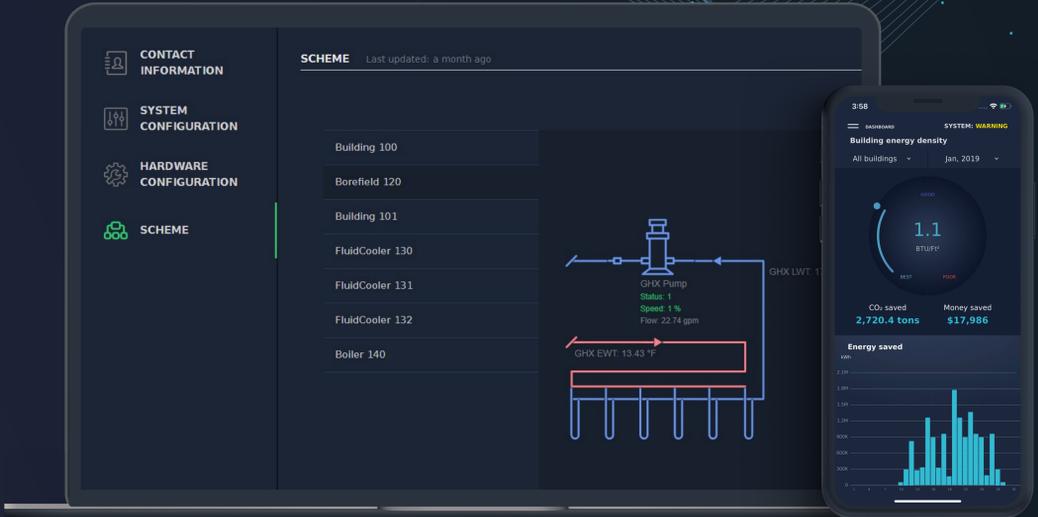


INTELLIGENT HVAC SYSTEM BASED ON IOT SMART BUILDING TECHNOLOGY



BUSINESS OVERVIEW



The client has a Heating Ventilation Air Conditioning (HVAC) system designed to control the temperature inside the building. A geothermal system provides users with ongoing and cost-effective heating and cooling by utilizing the consistent underground temperature.

Therefore, the client approached us to come up with the software development solution to achieve the maximum possible energy saving. It's essential to find a way to reduce greenhouse gas emissions since climate change is a reality we all live in.

- Business domain
Architecture and Planning
- Project type
Web and Mobile application
- Technologies
Swift, .NET, .NET Core, ASP.NET

CHALLENGE



The project's type required enhanced security. Ensuring proper monitoring was essential to prevent any setbacks which can appear in heating and cooling systems.



Equally significant was to ensure a user-friendly frontend to work with live data as sheets, graphs, reports, and performance forecasts for both technical staff and general users.



Also, we needed to build a virtual system that corresponds to the physical one. And it was not an easy task due to the lack of access to the main Unix OS and equipment.

SOLUTION

The first project is an ASP.NET MVC web application that is responsible for starting the simulation of HVAC and user management. It allows sales representatives to calculate the profitability of each client and make a proposal.



The second project is a system for scheduling simulation and data acquisition. It consists of reading HVAC system sensors' data and configuring system sensors' parameters alongside Real-Time Control.

The third project is a single-user ASP.NET core web application that provides an interface for configuring all parts of the entire system and consists of end-user and admin user parts. The end-user can preview parameters' history and predictions based on the current system's conditions.

A big piece of work the NIX team did on the UI/UX. The structure, flow, and overall design of many pages were changed to make easy and up-to-date navigation.

OUTCOME

CLIMATE CHANGE ISN'T JUST GLOBAL WARMING. IT'S A GLOBAL WARNING.

The client received a steadily working product that is highly configurable and provides full functionality for the users. The developed service successfully optimizes two-million square feet of buildings by upgrading schools, hospitals, offices, and manufacturing buildings. This allows to minimize equipment runtime with maximized energy savings and helps to save the environment.

TECHNOLOGY STACK & TEAM



TECHNOLOGY STACK

.NET, .NET Core, ASP.NET, ASP.NET Core, ASP.NET MVC 5, ASP.NET MVC Core, WCF, Entity Framework, MySQL, knockout.js, Angular 2, AWS, Swift, ReSwift, PromiseKit, Protobuf, Charts, Firebase, Alamofire, Swinject



TEAM 7 EXPERTS

Project Manager, Business Analyst, .Net Developer, QA specialist, iOS Developer, UI/UX designer, Markup specialist