

## CASE STUDY



# Testing a Smart Thermostat System

Ensuring smooth performance across networks, devices, and real-world conditions



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## PRODUCT OVERVIEW

Our client is a **software development company** in the smart home IoT market. They were preparing to launch a **smart thermostat system** with a mobile app, central hub, and wireless sensors, allowing users to control heating remotely at home or in small businesses.



# CLIENT'S NEEDS



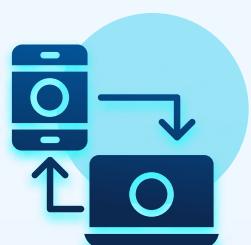
Reliable pairing and stable connectivity between the mobile app, hub, and wireless sensors.



Smooth operation of the app-device integration, including data exchange and synchronization.



Smooth performance in real-world conditions: weak Wi-Fi, power loss, offline/restore scenarios.



Cross-platform stability across different OS versions, devices, and networks.



User-friendly experience with clear instructions and error messages to guide customers during setup and troubleshooting.



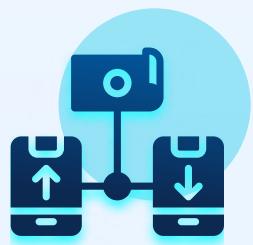
## IMPLEMENTATION



Conducted **functional testing** to verify app-hub-1sensor interactions during onboarding, pairing, re-pairing, and everyday use.



Performed **compatibility testing** to ensure stable operation across different OS versions, mobile devices, and network types.



Ran **integration testing** to validate smooth communication and data flow between the app, hub, and sensors.



## IMPLEMENTATION



Ran **performance testing** to measure pairing time, telemetry delays, and battery consumption of sensors.



Performed **usability testing** to check error messages, update prompts, and user flows, ensuring clear guidance and a smooth experience.



Delivered **detailed documentation and transparent reporting** to support scalability and maintain partner trust.

# SOLUTIONS

## Testing Types

- **Functional** Testing
- **Compatibility** Testing
- **Integration** Testing
- **Performance** Testing
- **Usability** Testing

## Tools & Environments:

- **Testing Tools:** JMeter, SoapUI
- **Bug Tracking:** Jira
- **Test Management:** TestRail
- **Operating Systems:** iOS, Android

## TANGIBLE RESULTS FOR THE CLIENT

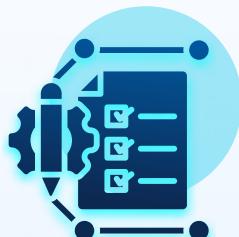
- **Pairing success rate increased from 84% to 98.5%**, ensuring stable connectivity between app, hub, and sensors.
- **Telemetry delay reduced from 4.8s to 1.9s (p95)**, improving real-time responsiveness.
- **41 defects** identified before release, including **7 critical issues**.
- **Sensor battery life improved by ~15%** through performance optimization.
- Projected **38% fewer support tickets** after launch due to improved stability and usability.



# DELIVERABLES



Detailed bug reports highlighting detected issues with clear screenshots and recordings.



A comprehensive test documentation, including a test plan, testing strategy, and test scenarios.



Recommendations for UI/UX improvements based on usability testing results.



Make your **IoT ecosystem** stable,  
reliable, and ready for users!

**START QA WITH US**

