



HeatSeeker



Thermal Monitoring of rotary kilns for abnormalities and inefficiencies



HeatSeeker

Industry 4.0 Compliant & Cloud Based

Modern Lime and Cement Kiln Management

Challenge: Rotary kilns (calciners) are critical assets in pulp and paper and cement manufacturing industries. Temperature anomalies detected along the kiln shell can be used in predictive maintenance strategies to improve the reliability and efficiency of these units.

Solution: HeatSeeker is a cloud native application that uses thermal cameras and computer vision to identify temperature abnormalities along the external shell of rotary kilns that are precursors to known failure modes. Our application provides operating and asset integrity teams with the tools to reliably identify anomalies along the shell, in real-time, reducing unplanned downtime and expensive bottlenecks to downstream processes.

Solution

Understand & Manage Your Rotary Kilns



Real-Time Monitoring: Visualize and monitor temperature anomalies in real-time with easy-to-use dashboards.



Automated Alerts: Configure automated alerts to detect anomalies and proactively identify known failure modes.



Actionable Intelligence: Turn plant data and information into actionable intelligence.



Simple Tracking: Observe historical kiln temperature profiles and overlay process parameters to troubleshoot process and equipment events.



Fast Easy Reporting: Setup custom views and generate reports with just a few clicks





The BlueMarvel Advantage Industrial Expertise Meets Digital Transformation

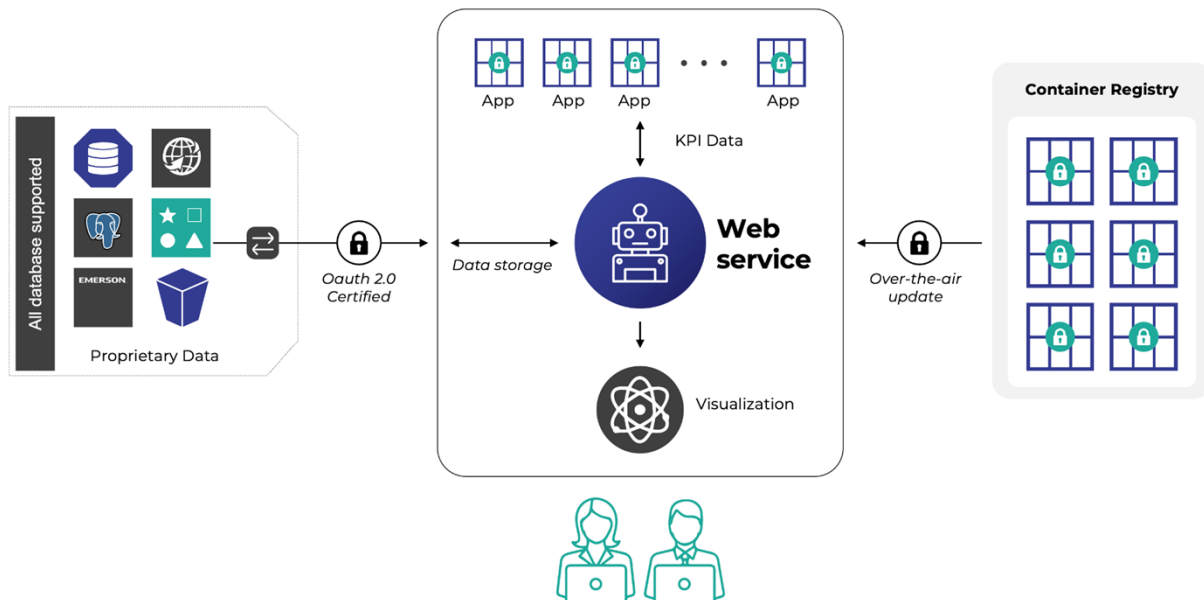
The Difference: Our solution has been developed by industrial energy experts, based on the ISO 50001 standard. All BlueMarvel applications are built using the latest modern information technology. Unlike other legacy applications, designed to run at a single industrial site, our solution was conceived for enterprise use cases and is capable of benchmarking across your entire operation if required. Our solutions also offer custom-programmability alongside a suite of existing analytic functions allowing you to implement rules, KPI's and algorithms that fit highly specified requirements.

We can support deployments no matter where you are on your digitization journey. Our solution runs natively in the cloud and has been designed using Docker Containers for easy deployment and set up. We can also manage SAS deployments leveraging our cloud and internal data consolidation infrastructure.



BlueMarvel Application Architecture HeatSeeker Microservices

- Control hub facilitates KPI calculations, software updates, and data movement between different applications.
- Microservices infrastructure to maximize application uptime and allow for maintenance on separate services.
- Leverages your existing cybersecurity protocols to minimize data leakage risks.
- Application is stateless, guaranteeing your data integrity and provides flexibility on future usage of calculated KPIs.
- Customer managed authorization & authentication so you can control who has access to which data.
- Optional over-the-air updates whenever new versions of the software are available.





Predictive monitoring solutions are proven to improve critical asset reliability and Overall Equipment Effectiveness (OEE) measures



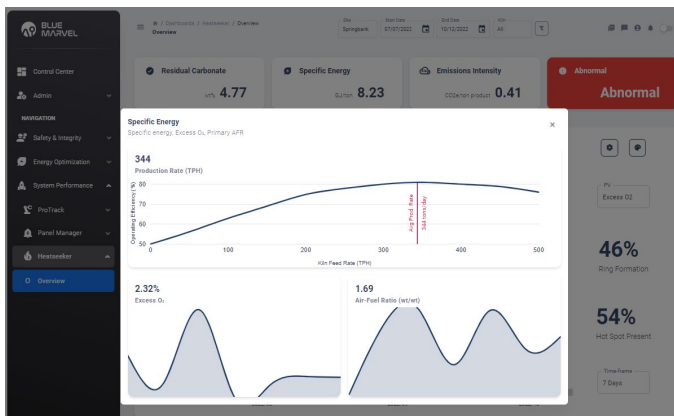
HeatSeeker Benefits

Reduce Unplanned Downtime

- ✓ Reduce unplanned downtime, production bottlenecks, and maintenance costs associated with rotary kiln operations and management.
- ✓ Enable sustainable improvements by measuring, documenting, and reporting on historical and current performance.
- ✓ Create greater situational awareness for operating, reliability and maintenance organizations.
- ✓ Support plant turnaround and downtime decision making and planning.

HeatSeeker Dashboard

Showcasing Energy Excess & Shell Temperature



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