

# PLC Monitoring for Boiler Efficiency



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## Background

Traditionally, Industries have always depended on proprietary computer systems and sensors to monitor equipment and operations. But with Industry 4.0, these systems and sensors are more interconnected and rely on automated industrial processes.

The digital era being highly disruptive in the Industrial space, has shaken up the business models and the core business of many industries. Smart Machines continually share information about current stock levels, problems or faults, environment parameters in industries, change in orders and demand levels. The processes and the input output ports controlled by the Programmable Logic Controller(PLC) drive the complete supply chain and in turn the revenues of efficiency of the industries.

CASCADEMIC's PLC Monitoring solution is perfectly suited for Process Control and Industrial Automation applications.

## Challenges

A boiler is a fundamental part of most industries and monitoring the efficiency of the boiler is key to reducing operational costs and ensuring safety in an industrial environment. Various parameters of the boiler right from temperatures at various stages of operation to temperature and pressure relationship to the fuel consumption need to be monitored constantly and decisions taken based on the readings in realtime.

Due to boiler control being critical in any industry, its automation becomes all the more important. This is due to the challenge posed by manual system of monitoring which is error-prone and is further complicated by the need for processing highly mathematical relationship between the parameters.

Once PLCs are fitted to aid in controlling the processes, the next challenge faced is to tap into the PLC data and make it accessible for maintenance.

## Solution

In the era of the smart and the convergence of technologies, we at CASCADEMIC extended and evolved our decades of embedded expertise from SCADA to the growing IoT space.

CASCADEMIC's PLC Monitoring Solution for Boilers provides real-time analysis and feedback which help in monitoring and control of Operational Efficiency, current fuel levels, problems or faults and environment parameters related to the boiler operation. With highly integrated software and stable hardware, all data can be accessed from a remote location which allows industries to have constant control over the boilers in realtime. Real Time notifications and alerts are provided to monitor fuel consumption, hardware health and integrated security systems.

The monitoring solution is added to the PLC Infrastructure to tap the data from the Programmable Logic Controller (PLC) and communicate to the Cloud Platform, enabling predictive maintenance in remote areas.

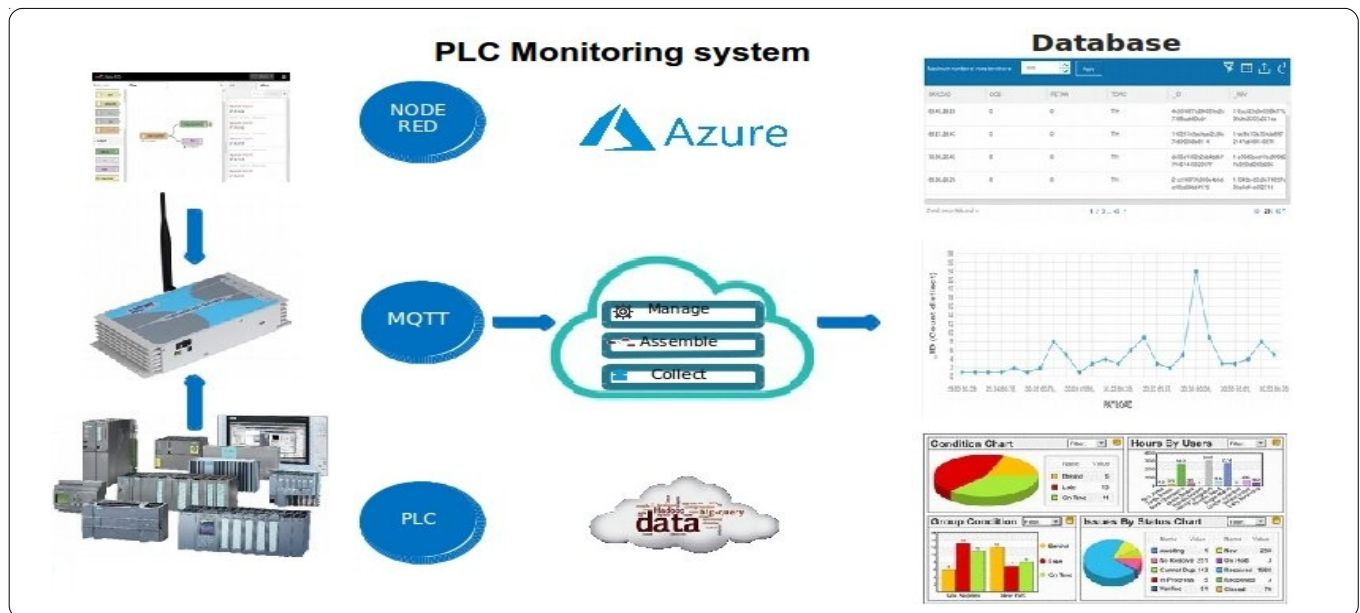
The Solution connects to the PLCs through MODBUS interface. It comes with a rugged design with industrial grade components to ensure superior performance in any environment. It is integrated with most cloud platforms to enable data visualization and analytics. Data is sent to the cloud through 3G, 4G, LTE, NBIOT connectivity.



# Value Proposition

The solution delivers business value through:

- Enabling predictive maintenance of industrial Equipment
- Monitoring Operational Efficiency of Equipment
- Process Control and Industrial Automation
- Providing Data Concentrator for Sensor nodes
- Seamless Connectivity between Sensor Devices and Cloud
- Plug and Play architecture of various wireless connectivity protocols
- Industrial Standard wired interfaces.



# Cloud Connectivity

The Solution facilitates cloud access and edge processing, while also providing support for server based applications.

A sample dashboard for boiler efficiency monitoring is shown below.

