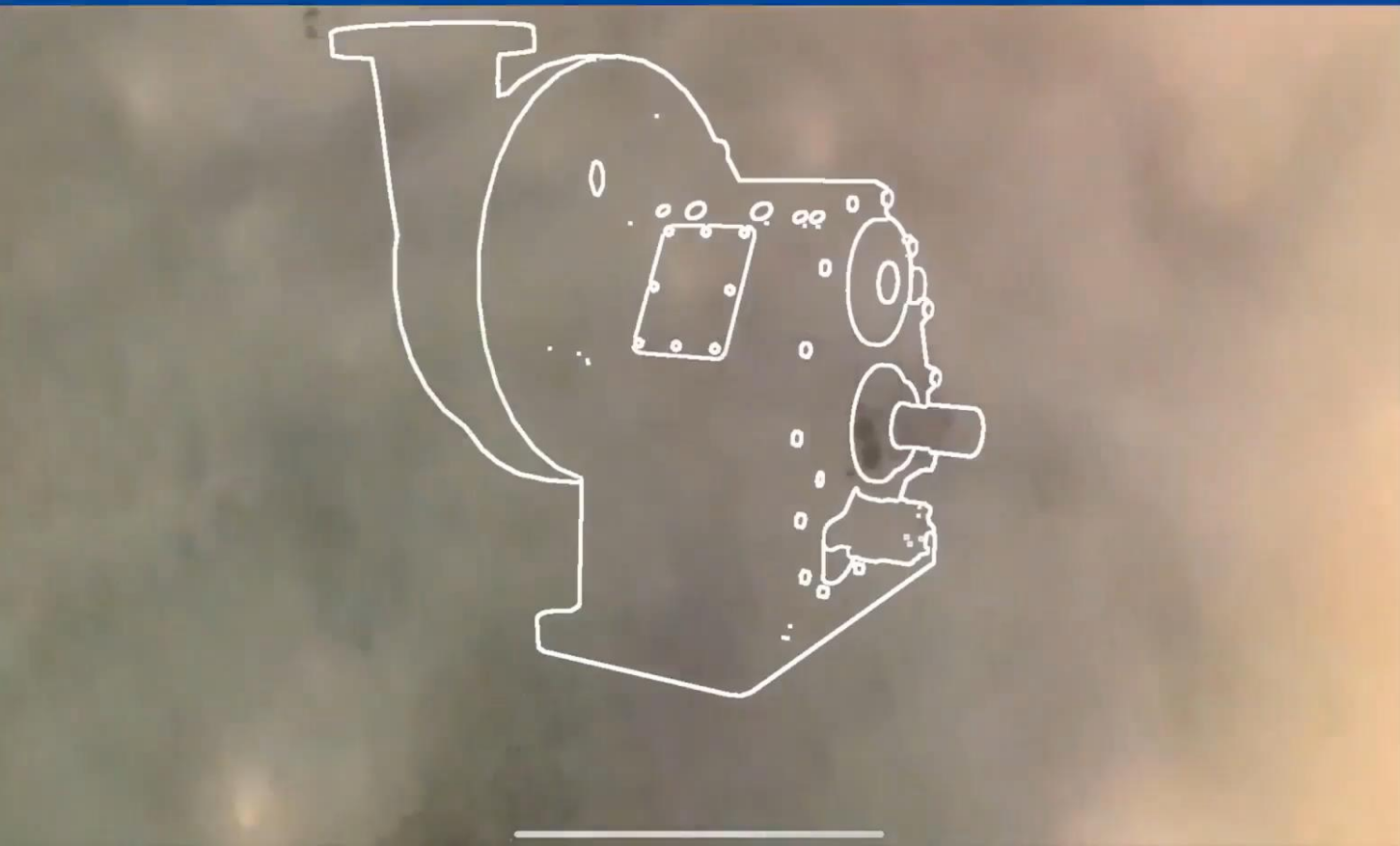
Enabling interaction with the system in context

And helping them visualize critical information





Please track the Howden Blower



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