

OpenBlue Energy Optimization Dashboard Summary

Project: OpenBlue-Agent-Teams

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Live Demo: <https://tonybleything76.github.io/OpenBlue-Agent-Teams>

Repository: <https://github.com/Tonybleything76/OpenBlue-Agent-Teams>

Overview

This dashboard is a live, interactive demonstration of a multi-agent system designed to optimize energy usage in commercial building environments. The system is integrated with a mock OpenBlue interface and showcases real-time data simulation, agent coordination, and smart alerting.

Objectives

- Reduce energy consumption by up to 22%
 - Maintain zone temperature within $\pm 0.5^{\circ}\text{C}$
 - Enable agent-driven optimization using PDCA + RAFT logic
 - Simulate critical climate scenarios (e.g. Cold Snap)
 - Provide a user-friendly, web-based visualization layer
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Architecture Components

Component	Description
RAFT Agent	Coordinates consensus among subsystems (actuator teams)

PDCA Agent	Executes continuous Plan-Do-Check-Act cycles for optimization
Fault Analyzer	Detects anomalies using embedded historical data (RAG-based logic)
Redis/MQTT	Used for simulated telemetry and data distribution
Chart.js	Renders real-time data visualizations in browser
GitHub Pages	Hosts the full dashboard interface live



Simulation Features

- **Zone A Temp:** Adjustable with slider (18–26°C)
 - **Zone B Load:** Dynamically updated and triggers alerts when overloaded
 - **Fault Detection:** Random or manual trigger of system anomalies
 - **Cooling Load Chart:** Live-updating bar chart simulating demand fluctuations
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Alerts + UX

- Sound notifications (on fault or overload)
 - Card flash to highlight active alerts
 - Manual “Simulate Alert” buttons
 - Real-time status badges (Stable, Overload, Anomaly Detected)
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45-Day Execution Plan (Abbreviated)

Phase	Days	Deliverables
Infra & Agents	1–15	Redis + MQTT + agent stubs

RAFT/PDCA Logic	16–30	Agent coordination + simulation engine
UI + Demo	31–45	React UI, Cold Snap scenario, summary



Live Dashboard Link

 tonybleything76.github.io/OpenBlue-Agent-Teams



Created With

- **Tonybleything76**: System architect + GitHub maintainer