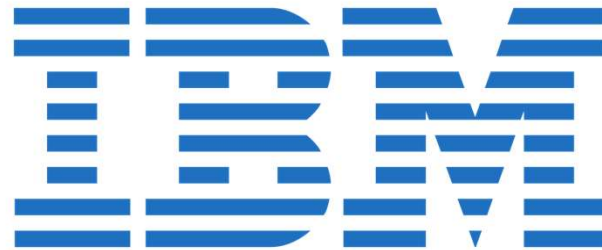
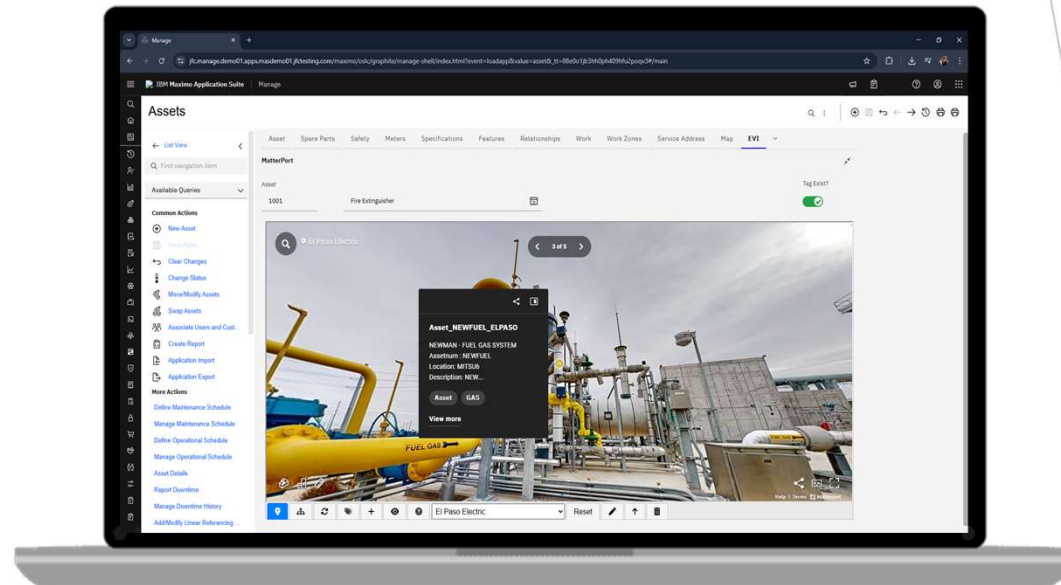


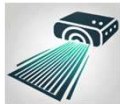
Maximo & Digital Twin Innovations for Visualization



Definitions



Digital Twin - visual (virtual) representation of a physical space or asset



Scan - camera capture of physical space to render into a model



Model - final version of a scanned virtual space



Space - the physical location of where the scan takes place



Digital Transformation

A behavioral change management process of going from an analog base to a digital base of operations



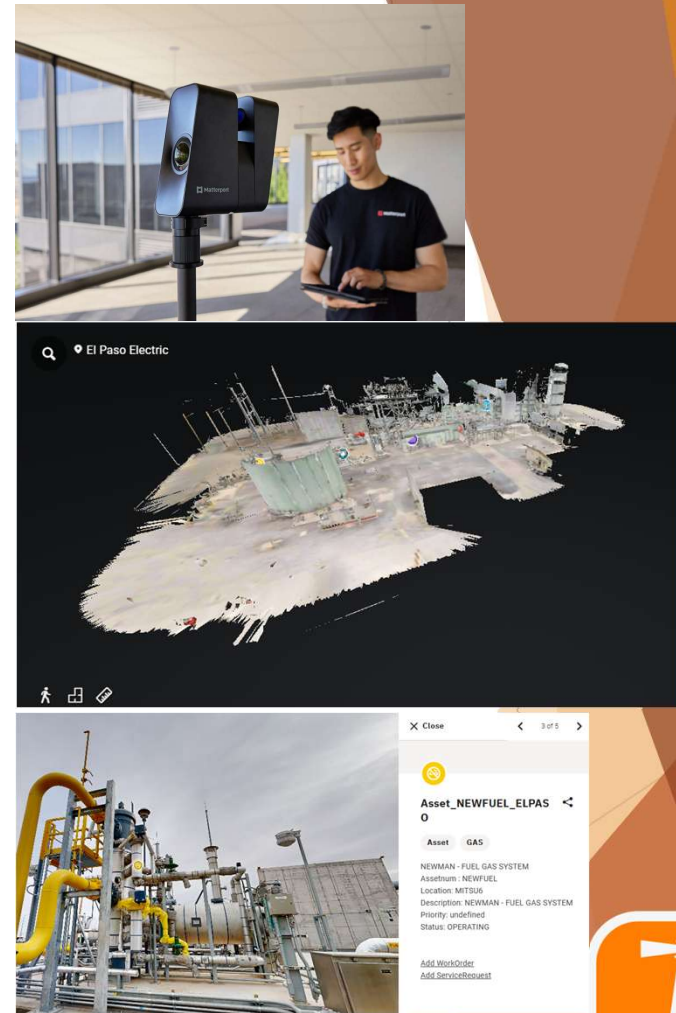
Connecting The Unconnected



Matterport - 3D Scanning

Scan Process

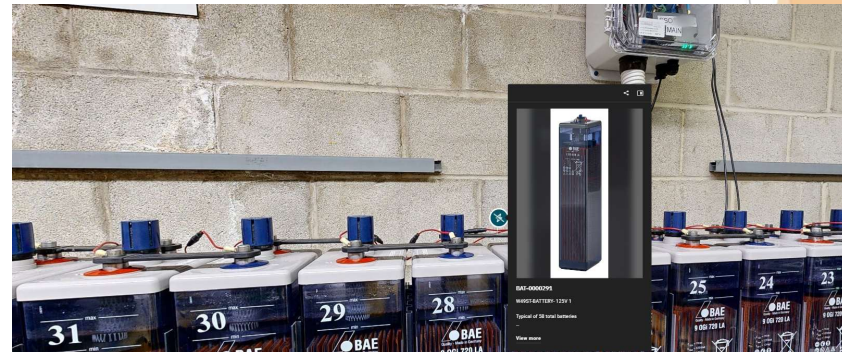
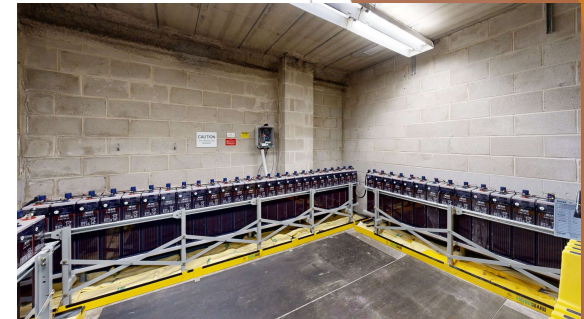
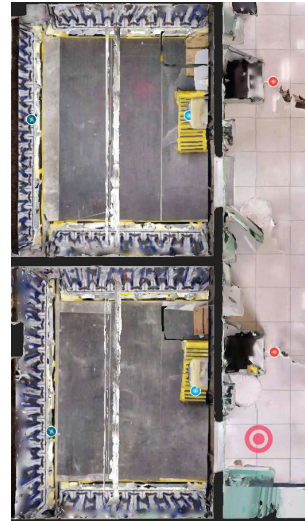
- Develop an SOP for scanning and tagging of spaces
- When scanning, develop a grid pattern of scan points for proper path and alignment
- Position the camera at the prescribed locations
- Use the scan application to perform the scan
- Continue to the next scan space and repeat until completed
- Upload the scan
- Download the integration package for MAXIMO
- Identify the assets for tagging
- Digital tag the equipment in the iFrame viewer
- Adjust any tag information within the Matterport viewer



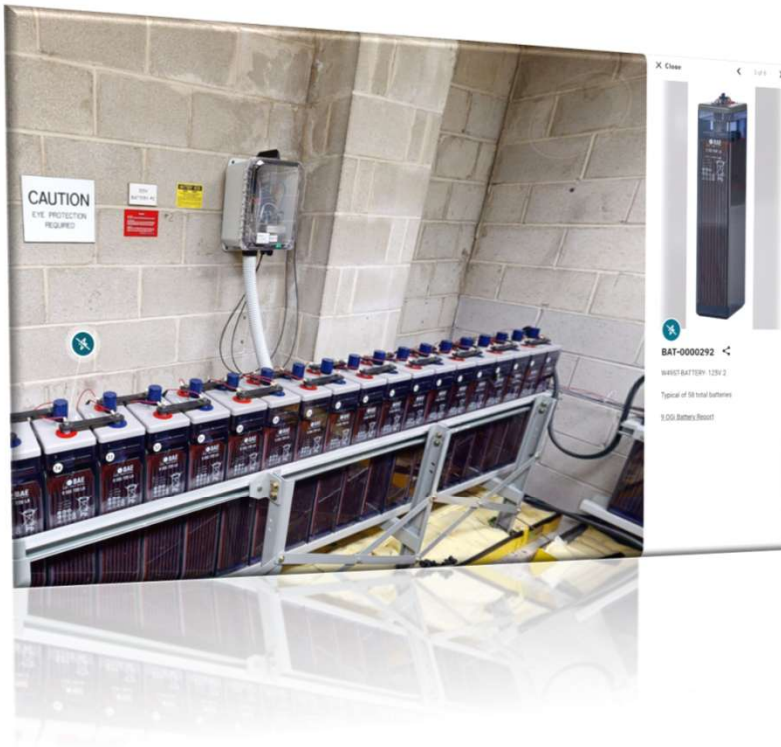
Matterport - 3D Scanning

POC Problem Statement Challenges

- Maximo Integration for Digital Twins
- Identify hazards associated to jobs in pre-onsite job briefing discussions.
- Initial scoping of PM/CM jobs followed by Field Presence
- Risk assessment (Safety/Equipment Reliability/Environment)
- Heightened Situational Awareness
- Drawing Management
- Visual Aid for Engineering Reviews



Digital Twins and Their Importance



Virtual space review can aid in:

- Work Planning
- Safety Task Analysis
- Contractor Reviews
- Training

See assets in real world scenarios

View asset information directly within the scan



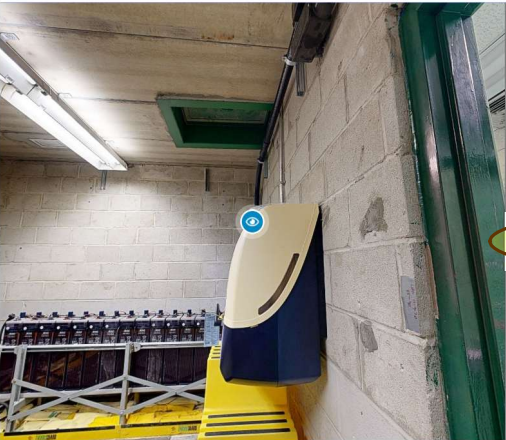
Digital Twin Tools

All Spaces

CE49 BattRm

Export Share Edit

Space Details Add-ons Media Property Report **Now** Stats



EWH-0000335

W49 EMERGENCY EYEWASH 1 BATTERY ROOM 1
[Zoro - Aquarion Eyewash Station](#)

Attachments

[Aquarion_Eyewash_Cut_She... 258.7KB](#)

Aquarion™ Portable Eye Wash Station

PLS455 Portable Holds 7.4 gal./Flow Rate 0.4 gal./Minute Minimum

Self-contained eye wash station offers multiple inspection points and factory-sealed saline solution cartridges for easy maintenance.

- Multiple points of inspection include a usage seal on the tray, side windows for quick visual inspections and a removable lid for a thorough inspection of cartridges
- Factory-sealed cartridges are ideal when a direct plumbing line is inaccessible or inconvenient
- Sleek design avoids crevices where dust or dirt can accumulate to prevent the growth of mold, fungus and bacteria
- High-visibility eye wash is easy to find in emergency situations
- One-step activation; just pull down the tray and water flow begins in less than a second
- Self-contained fluid cartridges (PLS456, sold separately) provide a 0.4 gallon-per-minute eye wash for up to 15 minutes; replacing used cartridges is quick and easy

Specifications

Style	Portable
Dimensions	17.5" W x 23.5" L x 30.5" H
Brand	Encon
Capacity	7.4 gal.
Dispensing Method	Gravity-fed
Flow Rate	0.4 gal./Minute Minimum
Color	Black/Yellow
Fluid Storage Method	Cartridge
Sold as	1 each
Weight	30 lbs.
# per Pallet	10
Composition	Abs Plastic & Polycarbonate
UNSPSC	46181810
Pigalog® Page Number	Page 202



Digital Twins and Maximo

The image displays a screenshot of the Matterport and Maximo integration interface. On the left, the Matterport interface shows a 3D model of an MEP room with a digital twin overlay. The overlay includes a close button, a list of assets (1008), and a description (Hot Water Heater 2). A yellow oval highlights the 'Add WorkOrder' and 'Add ServiceRequest' links. On the right, the Maximo interface shows a work order form for asset 1008. The form includes fields for Work Order, Location, Asset, Parent WO, Classification, Class Description, Launch Entry Name, Site, Class, Work Type, GL Account, Failure Class, Problem Code, Storeroom Material Status, Direct Issue Material Status, Work Package Material Status, Material Status Last Updated, Attachments, Status, WAPPR, Status Date, Inherit Status Changes?, Accepts Charges?, Is Task?, Under Flow Control?, Suspend Flow Control?, Flow Action, Flow Action Assist?, Appointment Required?, Job Details, Asset Details, and Priority. A yellow oval highlights the 'Add WorkOrder' and 'Add ServiceRequest' links in the Maximo interface.

Matterport Interface:

- Dashboard
- All Spaces
- Public and Unlisted Spaces
- Statistics
- Users
- Capture Services
- What's New
- Discover
- Settings

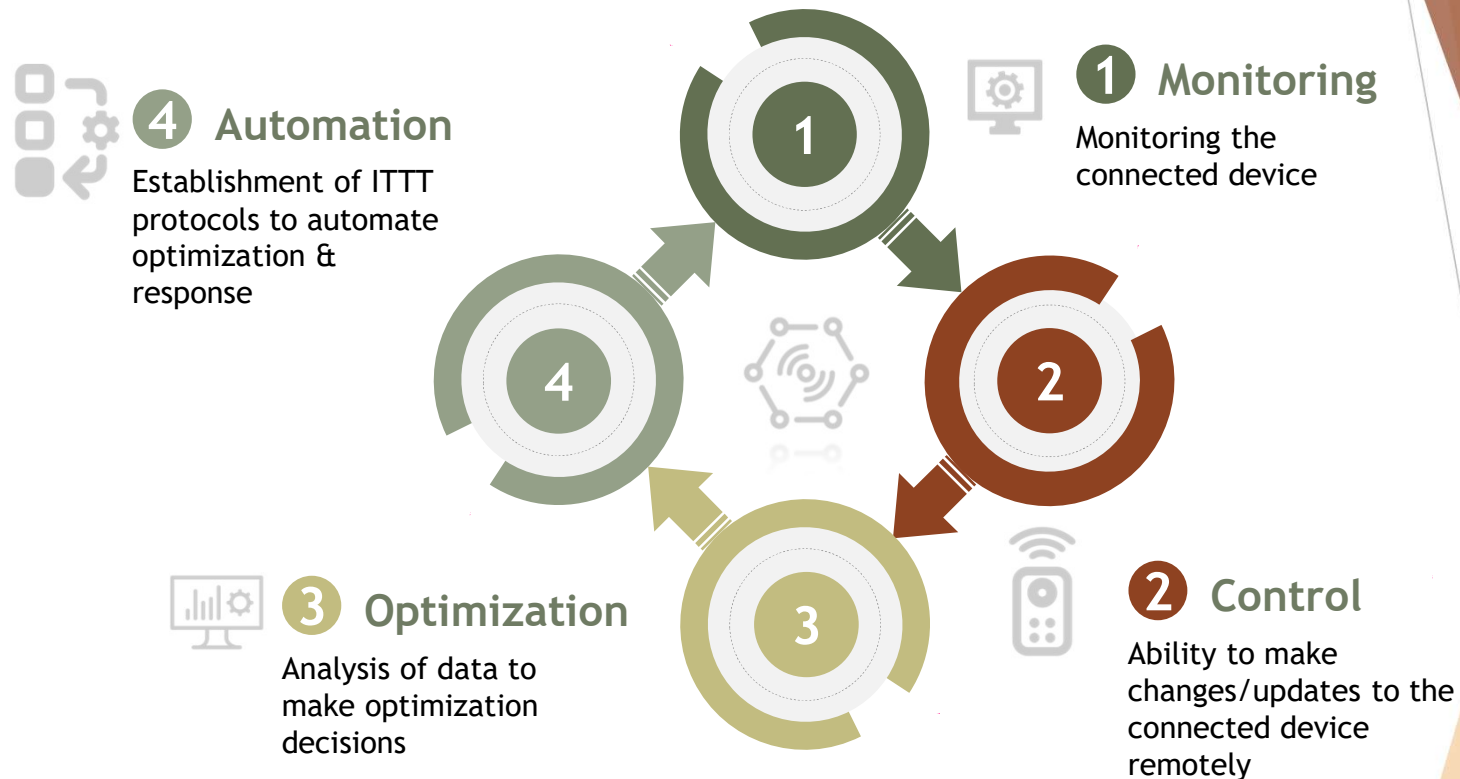
MEP Room Details:

- Asset: 1008
- Description: Hot Water Heater 2
- Priority: undetermined
- Location: BOILER
- Links: [Add WorkOrder](#), [Add ServiceRequest](#)
- Installation and Operation Manual

Maximo Interface:

- Work Order: 55008
- Location: BOILER
- Asset: 1008
- Parent WO:
- Classification:
- Class Description:
- Launch Entry Name:
- Site: BEDFORD
- Class: WORKORDEF
- Work Type:
- GL Account: 6210-300-???
- Failure Class:
- Problem Code:
- Storeroom Material Status:
- Direct Issue Material Status:
- Work Package Material Status:
- Material Status Last Updated:
- Attachments:
- Status: WAPPR
- Status Date: 3/8/24 10:02 AM
- Inherit Status Changes?
- Accepts Charges?
- Is Task?
- Under Flow Control?
- Suspend Flow Control?
- Flow Action:
- Flow Action Assist?
- Appointment Required?
- Job Details:
- Asset Details:
- Priority:

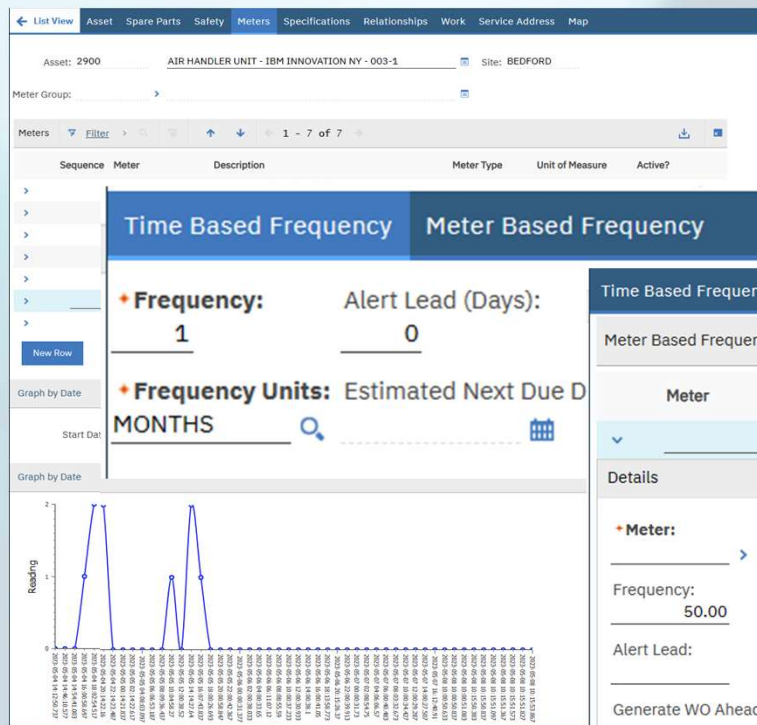




IoT Cycle - Alignment of Components



Applying IoT Readings in Meters for PM Generation



← List View PM Frequency Seasonal Dates Job Plan Sequence PM Hierarchy Forecast Forecast Cost

PM: 1023 AIR HANDLER UNIT - CONDITION MONITORED PM Site: BEDFORD Status: DRAFT

Forecast Exists? ☐

Work Order Generation Information >

Do Not Estimate? ☐

Frequency is Reached? ☐

Time Based Frequency Meter Based Frequency

Meter Based Frequency Filter > 1 - 1 of 1

Meter	Description	Frequency	Units to Go	Generate WO Ahead By	Alert Lead
>	>	50.00			

Details

Meter: >

Frequency: 50.00

Alert Lead: >

Generate WO Ahead By: >

Average Units/Day: >

Rollover: >

Digital Twins and Maximo

Assets

Find Asset

Find Navigation Item

Go To Applications

Available Queries

All Records

Assets with Services

Assets of Asset 2

ST Demo Assets

IT Stock in Stock Locations (non-Stored)

Maximo Demo

Common Actions

New Asset

Clear Asset

Clear Changes

Change Status

Store/Modify Assets

More Actions

Asset Details

Report Downtime

Manage Downtime History

Create

Open Outlines

Apply Item Assembly Structure

Associate Services

View

List of Measures and Connections

Enter Meter Readings

Manage Meter Reading History

Reconfigure Meters

Asset Availability

Issue Items from Storehouse

Zero Asset Costs

Change Item Number

Depreciation Schedule

Manage Asset Collections

MatterPort

Asset: BAT-0000291 W49ST-BATTERY-125V-1

Matterport Model and Mattertag id: ES29S0d4TYm

CE49 BattRm

Work Order List

Work Order : 1000
Description : Relocate Guard Rails Around Compressor

Status : Waiting on approval
Location Description : Boiler Room Reciprocating Compressor

Work Order : 1008
Description : Repair Damaged Conduit Feeding Generator

Status : Waiting on approval
Location Description : Boiler Room Emergency Generator

Work Order : 1041
Description : Install new pole

Status : Waiting on approval
Location Description : Electrical Service Pole #300

Work Order : W49S000
Description :

Status : Waiting on approval
Location Description : 1st Floor, Main Office

MatterPort

Asset: BAT-0000291 W49ST-BATTERY-125V-1

Matterport Model and Mattertag id: ES29S0d4TYm

CAUTION
EYE PROTECTION
REQUIRED

BAT-0000292

W49ST-BATTERY-125V-2

Typical of 58 total batteries

9.0Gi Battery Report

Asset Hierarchy

Add Mattertag

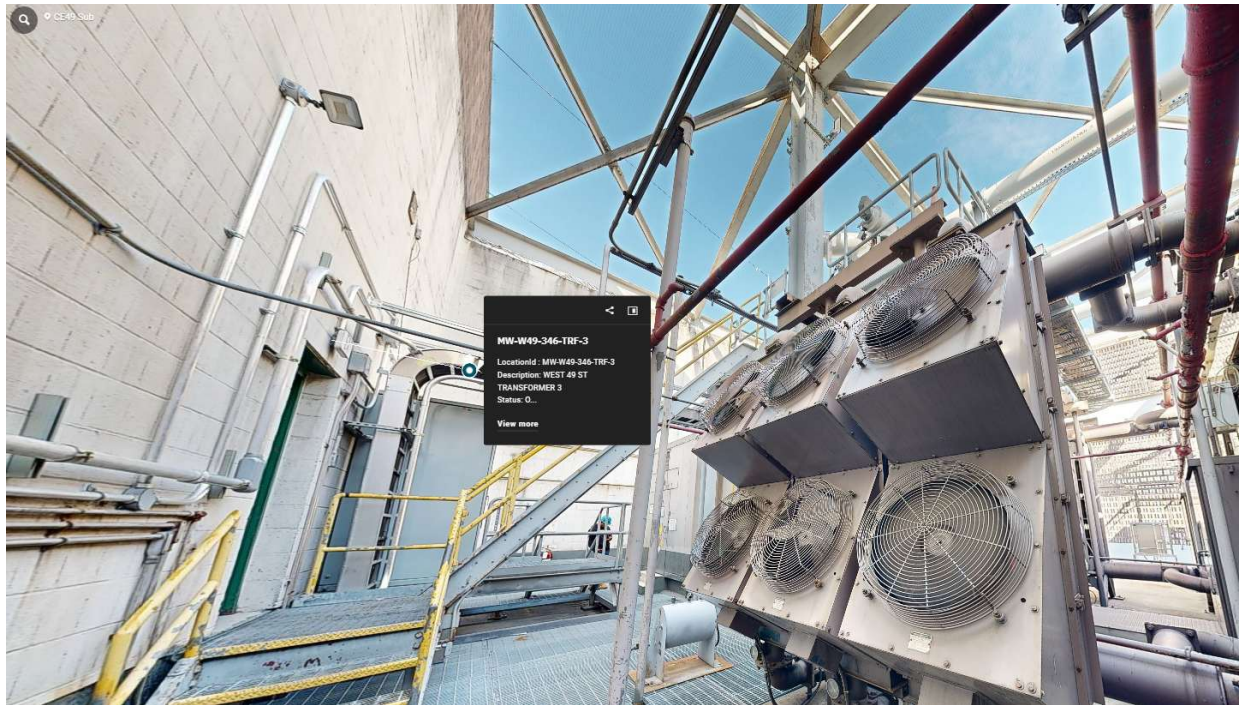
Mattertags

Go to Asset Location

CE49 BattRm



Safety Benefits of 3D Scans



INGAGE P3

Dashboard Work Orders Resources Operations E-Report Engage Modules Config

CENG Pre Site Visit Discussion Rd.doc STKY Essentials

Central Engineering - Job Briefing Review

Initial Briefing To Be Given By Management

JOB BRIEFING TITLE*
test

INITIAL JOB BRIEFING PROVIDED BY*
Ramkishun, Shaun

INITIAL JOB BRIEFING DATE*
5/14/2024

ON-SITE JOB BRIEFING PROVIDED BY*
-Select-

ON-SITE JOB BRIEFING DATE*
5/14/2024

FACILITY/SITE*
ADDRESS*
EMERGENCY SITE CONTACT*

JOB FUNCTION*
JOB/PROJECT NUMBER*

WORK PERMIT NUMBER
ORGANIZATION/DEPARTMENT*
CENG Maximo Center of Excellence

All sections must be completed in order to submit the Job Briefing

INGAGE P3

Dashboard Work Orders Resources Operations E-Report Engage Modules Config

REMARKS / COMMENTS

SECTION #3 - HAZARDS ASSOCIATED WITH THE JOB

Perform a site survey to identify any EH&S hazards that exist and need to be controlled or warnings that need to be discussed to prevent injury or environmental issues.

EXAMPLES

☐ Arc / Flash ☐ Electric Contact ☐ Environmental Issues ☐ Slip/Trips/Falls ☐ Lifting ☐ Cell Phone Usage ☐ Lighting ☐ Overhead Hazards

☐ Weather ☐ Gas Presence ☐ Air Quality / Hazardous Atmosphere ☐ Traffic ☒ STKY ☐ Other (List Below)

DID CONDITIONS CHANGE?

REMARKS / COMMENTS

** CELL PHONES CAN LEAD TO DANGER AND PERSONAL USE SHOULD BE KEPT TO BREAKS **

SECTION #4 - PROCEDURES/INSTRUCTIONS

Access to procedures?
☐ Yes ☐ N/A

REMARKS / COMMENTS

SECTION #5 - SPECIAL PRECAUTIONS TO BE TAKEN - WHERE APPLICABLE

List and discuss special precautions associated with the job (ex: review rescue actions, public safety, walking surface, construction sites, coordination with other crews, adjacent equipment,

Takeaways



Received explanation of background and capabilities of Digital Twin and Maximo in the utilities space



Received examples of use cases to leverage IoT and Digital Twin, including use within Maximo



Gained understanding of how digital transformation can aid in asset management, safety, and sustainability



Gained understanding of how to be better positioned to provide mandatory regulatory compliance and sustainability reporting



Questions

