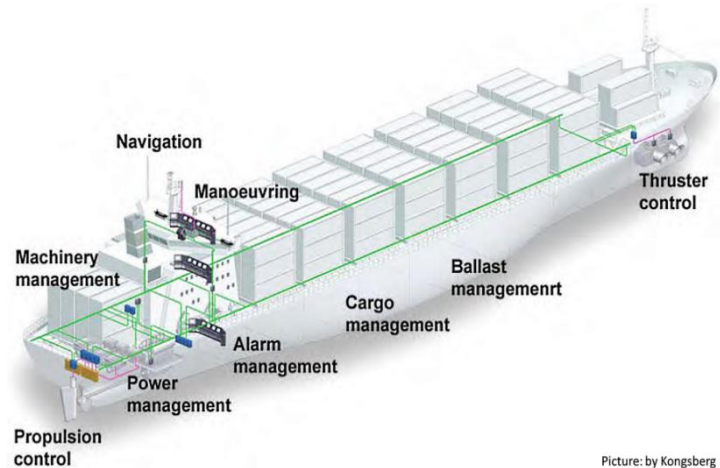


Asset Lifetime Enhancement – Marine Assets

Any leading company that owns, operates and services vessels or ships is keen to optimize the ROI of their operations through several avenues. One of the major avenues for Optimization is the extension of Asset Lifetimes and Early warning of potential threats and costly failures.

Among the assets in the ships, the electrical systems and the associated assets show the maximum potential for optimization and savings. However, this puts more pressure on ensuring the best health of the electrical systems and their uptimes.

Almost all of the ships systems have embedded electrical components that are fed from the common power grid onboard and hence the problems or issues in one asset may also affect the others.



We offer Industry 4.0 Solutions to collect key inputs continuously (On-line monitoring) on current operational health status of assets and compare them to detect early signs of deterioration, possible failure events and perform predictive maintenance; all in real time.

Our effort starts with a discussion with you on the various assets, their KPIs and pain points followed by vessel study leading to gap analysis. Then we frame the solution / proposal which will be backed by 'Use Case' in similar application / study in Industry. The data capture in real time, aggregation, analysis and actions will ensure short Payback Period and good ROI.

Unlike other point solution providers, Biewu is in the unique position to accomplish desired results through solution approach to integrate KPIs of equipment and process through data on unified platform and communication to business layer for decisions.

Typical Challenges

- Real time monitoring of machines, process and results
- Preventive and Predictive maintenance through Analytics
- Dashboards in systems, Tablets, Mobile and Decision support systems
- Asset Lifetime extension through retrofits, refurbishing, etc

Solutions

To address the above challenges, Biewu offers the following solutions

- a) Retrofitting, Refurbishment services for Medium Voltage VFDs and components
- b) IIoT Solutions - Equipment health monitoring, Prediction analytics, Acoustics monitoring
- c) Spare Parts Fabrication through reverse engineering for critical spares

a. Retrofitting, Refurbishment services for Medium Voltage VFDs and components

We offer retrofitting and refurbishment and preventive maintenance programs for Medium Voltage VFDs (Variable Frequency Drives) and its components like the Power Cell, Transformers, Capacitors, etc. Leveraging the in-house technical expertise, we can provide for shop repairs, servicing, etc.

Solution

Retrofit and Repair of Power Cells is a critical decision, ensuring that the assets lifetime is extended through timely repair supported by service guarantees.

The practice allows the Company to optimize its asset value over a longer lifetime and avoid costly upgrades and spares inventory.



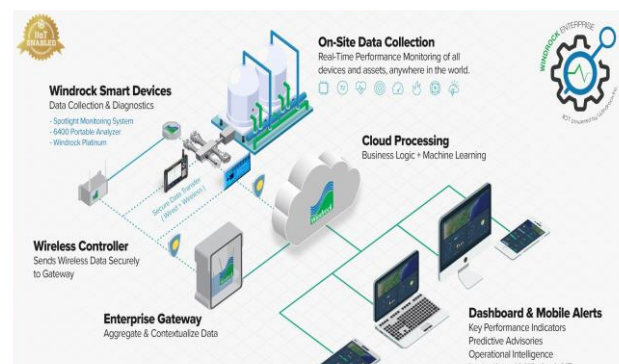
BIEWU Technical Team member performing preventive maintenance on one of nine power cells from a 1600IIP 4160V series 4 Siemens Perfect Harmony Medium Voltage VFD

Benefits

- Reuse equipment that was previously too costly to repair.
- Better ROI on asset due to increased lifetime.
- Repair is supported with service guarantee.
- Faster time to Repair and put back in service, thus reducing spare inventory costs.
- Minimize overhead costs
- Better customer service, satisfies both your needs and budget

b. IIoT Solutions - Equipment health monitoring, Prediction analytics, Acoustics monitoring

Implementation of Industry 4.0 (IIoT) and digitalization strategy to equipment health monitoring will allow companies to greatly improve the visibility into critical assets, enforce better maintenance strategies and increase early warning of potential failures. Typically, the early detection of threats related Harmonics, Leakage Currents and Voltage peaks can be easily provided through the use of condition monitoring to assets like VFDs, Motors, Gear trains, etc. The condition monitoring solution can also be extended to cover critical mechanical assets like the engines, generators, pumps, compressors to ensure overall health and availability of the Ships systems.



Solution

IIoT enabled Condition monitoring is an effective and easy tool to ensure that the assets' health is monitored in real time – 24 x 7 to detect any anomalies that can be used to provide early warnings, predict possible failures, perform timely and prescriptive maintenance.

Benefits

- Ensured compliances with regulations
- Improve visibility on health and availability of assets and equipment
- Minimize risks and increase transparency, safety and reliability
- Maximize uptime and reduce maintenance costs
- Perform root cause analysis - Early identification of machinery damage
- Reduce site visits and expediting data collection
- Optimizing operational efficiencies
- Enhanced Communications

c. Spare Parts Fabrication through reverse engineering for critical spares

The process of acquiring critical spares and maintaining large inventories can be optimized by leveraging digital technology to maintain a virtual library of spare parts that can be fabricated on demand within short times. This eliminates the need for costly (and mostly non-effective) inventories and delays due to long lead times for components.

Critical Spare Fabrication

We offer customers the ability to maintain a virtual library of critical, obsolete and fast-moving spares. Combining our technical know-how in parts fabrication for several rotating assets with our Deliver – On – Demand strategy, we are able to provide OEM grade spare in shorter times and at a fraction of the cost.

Benefits

- Reduce costly inventories and long lead times.
- Reduced and eliminate OEM dependence.
- Maximize uptime and reduce maintenance costs



Why BIEWU

Biewu International is a solution provider with several decades of expertise in providing solutions to protect People, Assets and Environment. With a team of 300+ resources spread over 10 locations; we leverage our technical Know-How across 20 distinct solution portfolios ranging from PPE, Specialty Chemicals to Digitalization and IIoT solutions.

Our group expertise spans all layers from assets and sensors to networking, controllers, cloud, apps, big data and predictive analytics. Compared to large OEMs of software and IT companies, Biewu possesses knowledge and **experience in all three primary needs for proposing and implementing Industry 4.0 solutions viz. Machines, Process, Technology and IT.**