co·labs

Validating A Unified Global Access Control System Concept For Real Estate Portfolio

Case Studies

Physical Access Control System Concept

Client Overview

An international real estate company managing a diverse portfolio of properties across multiple locations.

Problem Statement

The client faced challenges with inconsistent Access Control Systems (ACS) across their properties. They needed to validate whether a unified, scalable solution could be developed to work with existing systems while enabling seamless, rapid access management across their entire portfolio.

Objectives

- Validate the concept of a unified access control platform compatible with various existing systems
- Prove the feasibility of real-time, remote access granting and revocation without human operators
- Demonstrate potential for reducing installation and ownership costs across the property portfolio
- Gather real-world data to support decision-making for full-scale implementation
- Develop a working prototype to showcase the potential of the solution

Solution Overview

We developed a prototype access control platform, including custom hardware and software solutions. The aim was to prove the concept's viability and gather real-world data, and deliver a blueprint for a production-ready system.

Key Features

1. Modular hardware prototype compatible with existing access control systems and installed hardware
2. Cloud-enabled software demo with offline capabilities
3. Real-time access granting and revocation simulation
4. Centralized admin view concept with multi-system integration
5. Analytics capabilities for potential usage insights

6. Demonstration of temporary access provisioning for guests and conference rooms

Implementation Highlights

- Designed and produced a functioning hardware prototype
- Completed Concept, Prototyping, EVT, and DVT stages of hardware development
- Developed software for user management, analytics, and building system integration
- Created a proof-of-concept unified access provisioning flow
- Implemented a system capable of demonstrating offline operation

Results and Impact

- Demonstrated potential for 50% reduction in hardware needs for new buildings
- Projected installation time reduction from days to hours
- Simulated access granting time decrease from hours to near-instantaneous
- Proved concept for seamless access for traveling employees across different locations
- Showcased improved security and control potential with real-time access management
- Provided real-world data to support decision-making for full implementation

Innovation Spotlight

The project validated a novel approach to unifying disparate access control systems, demonstrating the feasibility of a scalable solution that could bridge legacy infrastructure with modern, cloud-enabled technology while maintaining high reliability and security standards.

Conclusion

This prototype and validation project provided the client with concrete evidence of the viability and potential benefits of a unified access control platform. It delivered real-world data and a working prototype, enabling informed decision-making for future full-scale implementation across their international portfolio.

Tools and Technologies

- Go
- Python
- C
- Altium Designer
- Node.js
- AWS Services
- JavaScript / TypeScript
- React
- PostgreSQL
- Redis
- MQTT