MICROSOFT – ET&UIP OFFERINGS

August 2023

DRONE BASED POWERLINE INSPECTION SOLUTION

PROBLEM STATEMENT

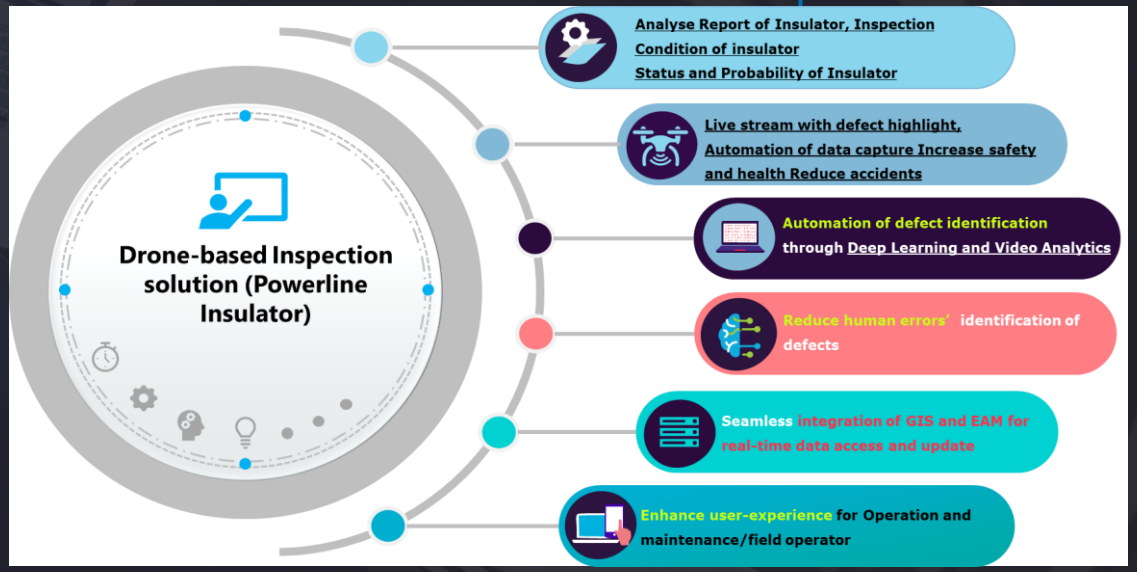
- The age-old process of manual inspection of overhead assets is considered as a tedious job.
- It is time consuming, costly and error prone
- Overhead assets like pipe bridges might look good to naked eyes, but it can have cracks or dirt in it, which can lead to leaks.
- Access real-time data and update EAM/ERP system.
- Risk human lives, decrease Operation efficiency

SOLUTION OVERVIEW

- Building an end-to-end solution detailed Architecture for the solution
- Building automation of fault identification by using deep learning CNN algorithms, Autopilot Drone, GIS, EAM/ERP, Azure Cloud Storage, Azure Media/Integration Service and Azure live video analytics
- Integration of Enterprise Asset systems with GIS for real-time data and asset information.
- Developing GCS mobile application for Autopilot drone control and waypoints.
- Solution is for identification for faults/defect, and update asset information.

OUTCOME

- Eradicate manual inspection, Reduce cost by Robotic inspection and monitoring
- Access real-time data and analytics for defects/faults.
- Reduce time required to complete inspections
- Useful both in emergency situations and to keep up with regular maintenance needs
- Improved worker health and Safety
- Enables more rapid inspections



TECHNOLOGIES

- Enterprise GIS
- EAM,ERP
- Azure Video and Integration Services
- Deep learning/CNN Models
- Cloud storage
- Autopilot Drone
- Microservices
- Web Application

COLLATERALS

Marketing Video (Link)

Demo Video (Link)

Blog (Link)

AR-VR SOLUTION FOR UTILITY NETWORK MANAGEMENT

PROBLEM STATEMENT

- The traditional method Paper Map/DBYD/CBYD identification of underground assets is highly error prone and costly.
- Field crews and supervisors spend significant time trying to find the location of underground and real-time data of surface assets for daily operation and maintenance.
- Lack of information or inaccurate location details could cause damages to the existing underground infrastructure.
- Risk human lives, decrease Operation efficiency, fail to access real-time data.

SOLUTION OVERVIEW

- Building detailed Architecture for the solution
- Building NextGen AR/VR solution for surface and sub-surface assets
- Integration of Enterprise Asset systems with GIS and Azure IOT services and platform for real-time data and asset information.
- Azure Kinect DK to develop AR/VR and Microsoft HoloLens2
- Developing AR/VR mobile application for 3D visualization of underground assets.
- Solution is for Fault Reporting, Asset Management, Inspection detailing, Job Scheduling, Asset Correction request, Ops live dashboard, and Workforce Management.

OUTCOME

- Potential hazards mapping
- Decrease OPEX and CAPEX cost
- Better Visualize of Underground Infrastructure
- Increase Operational efficiency
- Work and Access real-time data
- Improve Field work performance
- Increase safety and health, Reduce accidents
- Improve Inspection and maintenance efficiency
- help in knowledge management
- Situational awareness and the responsiveness
- Ease Teamwork and communication

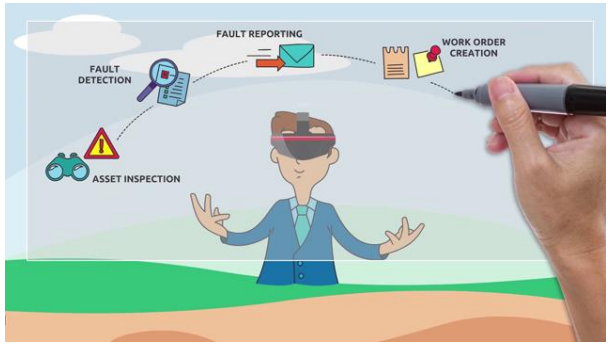
TECHNOLOGIES

- Enterprise GIS
- EAM,ERP, OMS, DSS
- Azure IoT Services
- Azure Cloud Platform
- Azure Kinect DK
- AI
- AR/VR
- SCADA
- IoT Sensors

Solution Features & Capabilities

COLLATERALS

Marketing Video (Link)



Demo Video (Link)

Blog (Link)

SUBSTATION SWITCHYARD INSPECTION USING HOLOLENS & THERMAL CAMERA

PROBLEM STATEMENT

- Lack of automation systems that monitor the condition of critical equipment at substations.
- Face costly unplanned maintenance and rising costs.
- Risk of blackouts and brownouts
- Lack of real-time information of inspection and reliability
- Huge OPEX cost to maintenance of substation components
- Lack of information for Failure analysis

SOLUTION OVERVIEW

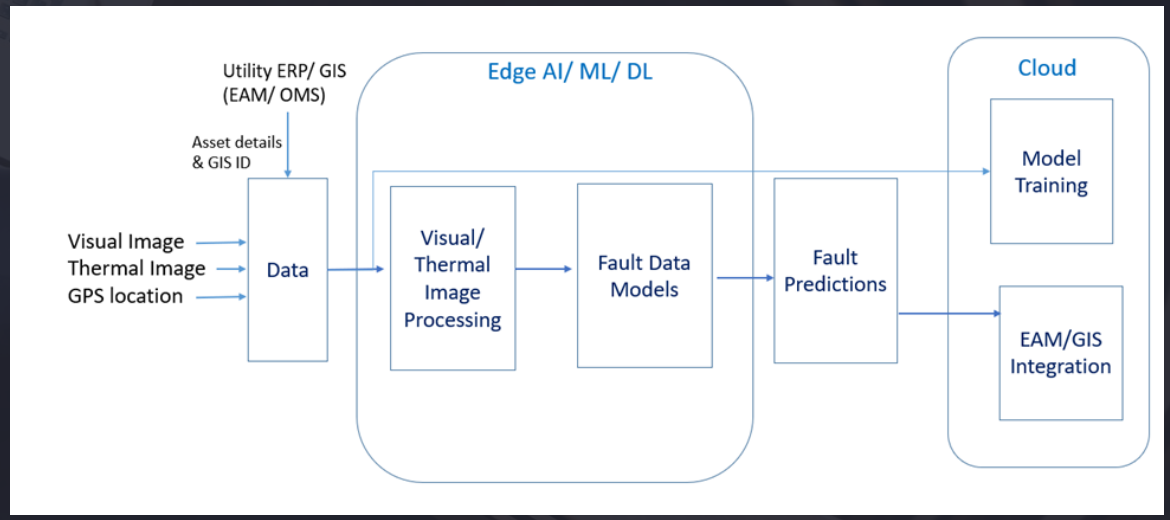
- Solution is based on HoloLens and Thermal Camera, with Microsoft 365 Remote Assist Technology.
- Thermal camera, fitted on safety helmet, will monitor substation equipment provide AI/ ML-based Azure video analytics (Edge analytics).
- Azure Kinect DK to support application development for HoloLens.
- Auto Detection of problems e.g., hot-spots with thermal imaging cameras, share and video chat with supervisor.
- Able to anticipate, detect real-time, and respond rapidly to problems
- System uses advanced sensing, measurement, control systems and digital communications

OUTCOME

- Prevent unforeseen breakdowns
- Reduce maintenance costs, minimize blackouts and lost hours
- Solution will provide early warning of impending equipment failures.
- Facilitate preventive maintenance
- Automate Inspection process.
- Provide safety to Field engineer.
- Reduce maintenance costs, chance of failure, a blackout, and lost productivity

TECHNOLOGIES

- Enterprise GIS
- EAM
- AI
- AR/VR
- Thermal Cameras
- Dynamics 365
- Azure Cloud Platform



COLLATERALS

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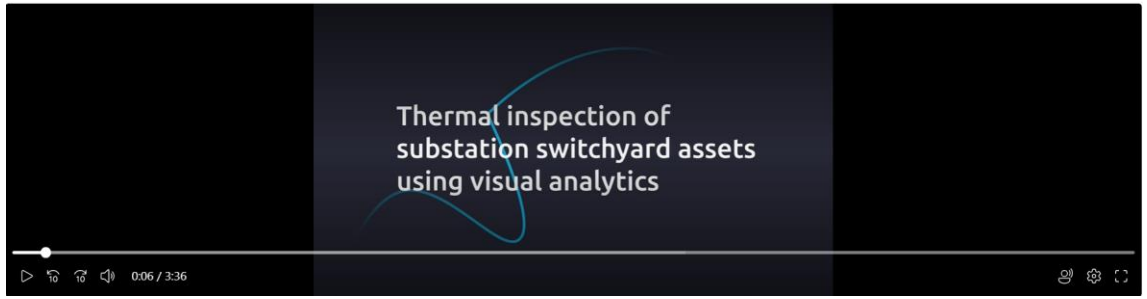

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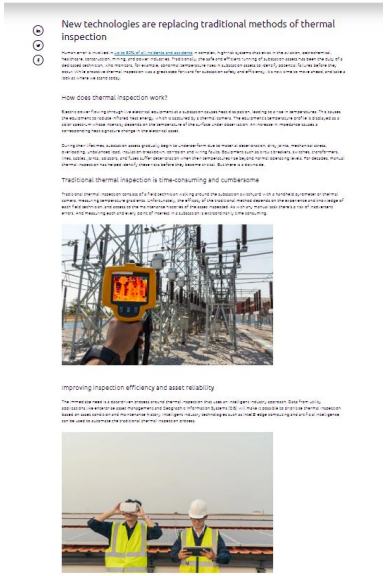


HYPER PERSONALIZATION IN UTILITIES

PROBLEM STATEMENT

- **Rising customer expectations** - Customers have become very conscious and now wants digital experience, offers and recommendations tailored individually for them, in the same way how they are experiencing in other service sectors like telecom, banking, retail, entertainment etc.
- **Increase in churn rate -** The rise of new entrants and their lucrative offers have further made enhancement of customer experience a very necessary problem to address. With many options for customers now, the tendency to change utility companies is on a rise.

SOLUTION OVERVIEW

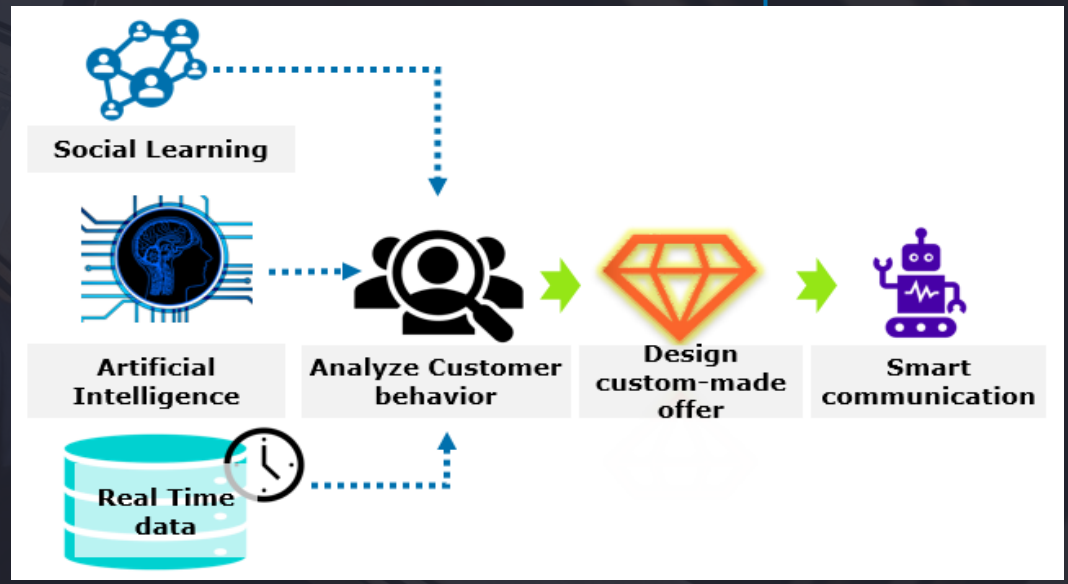
- An advanced and real-time customized offerings, content and customer experience at an individual level leveraging technologies like Azure Cognitive Services for AI, ML and Azure IoT Platform
- Importing relevant data (like billing, payments, meter data, social media, etc.) from different databases into a data lake for 'Customer to Meter (C2M)' cycle & building an analytics/AI/ML application to improve customer experience

OUTCOME

- Improvement in the score of different CX KPIs like Customer Satisfaction (CSAT), Customer Effort Score (CES) and Net Promoter Score (NPS)
- Reduction in churn rate of the utility customers
- Generation of new revenue stream via highly targeted program recommendations, offers and rebates ▪
- Proactive alerts and early detection of faulty appliance to ensure safety and avoid failure

TECHNOLOGIES

- Big Data
- Azure IoT Platform
- Azure Cognitive Services
- AI/ML
- BI Visualization
- Mobile Device



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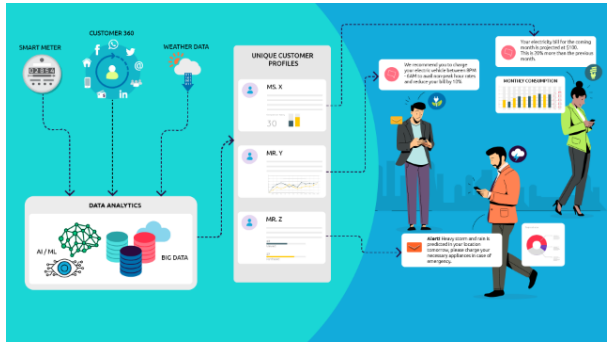

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