Welcome to my bortfolio

UI·UX Designer

Yoon Chae

I am a UI/UX designer. My previous role was at BRIQUE, a company specializing in developing custom solutions such as dashboards and reporting tools for large Korean corporations in the semiconductor industry. During my time at BRIQUE, I primarily worked on projects for Samsung and SK Hynix.

I designed various dashboards and monitoring tools to visualize large datasets in a clear and accessible manner. Additionally, I developed custom solutions for monitoring and detecting issues in the manufacturing process. My work process always involved close collaboration with data analysts, developers, and end-users, ensuring their requirements were thoroughly understood. I focused on creating designs that were intuitive and convenient for users to experience.

While most of my work was targeted at Samsung and SK Hynix, I also delivered tailored solutions for small and medium-sized enterprises. These practical experiences enabled me to ensure smooth communication between stakeholders and deliver solutions that met their specific needs effectively.

Projects

001

Semiconductor Anomaly Detection Service

Company project

002

Analytics Dashboard Service

Company project

003

Equipment Notification System

Company project

004

Finance Dashboard

Personal project

Semiconductor Anomaly Detection Service

Company's In-House Solution sold to companies in the manufacturing industry like **SK hynix**

Challenging Aspects

In the manufacturing industry, vast amounts of data are collected in real-time from various sensors, equipment, and processes. It is essential to organize and present this data in a visually clean and intuitive manner, as failing to do so can lead to user confusion. Designing a UI that effectively represents the complexity of the data in a clear and intuitive way was a significant challenge.

Successful Achievements

I collaborated with developers and data analysts to design a UI that highlights equipment issues using standard color coding and real-time error maps. Drill-down features made detailed data accessible, while real-time alerts and a workflow-focused interface improved response times. Testing reduced issue resolution time by 25%, boosting efficiency and increasing user satisfaction to over 90%.

Background

How can anomaly detection in manufacturing be managed more easily with an automated system, while minimizing human intervention?

제조업에서 많은 것들이 자동화 되어있는 것처럼 보이지만 실제 내부를 살펴보면 많은 것들이 아직 사람의 손을 거쳐야만 돌아가는 시스템입니다. 그 중 특히 반도체 제조업에서는 하나의 불량풍만 생산되어도 그 손실이 집 한채 값 이상입니다.

공정의 정확도를 높이려면 많은 분야가 있지만 그 중 이상감지라는 분야가 있습니다. 이상감지 시스템은 주로 센서 데이터를 실시간으로 수집하고, 이를 분석하여 비정상적인 패턴이나 이상 징후를 식별하는 방식으로 작동합니다. 이를 통해 생산 과정에서 발생할 수 있는 불량, 기계 고장, 품질 저하 등을 사전에 파악하여, 공정의 품질을 유지하고, 불필요한 비용을 줄일 수 있습니다.

프로젝트의 시작은 비정상적인 패턴을 사람의 개입없이 자동으로 감지할 수 있는 제품을 만드는 것으로 부터 영감을 받았습니다. Although many things in manufacturing seem to be automated, when you look closer inside, much of the system still requires human intervention to function. This is especially true in the semiconductor industry, where even a single defective product can result in a loss equivalent to the cost of a house.

To improve the accuracy of processes, there are many areas to focus on, one of which is anomaly detection. Anomaly detection systems primarily work by collecting sensor data in real-time and analyzing it to identify abnormal patterns or signs of issues. This enables the identification of potential defects, machine failures, or quality deterioration during the production process, allowing for the maintenance of process quality and the reduction of unnecessary costs.

This project was inspired by the idea of developing a product that can automatically detect abnormal patterns without human intervention.

User Research

현 제조업 이상감지 시스템의 Pain point를 파악하기 위해 제조업 담당자들을 심층 인터뷰와 설문조사 진행하였습니다.

* 현 반도체 제조업 담당자 대상

To identify the pain points, in-depth interviews and surveys were conducted with manufacturing industry representatives.

* Targeting current semiconductor manufacturing industry workers.

Paintpoint 1



한치치, 공정담당자

Process manager

It takes a long time to identify which part of the equipment is malfunctioning during operation.

As a result, when an issue occurs, the losses become significant.

Paintpoint 2



공그리, 공정담당자

Process assistant

In the current system, equipment can be operated and shut down, but the equipment names are too long and not intuitive, making it difficult to quickly identify which part is malfunctioning.

Paintpoint 3



김부자, 공정담당자

Process manager

I know the equipment is malfunctioning, but it's unclear what the exact condition is, so I have to go and check it in person.

I want to know the actual status.

Paintpoint 4



김수수, 공정담당자

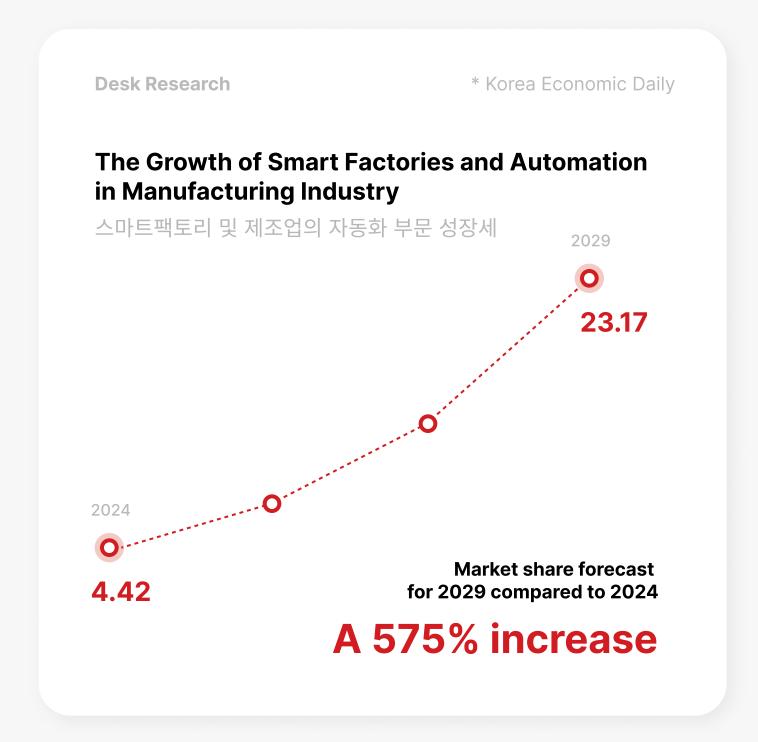
Process assistant

It takes a long time to set up each piece of equipment individually, and many mistakes occur.

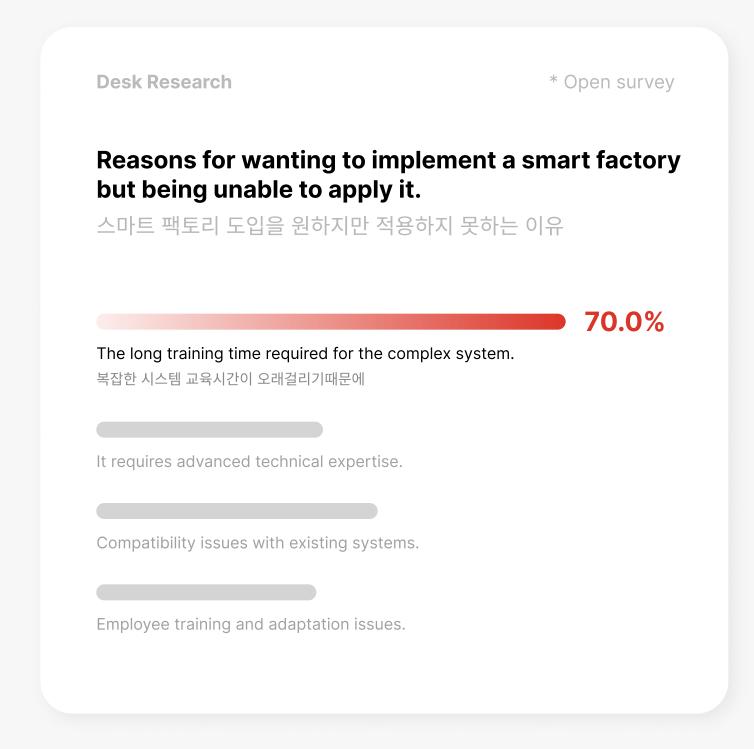
I would like to apply settings in bulk easily to process them more efficiently.

Market Analysis

제조업에서 자동화 및 스마트팩토리의 성장세는 매우 빠르게 진행되고 있습니다. 특히, IoT(Internet of Things), AI(인공지능), 빅데이터 분석, 로봇 기술 등이 결합되면서 제조업체들은 더 효율적인 생산 환경을 구축하고 있습니다. 그러나 제조현장에 가보면 많은 개선을 원하는 다양한 목소리가 존재합니다. 내부를 자세히 들여다보면 어떠한 불편한 점들이 존재하고있을까요?



The growth of automation and smart factories in the manufacturing industry is progressing rapidly. In particular, the integration of IoT, AI, big data analytics, and robotics is helping manufacturers create more efficient production environments. However, when visiting manufacturing sites, there are many voices calling for improvements. What inconvenient issues exist when we look closely at the internal processes?



Mission

설비에 문제가 생겨서 생산에 차질이 생기는 일이 없도록 하기위한 시스템을 만드는 것이 목적입니다. 즉 설비에 이상이 생기면 조치를 하고 원인을 찾는 것이 기본입니다. 그러나 직접 데이터 로그를 보고 문제의 원인을 파악하는데에 시간이 오래걸립니다. 그리하여 공정 과정에서 이상이 발생하면 그 이상을 감지하고 원인을 즉각적으로 보여주는 것에 목적을 두었습니다. 또한 추후 관리까지 가능하도록 합니다. 즉 설비의 일부분인 장비의 어느 부분에 이상이 생겼는지 모니터링 부터 추후관리까지 가능하도록 합니다. The goal is to create a system that prevents production disruptions due to equipment issues. In other words, the system is designed to take corrective actions and identify the cause whenever a malfunction occurs. However, directly analyzing data logs to pinpoint the cause can be time-consuming. Therefore, the objective is to detect abnormalities during the process and immediately provide insights into the root cause. Additionally, the system is designed to enable future management as well. The focus is on monitoring specific parts of the equipment to identify where issues occur, and then managing and maintaining it in the long term.



Goal

To make enable easy monitoring of which part of the equipment, as a component of the facility, is experiencing issues, and to facilitate future management as well.

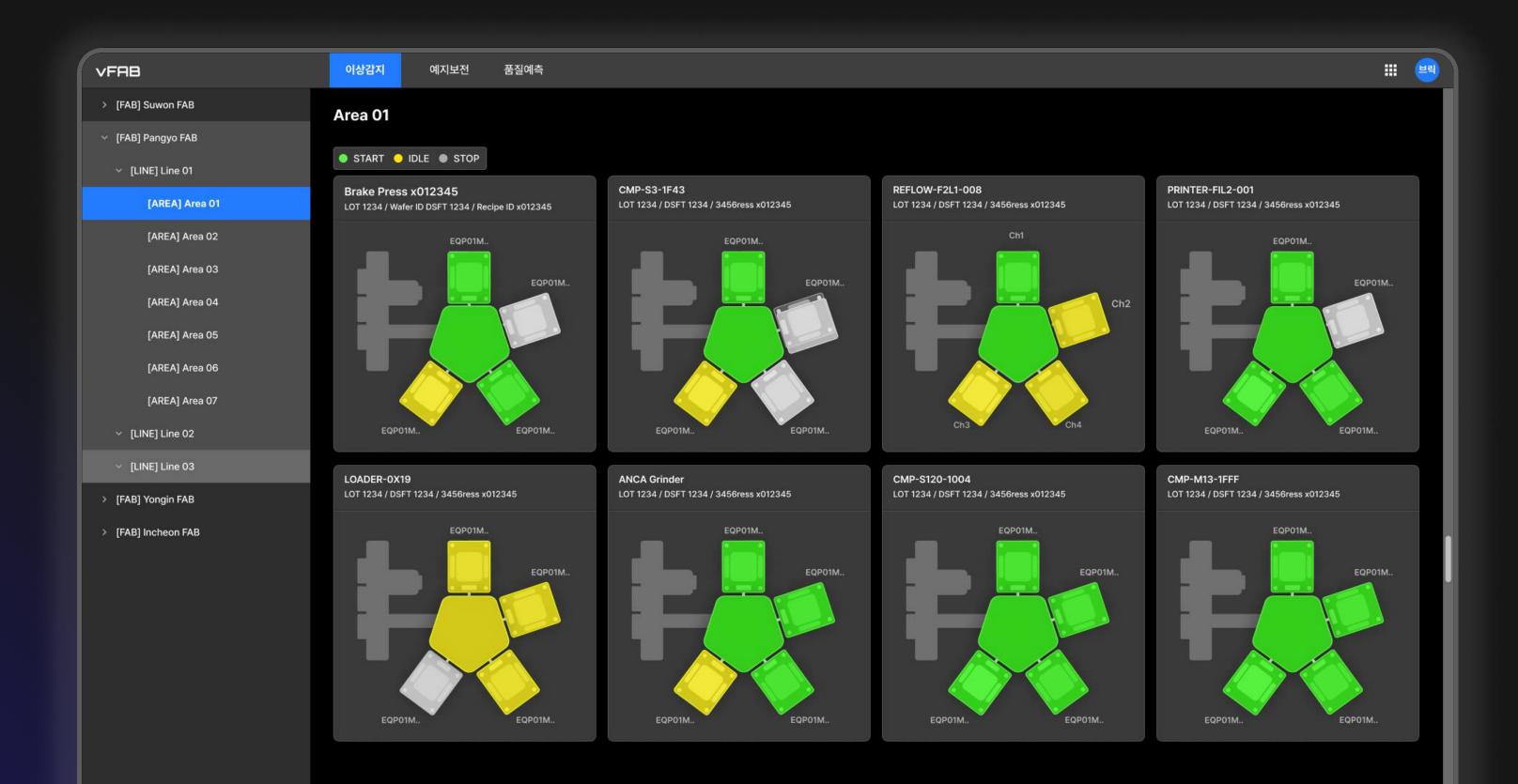




Monitoring Let's start!

설비의 이상을 감지할 때, 어떤 특정부분이 이상이 있는지 한눈에 파악할 수 있도록 합니다. 설비의 일부분인 장비에서 어떤 부분이 이상이 생겼는지 제조업의 기준 색깔로 표현해서 보여줍니다. 이는 직관적으로 어느 부분이 문제가 생겼는지 사용자에게 바로 이해시켜줄 수 있습니다. 빠르게 문제가 되는 부분을 한 눈에 파악하고 다음 조치를 취할 수 있도록 해줍니다.

The system enables quick detection of equipment anomalies by identifying the specific part experiencing an issue. It visually highlights the affected component within the facility using color codes aligned with manufacturing standards. This intuitive display helps users instantly recognize the problematic area, facilitating prompt issue identification and the necessary corrective actions.



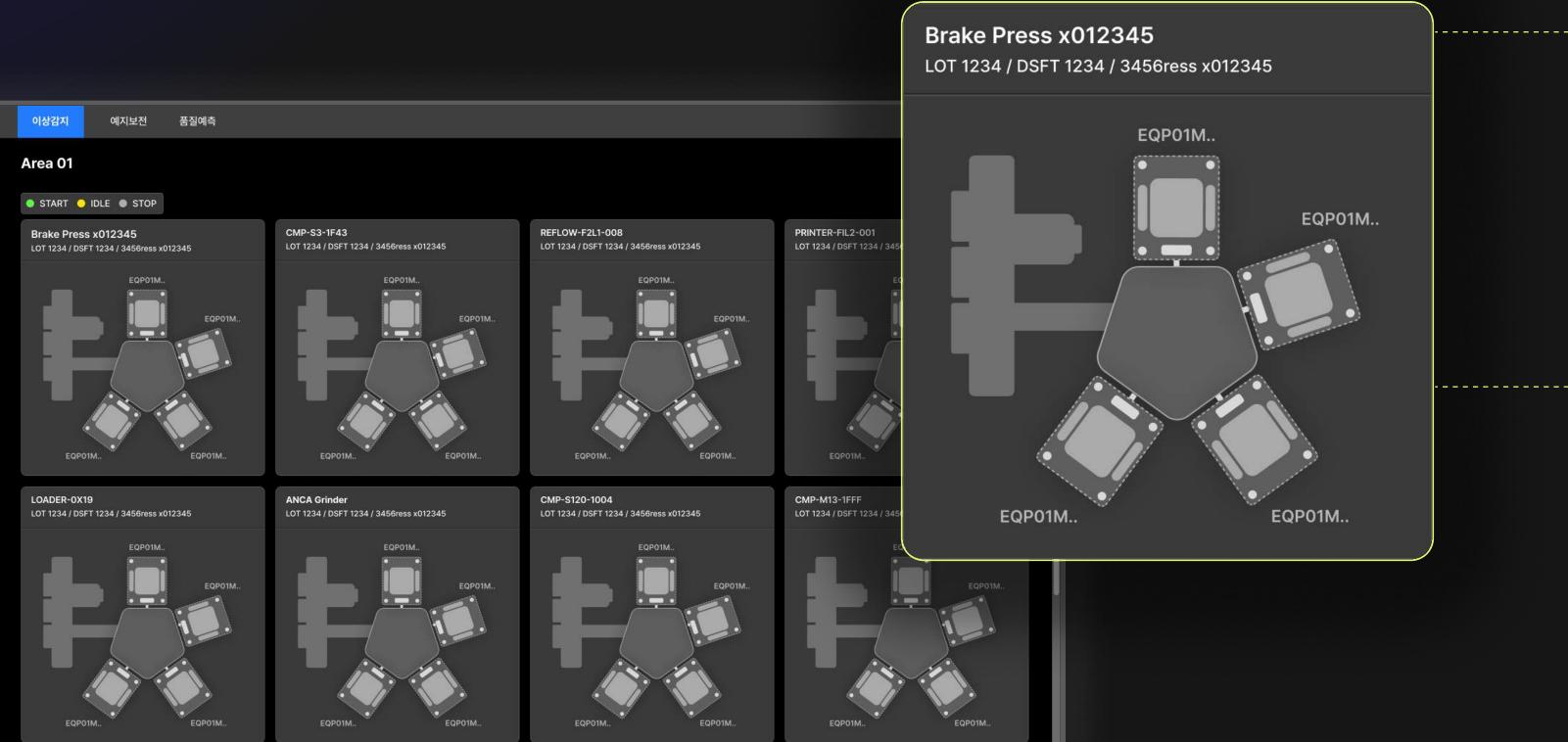
Initial Dash board



How will you display the many and complex pieces of equipment?

장비의 데이터가 발생하기 이전의 화면 모습입니다. 실제 장비와 비슷하게 형상화하였으며 각 장비에는 4개의 챔버가 존재하기 때문에 메인장비의 모습을 5각형으로 표현하였고 이에 연결되는 각각의 챔버들을 함께 표현해 주었습니다. 사용자는 이 화면에서 설비의 이름과 설비에 해당하는 장비 그 리고 장비에 속하는 챔버들의 정보를 한번에 확인할 수 있습니다.

This is the screen before the equipment data is generated. The layout is designed to resemble the actual equipment, with each piece of equipment having four chambers, so the main equipment is represented as a pentagon, with each of the connected chambers displayed accordingly. On this screen, users can view the name of the facility, the equipment associated with the facility, and the information about the chambers belonging to the equipment all at once.



Each piece of equipment is represented by a single card, allowing you to easily check the name and detailed information of the corresponding equipment.

> A simplified image of the complex equipment is provided, with indicators marking the chambers that require anomaly detection.

Dashboard 🖏



How can we simplify the representation of complex equipment and highlight chambers that require anomaly detection for better understanding?

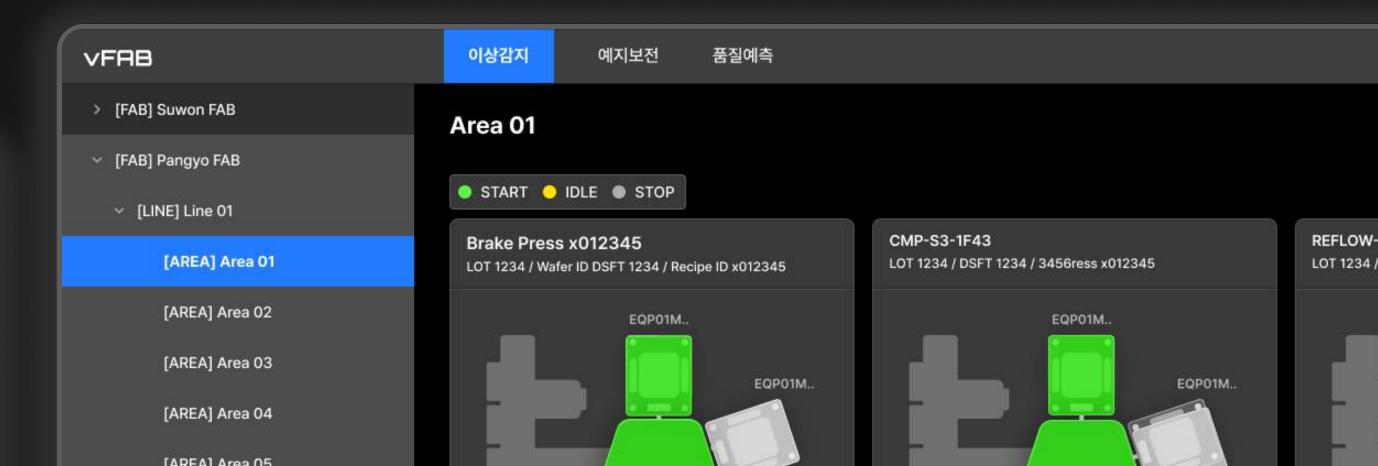
제조업에서 통상적으로 사용하는 기준 색상을 사용하여 설비의 상태를 표현해 주었습니 다. 이로써 사용자는 직관적으로 장비의 이상상태를 파악할 수 있습니다. 장비의 챔버에 이상이 생기면 해당 챔버의 색상이 노란색 또는 회색으로 보여집니다. 그리고 이러한 경우가 발생을 하면 해당 챔버의 문제원인을 찾고 바로 조치할 수 있는 메뉴들도 함께 제공되어집니다.

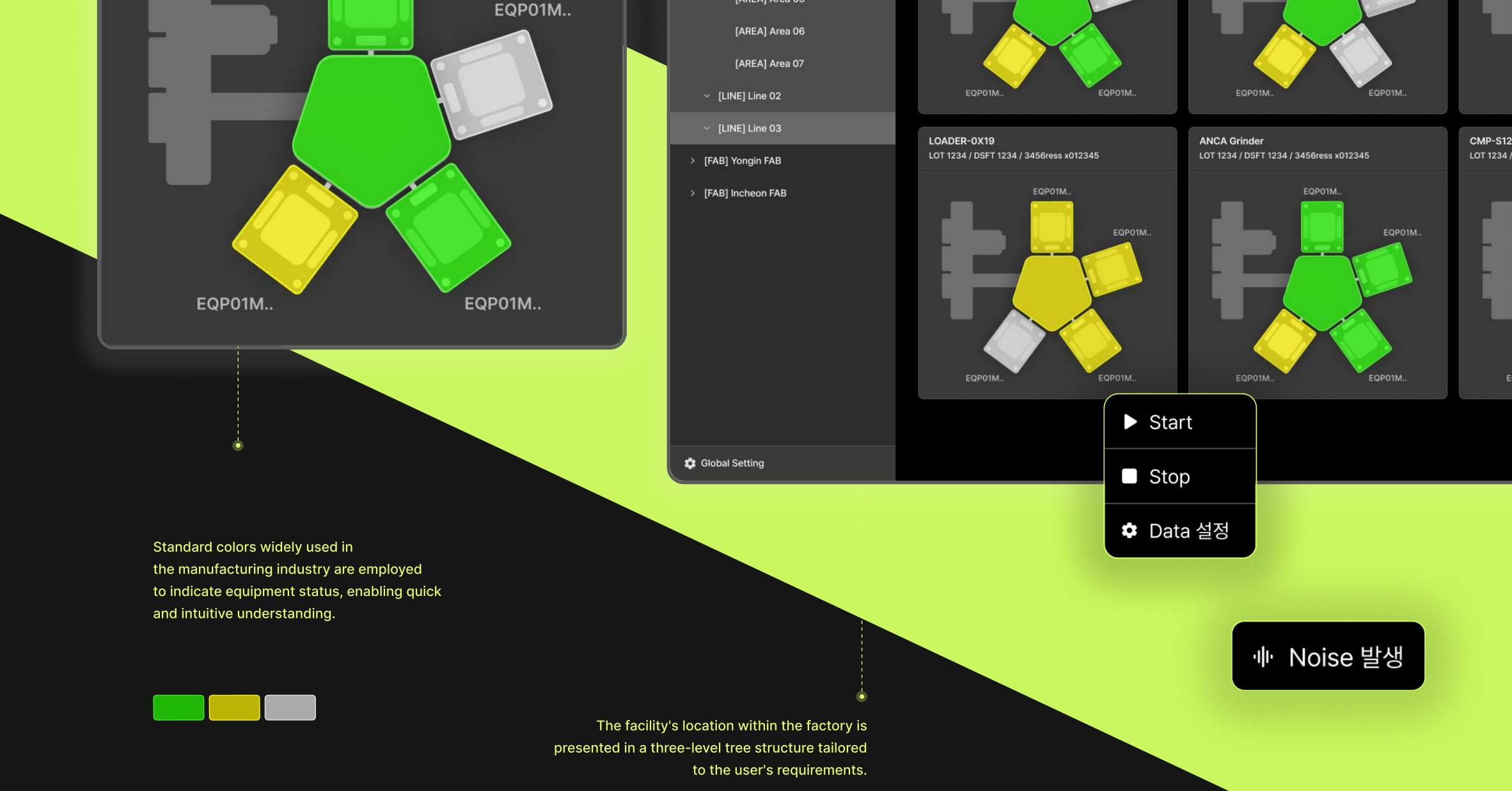
Standard colors are commonly used in the manufacturing industry to indicate equipment status. This system enables users to quickly and intuitively recognize any abnormal conditions. If an issue arises in a chamber, the affected chamber is highlighted in yellow or gray. Additionally, a menu is provided to help users identify the cause of the problem and take prompt corrective action.

Brake Press x012345

LOT 1234 / Wafer ID DSFT 1234 / Recipe ID x012345

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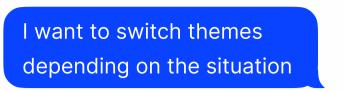


Monitoring White Theme

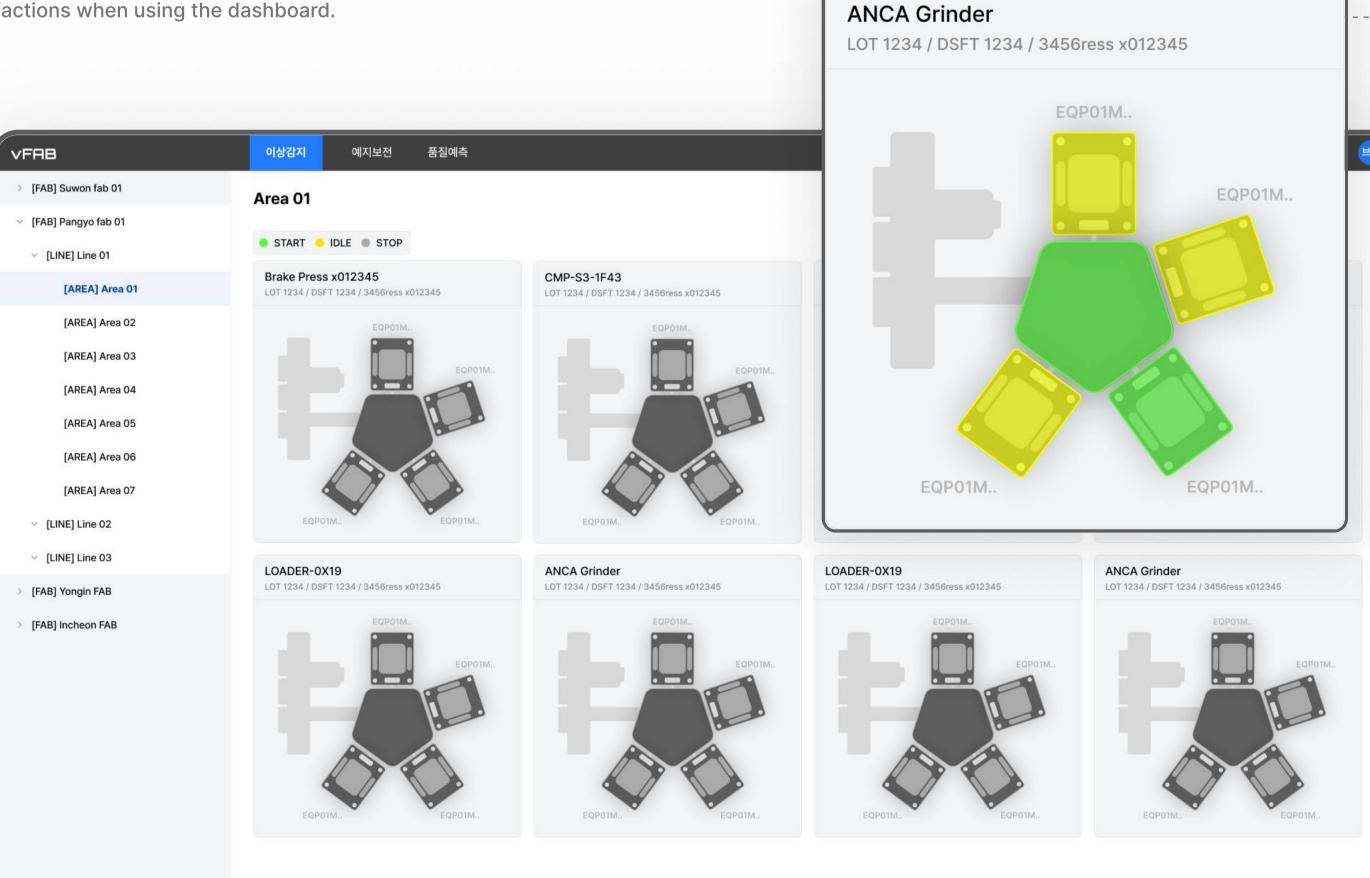
Global Setting

A white theme was also designed to maximize information readability and provide an intuitive user experience in the manufacturing monitoring dashboard.

The white background offers a clean and tidy feel, while emphasizing color contrast in data visualization, making it easier to distinguish important information or alerts. This allows users to quickly assess the situation and take necessary actions when using the dashboard.





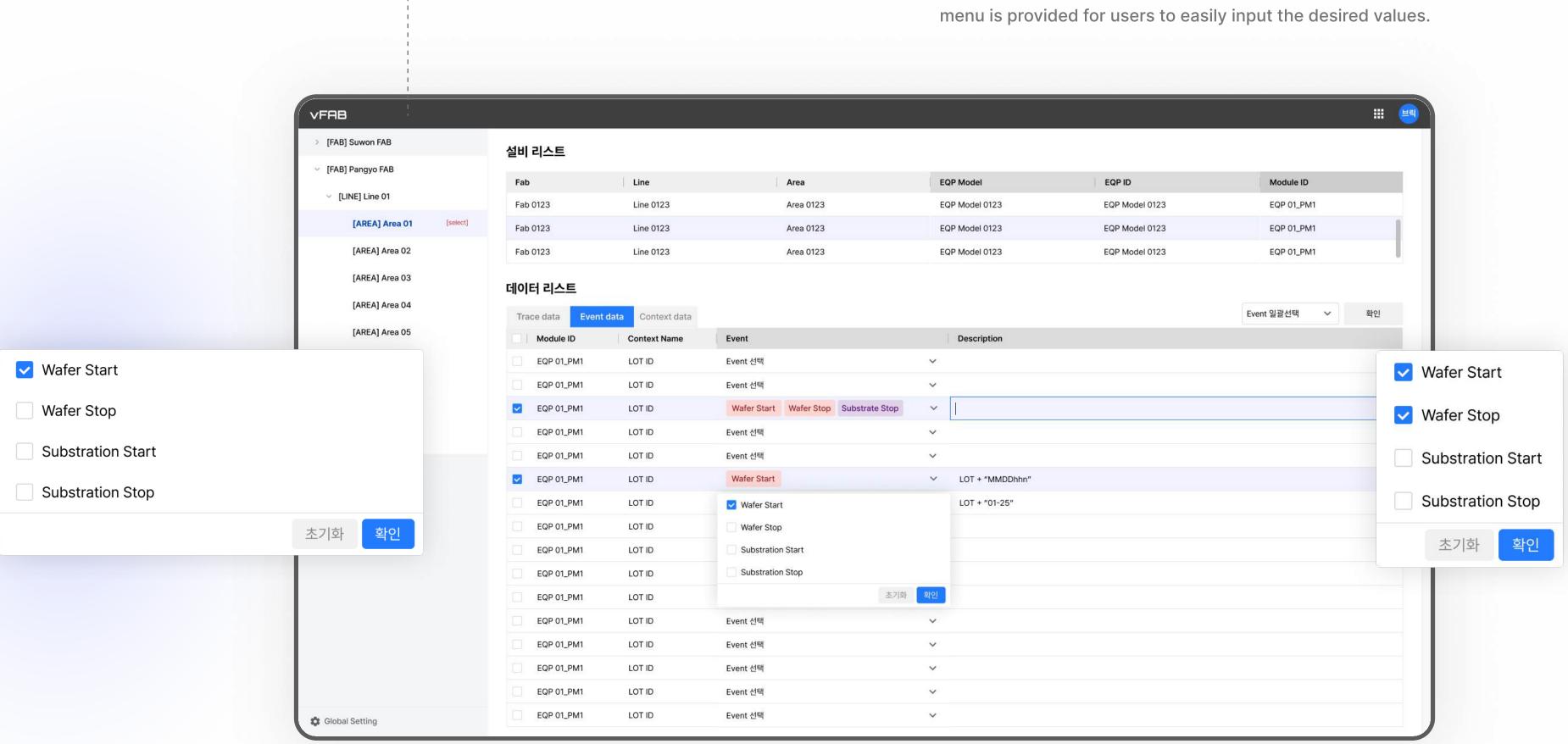


By selecting colors that can be applied to both dark and light themes, we have considered not only user convenience but also the ease of development.

Users can view the data logs related to the equipment and apply the desired settings.

Equipment List and Data Settings Screen

This is the screen displaying the equipment list and data settings. From this screen, users can take the necessary actions for the respective equipment. The colors are differentiated based on the nature of the table columns, and a dropdown menu is provided for users to easily input the desired values.



Recurring Pattern Identification and Bulk Application Screen

This is a screen that helps identify recurring patterns or characteristics within the data.

For example, it allows users to discover patterns such as a decline in the performance of a specific machine over time or frequent defects occurring during product production.

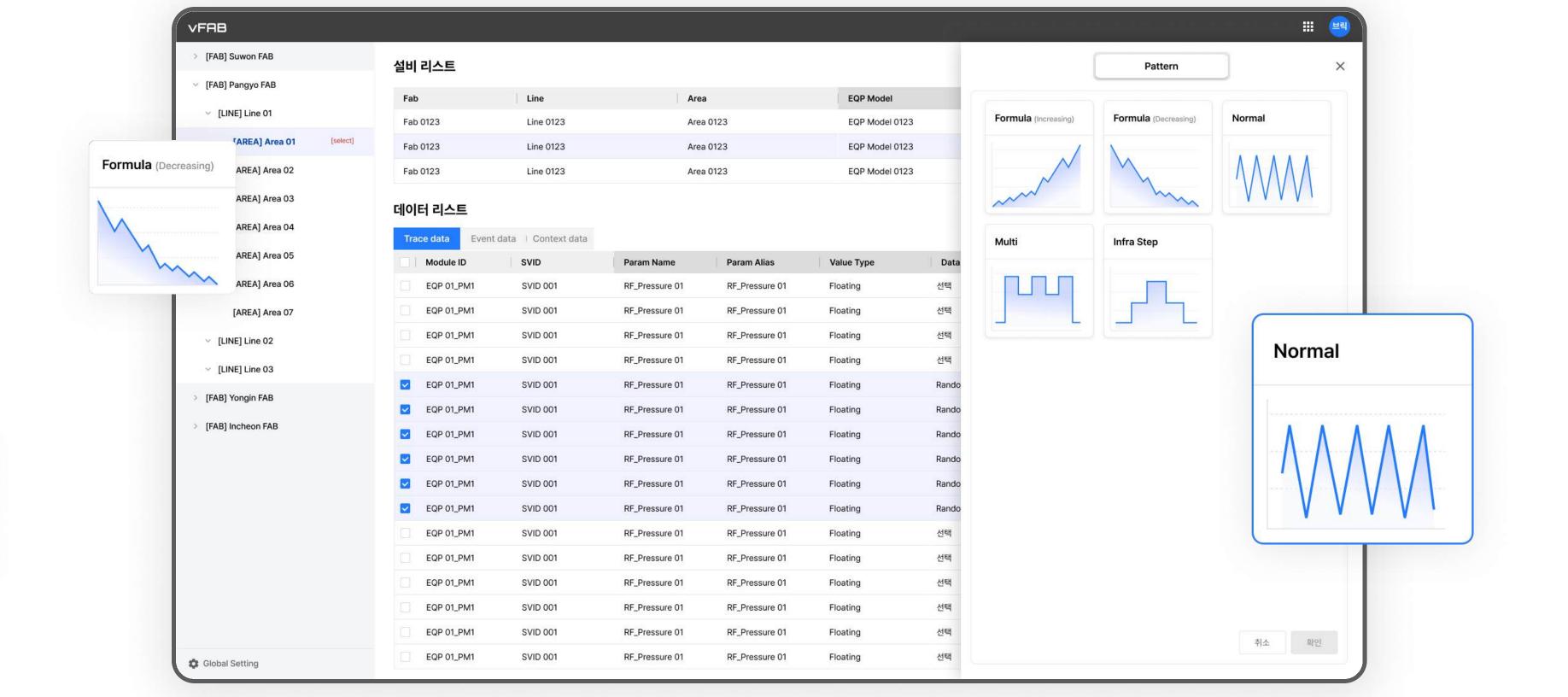
The screen enables users to select the data and apply patterns in bulk.



Infra Step

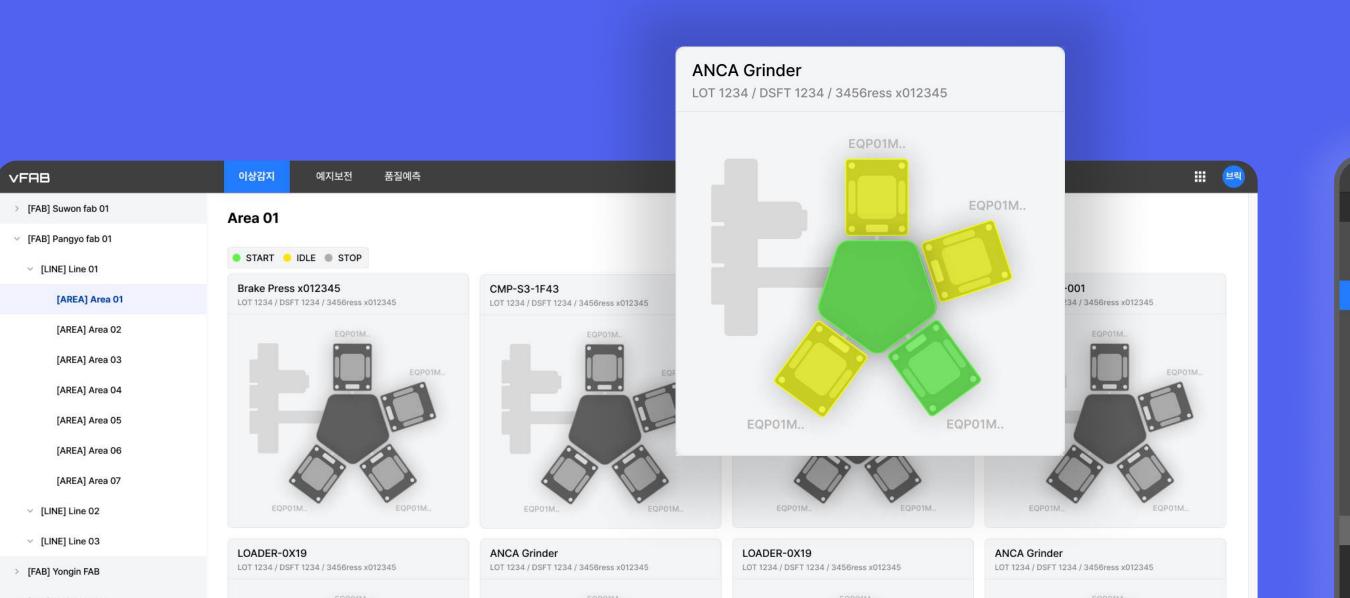


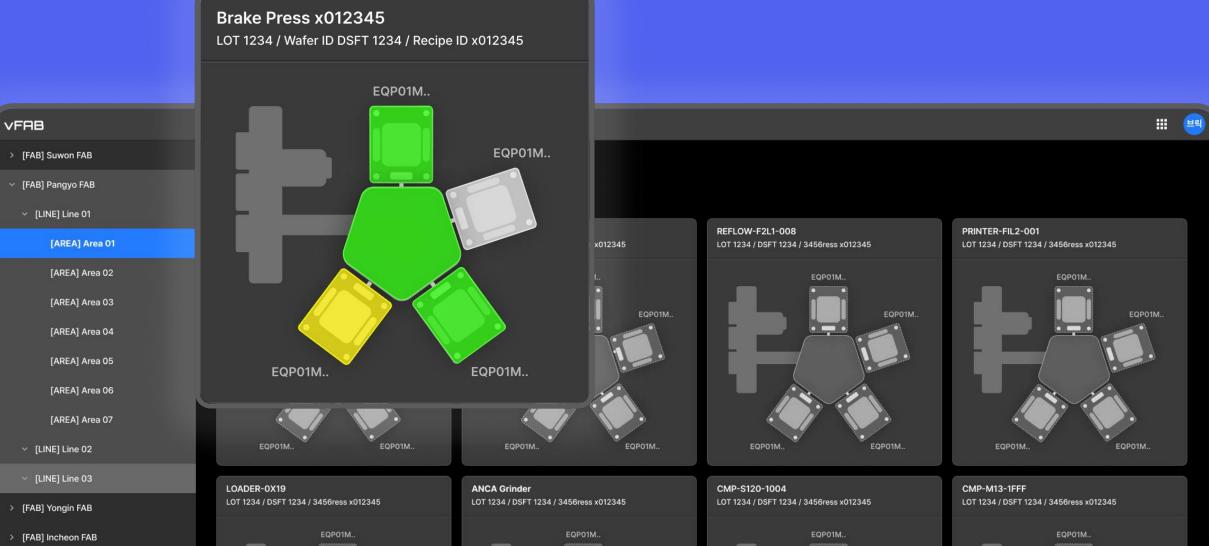
Infra Step



UIUX Designer

Yoon CHAE





Analytics Dashboard Service

sold to companies in the manufacturing industry like SAMSUNG & SK hynix

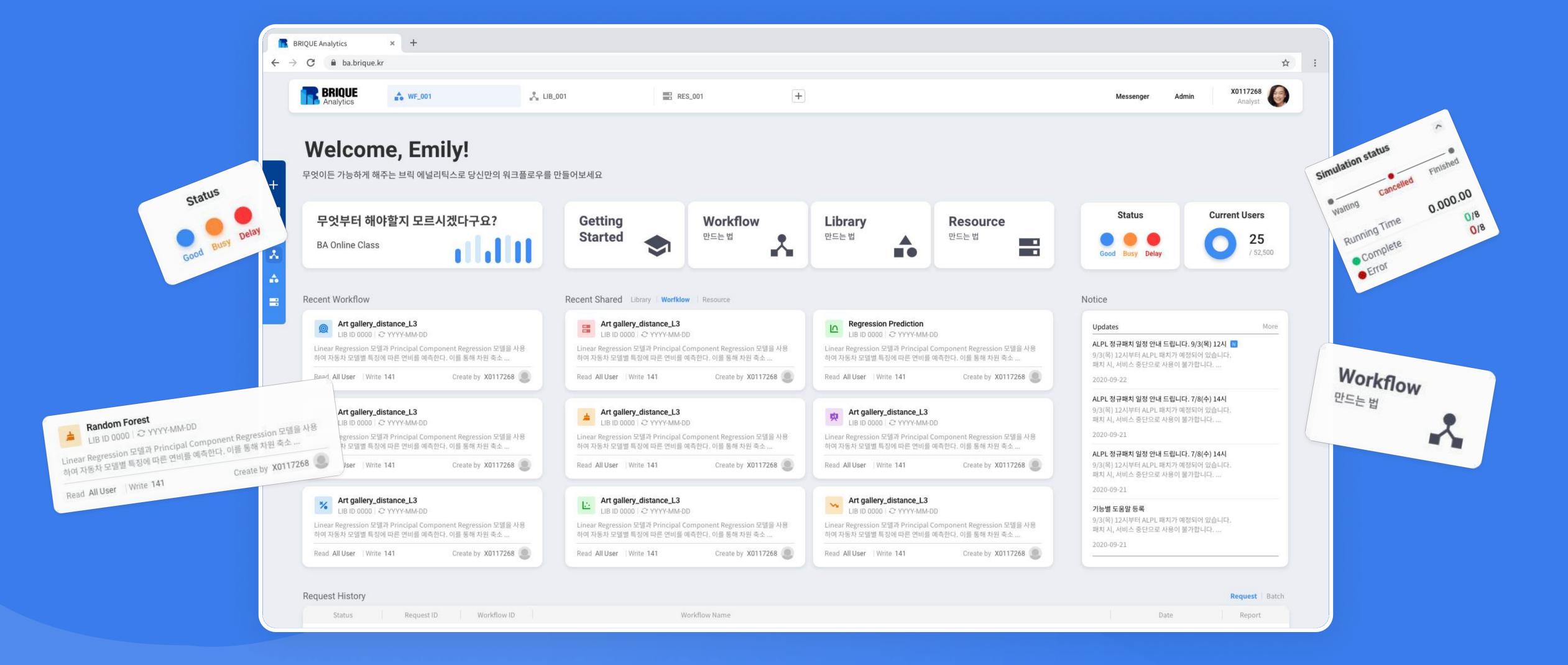
Challenging Aspects

As a data analytics platform, providing an easy-to-use UI/UX was a significant challenge due to its numerous features. Deciding which data to display or omit on the UI screen among the vast amount of data available was always a complex task. Additionally, we focused on creating a bright and user-friendly image that sets us apart from existing products on the market. Above all, the design prioritized convenience to ensure a seamless user experience.

Successful Achievements

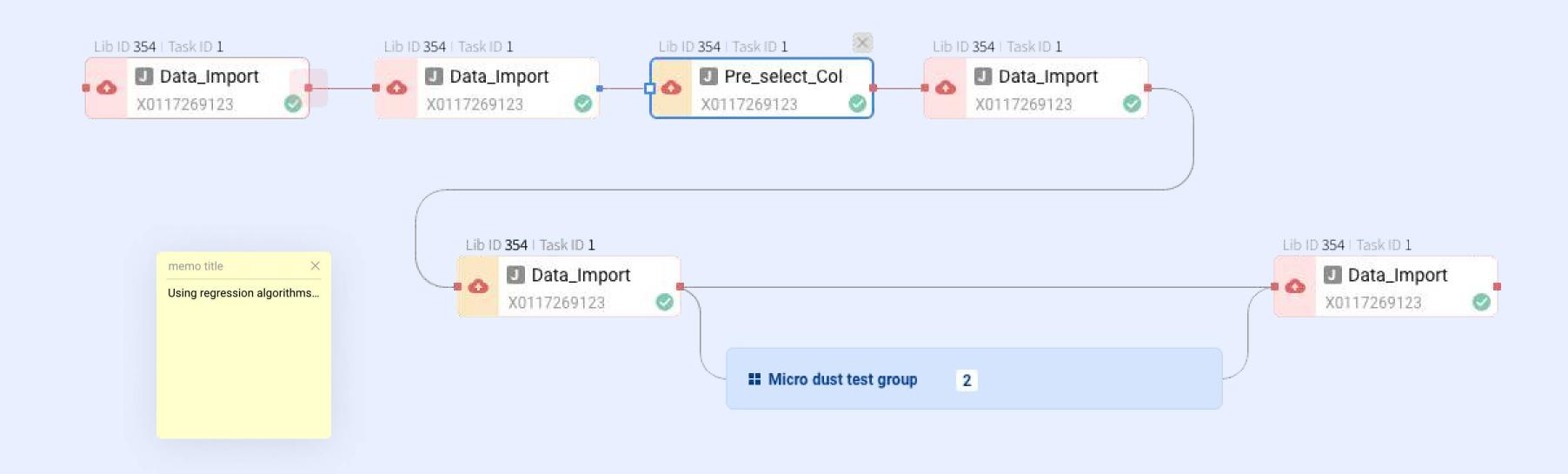
This solution is currently being used by Samsung and SK Hynix, who were already weary of the dark and dull appearance of their internal systems. By incorporating more vibrant colors, rather than the usual black-and-white schemes they frequently encounter, we successfully captured the users' attention at first glance. Furthermore, this approach not only enhanced the solution itself but also provided scalability as a product for our company.

Web Dashboard UIUX Design



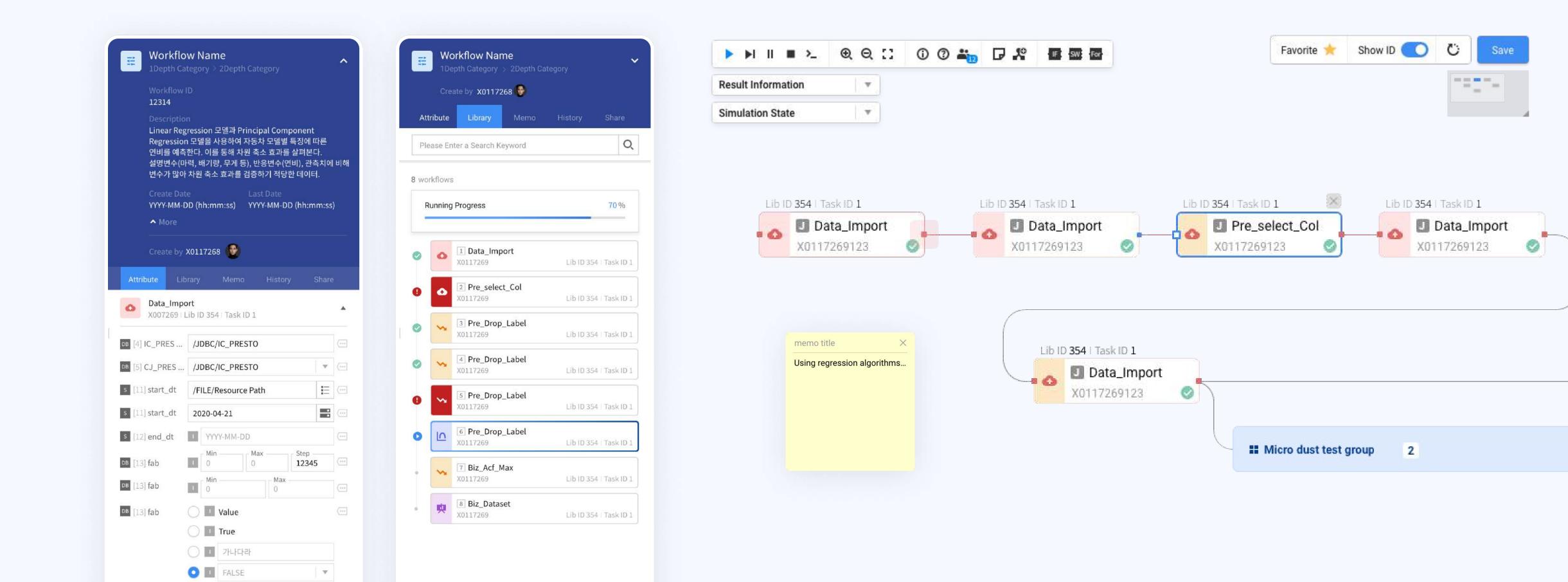
Designed internal tools for data analysts to create data visualizations based on workflows.

Normally data analysis tools are complex and difficult to use. Focused on making them simple and engaging while ensuring that users can quickly grasp the data at a glance.



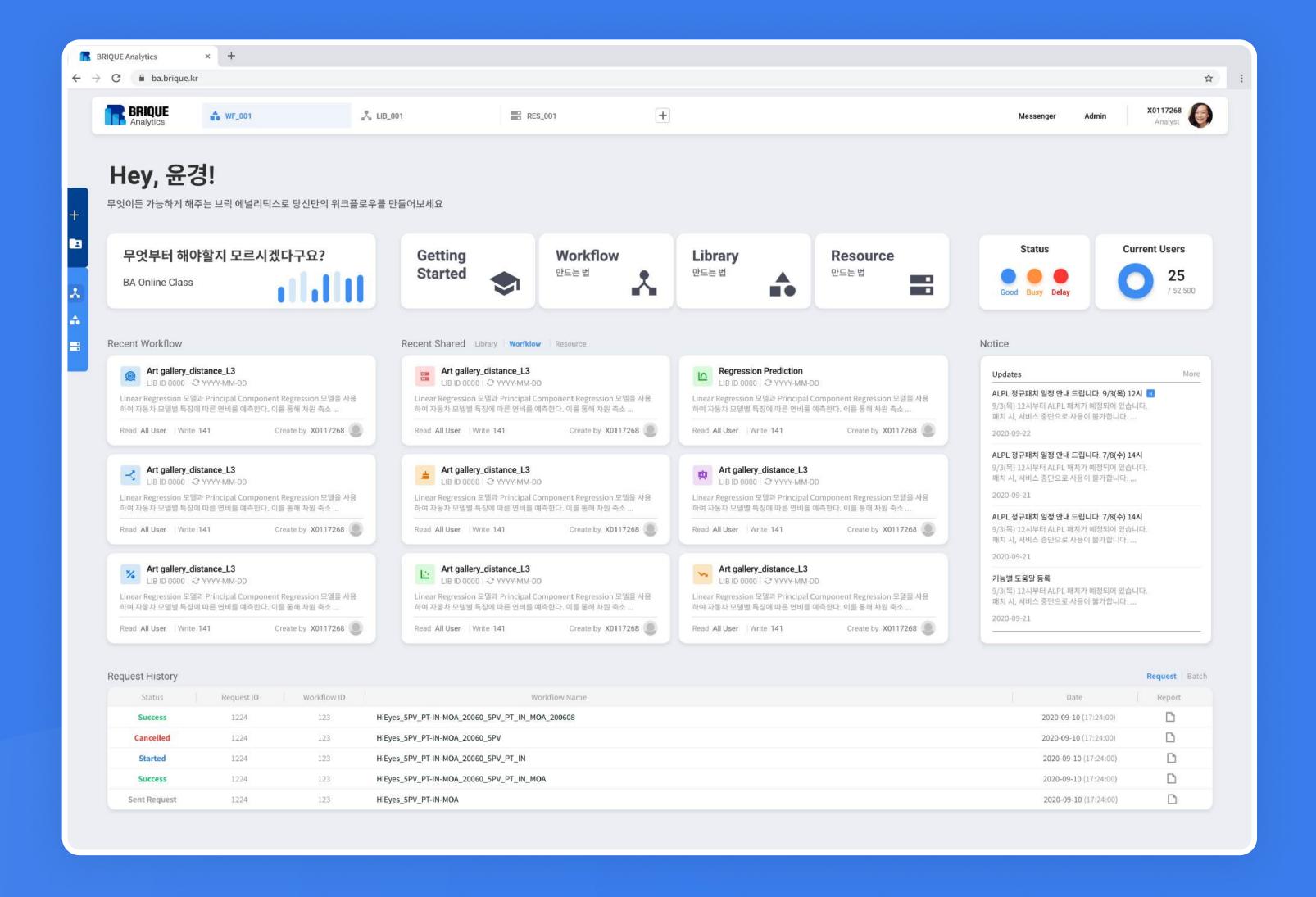
Customizable Data Workflows with Interactive Controls

You can create workflows by connecting data libraries based on the type of data analysis you want to perform. In the detailed view, you can also modify the variables of the data libraries. Furthermore, you can visually confirm whether your workflow is progressing correctly in the sequence you set.



Intuitive Dashboard for Managing Data Libraries and Workflows

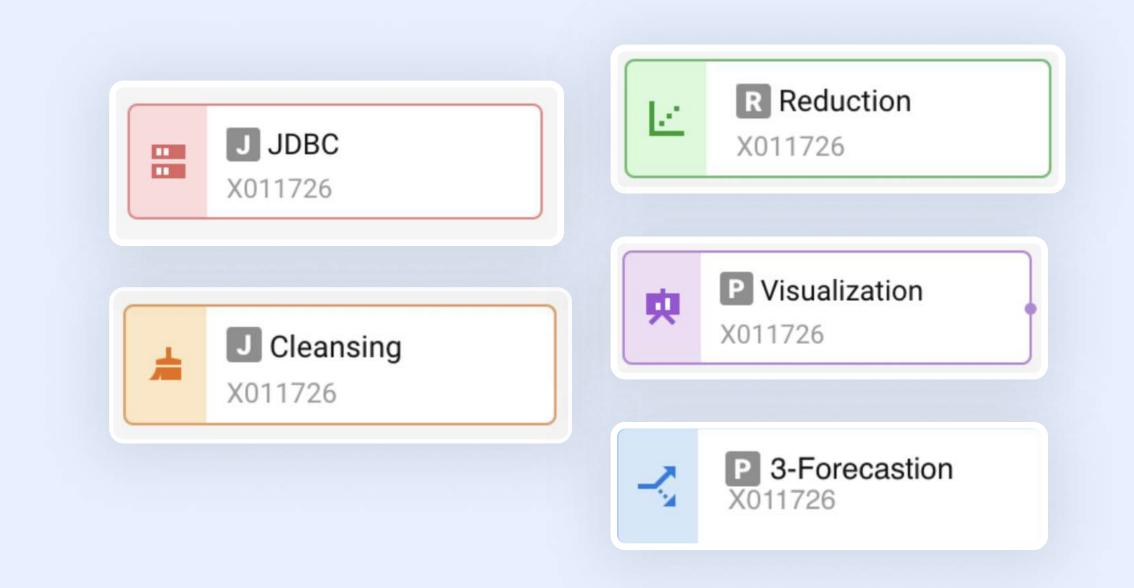
Designed an intuitive main dashboard to manage data libraries and workflows used for collecting, storing, processing, and analyzing large volumes of data at a glance.

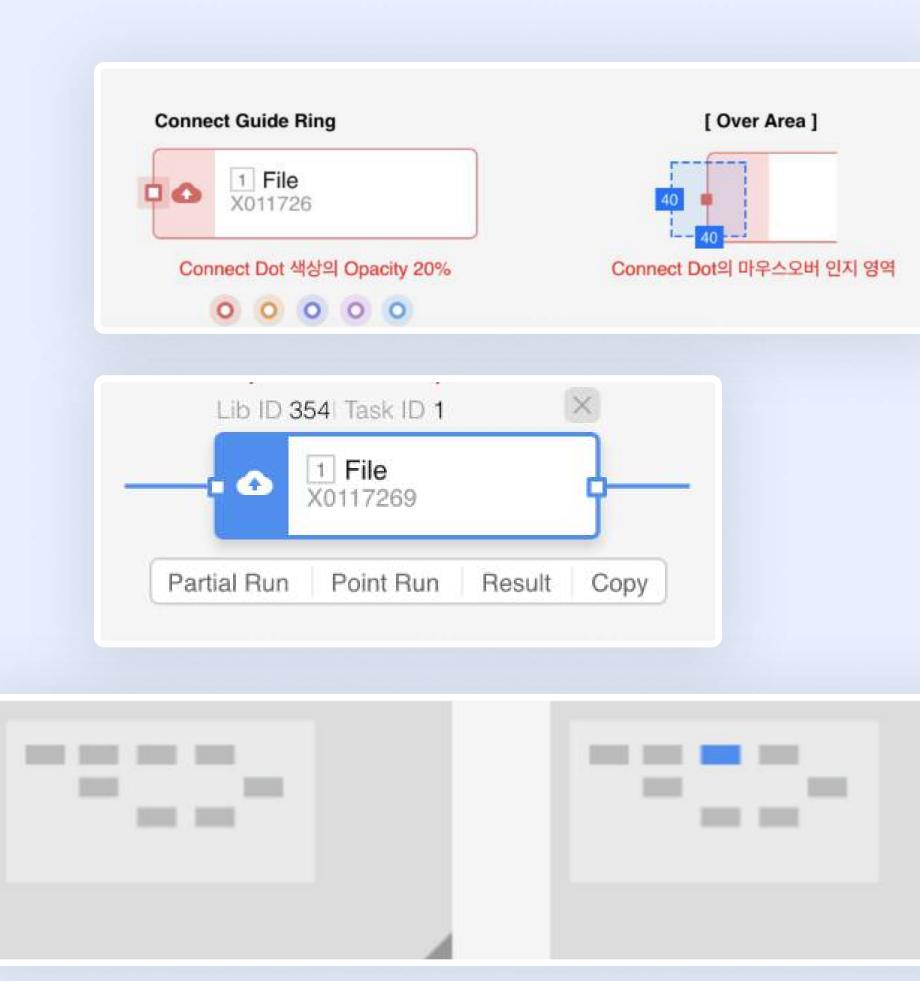


Simplified Data Library Management with Colors and Achievement Elements

Categorized data libraries using color-coded representations for each of the five stages of data analysis, enabling users to intuitively identify the category of a library at a glance.

To enhance user engagement, achievement-based elements were integrated into the process of connecting data libraries, ensuring the interactions remain dynamic and visually stimulating.





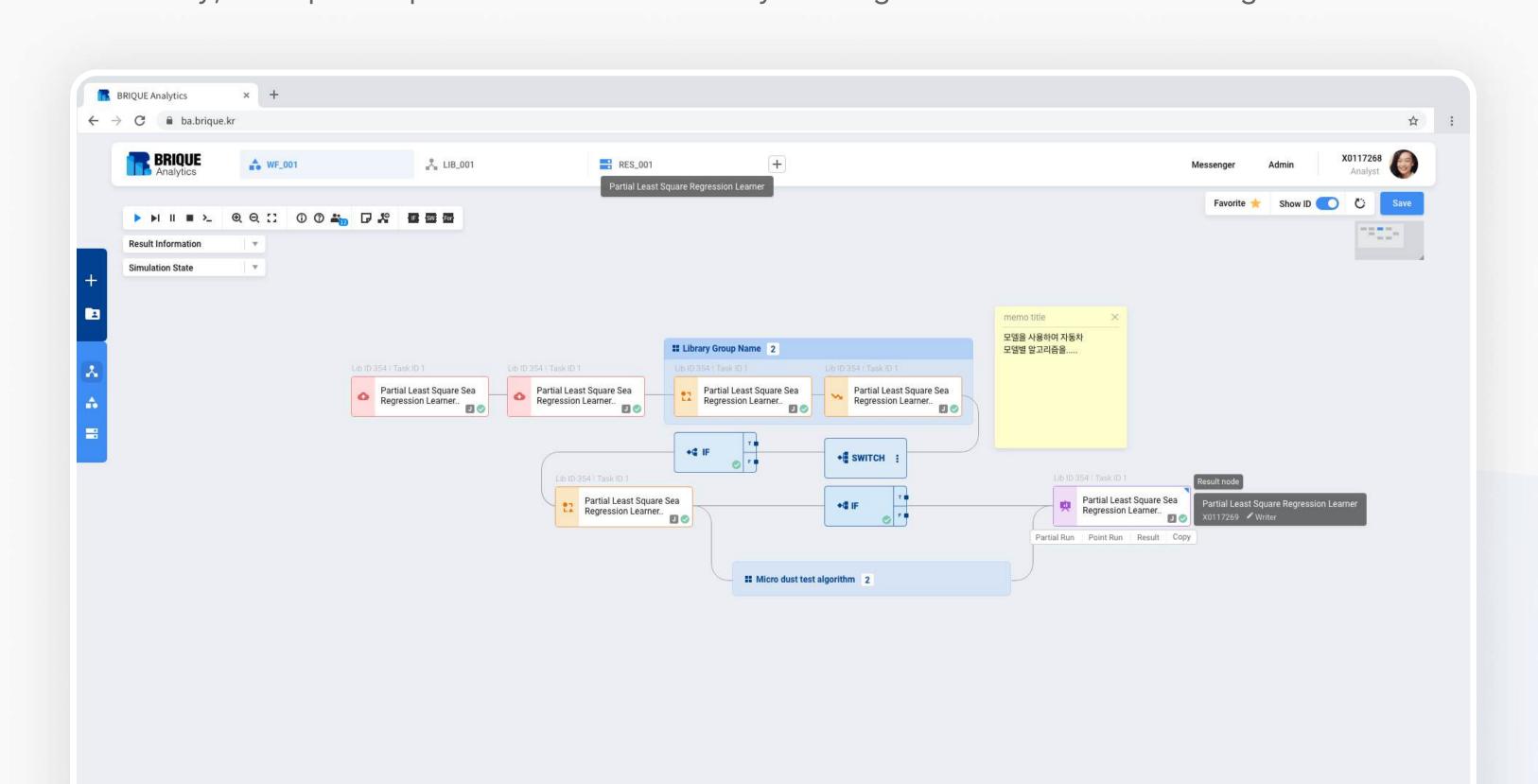
User-Centered Data Analysis Workflow UI Design

This intuitive workflow visualization tool is designed to help users easily understand progress and connections at a glance, with clear representation of conditions like IF and SWITCH.

Data libraries are color-coded to reduce visual fatigue and allow for easy category recognition.

The memo feature enables collaboration and record-keeping, while the result nodes highlight analysis outcomes. Icons and tags are designed for quick access to key information, and essential functions such as run, save, and settings are placed at the top for improved efficiency.

Additionally, tooltips are provided to make it easy for beginners to learn and navigate the tool.



Equipment Notification System

sold to companies in the manufacturing industry like SK hynix

Challenging Aspects

Effectively visualizing complex, real-time equipment data without overwhelming users was a major challenge, requiring extensive research and iterative improvements to balance clarity and informativeness. Additionally, understanding and incorporating user needs and workflows were crucial in deciding which information to prioritize and how to structure it on the dashboard. The UI was designed to be scalable, ensuring it could handle not only current data but also accommodate increases in data volume and complexity. Efforts were also made to integrate the design seamlessly into existing manufacturing environments while maintaining a clean and modern aesthetic.

Successful Achievements

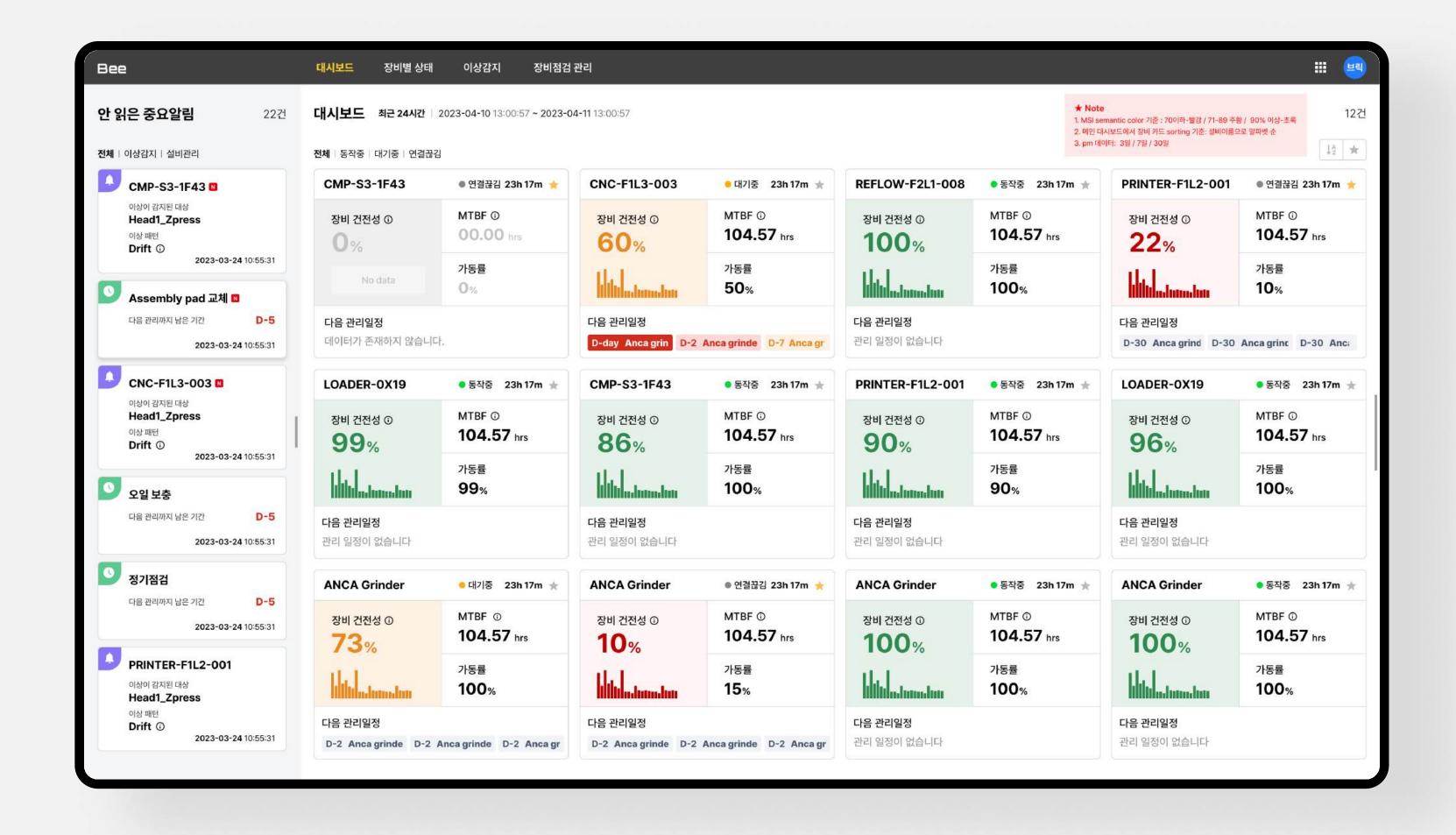
The UI was designed with a workflow-centric approach, allowing users to quickly interpret data. It also eliminated unnecessary steps to enable easier decision-making. Additionally, the system interface was improved with a modern and user-friendly design, significantly enhancing user satisfaction. The design highlighted easy access to critical data and integrated real-time alerts seamlessly, reducing users' response times and improving operational efficiency.

UI/UX DESIGN

Designing an Effective Dashboard for Real-Time Equipment Data Visualization

The main section of the dashboard provides an overview of the equipment's status, with anomalies highlighted using color indicators.

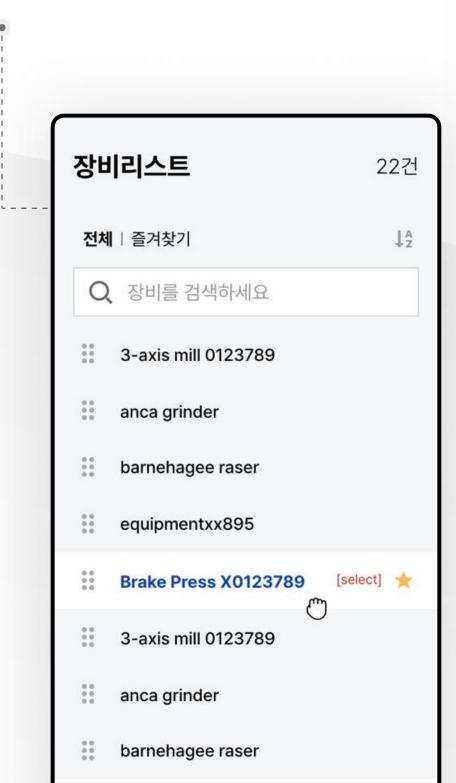
On the left, notifications about detailed components of each piece of equipment are displayed.

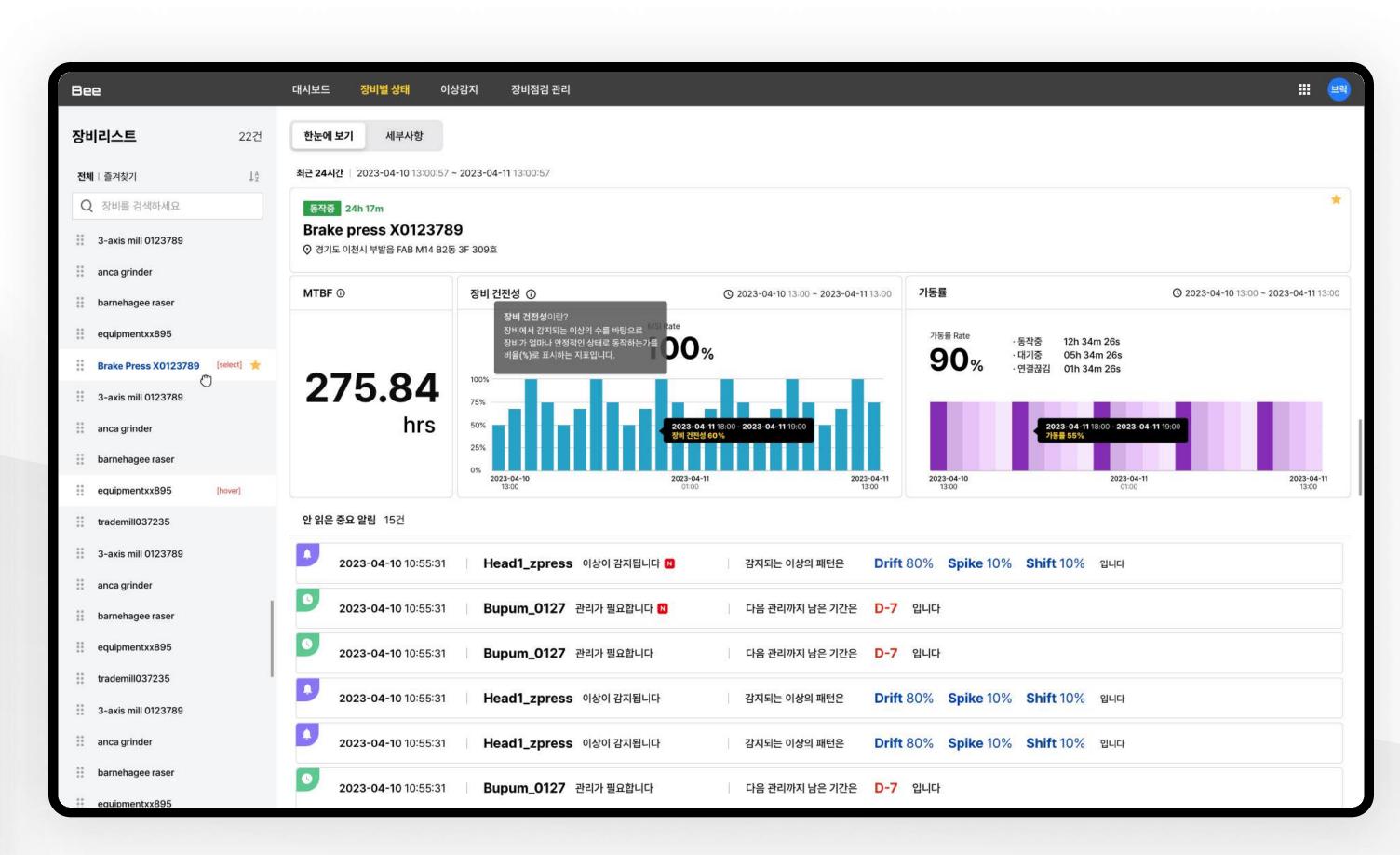


Providing a User-Centered Simplified Navigation System

In detailed user tests we found out that users do not want to go through a category tree to find the equipment they need.

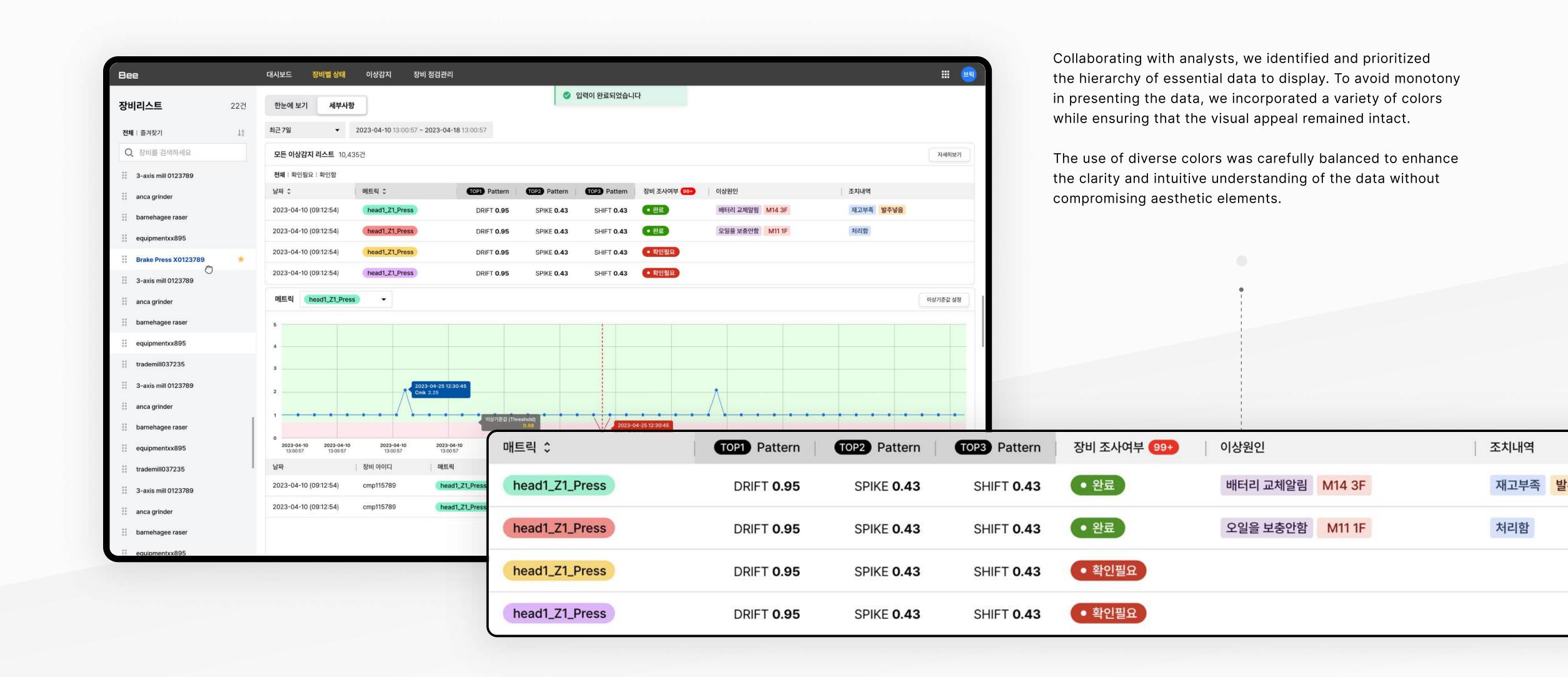
The result was a simple lists where they can move prioritized items to the top / bottom and use a context search to find what they need right away.







Enhancing Data Visualization with Prioritization and Aesthetic Balance

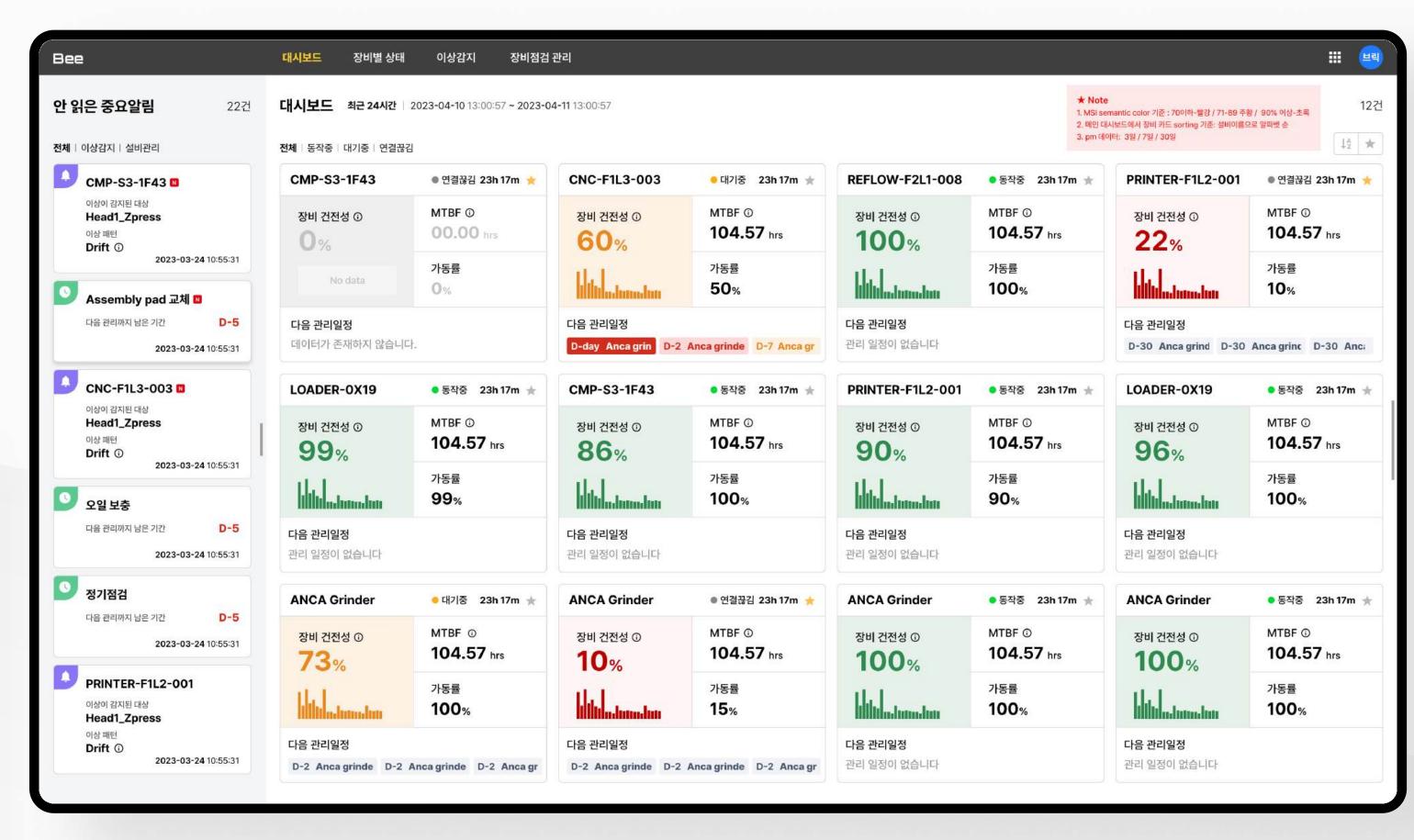


Prioritizing and Structuring Essential Data for Enhanced User Experience

Essential data for users is prioritized and organized within the cards, allowing for quick and easy access at a glance.

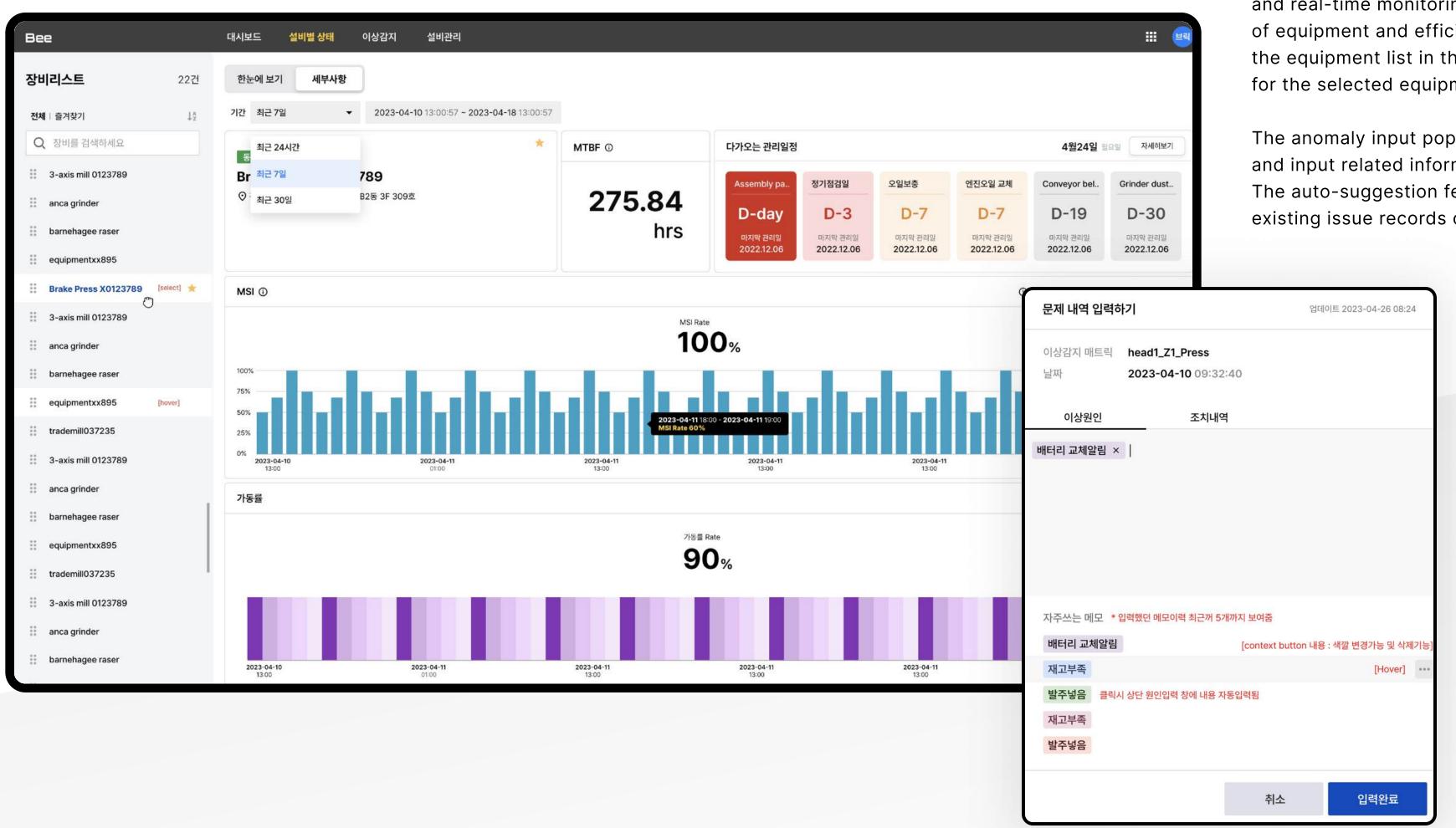
Each card is designed to visually present various types of information in a clear and systematic manner, ensuring a balanced and consistent layout that enhances usability and provides a seamless user experience.







User-Friendly Dashboard for Streamlined Equipment Monitoring and Issue Management



This screen is a dashboard designed for equipment management and real-time monitoring, allowing users to quickly grasp the status of equipment and efficiently handle any anomalies. Users can view the equipment list in the left panel and visually examine detailed data for the selected equipment in the main section on the right.

The anomaly input popup is designed to allow users to record issues and input related information immediately when an anomaly occurs. The auto-suggestion feature enables users to quickly retrieve existing issue records or add related data.

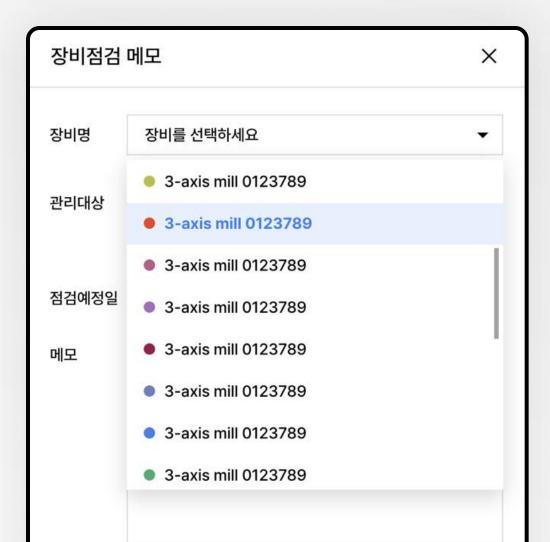
Providing a User-Centered Simplified Navigation System

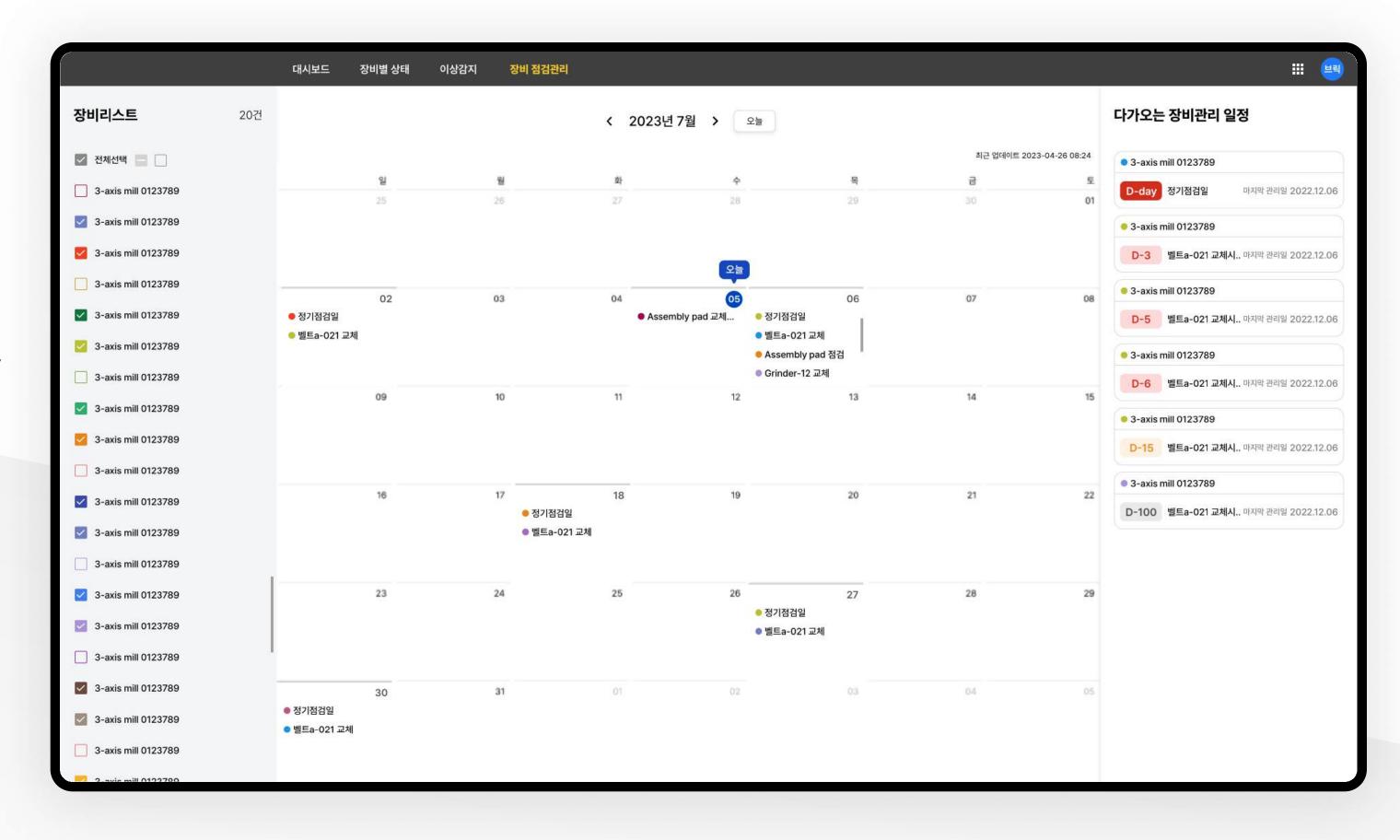
This screen is a calendar-based interface designed for managing equipment inspections and maintenance schedules. It enables users to efficiently view and manage inspection records and upcoming maintenance tasks.

Each schedule is distinguished by color coding based on task type, allowing users to easily identify priorities and the importance of each task.

In addition to the calendar, a list view is provided for upcoming inspections and maintenance schedules. Each schedule includes a D-Day indicator, ensuring time-sensitive tasks are not overlooked.

The interface allows users to select specific equipment, d efine the management target, set the inspection date, and record notes, providing a streamlined and intuitive way to document and manage tasks.





Finance Dashboard

Personal project

Challenging Aspects

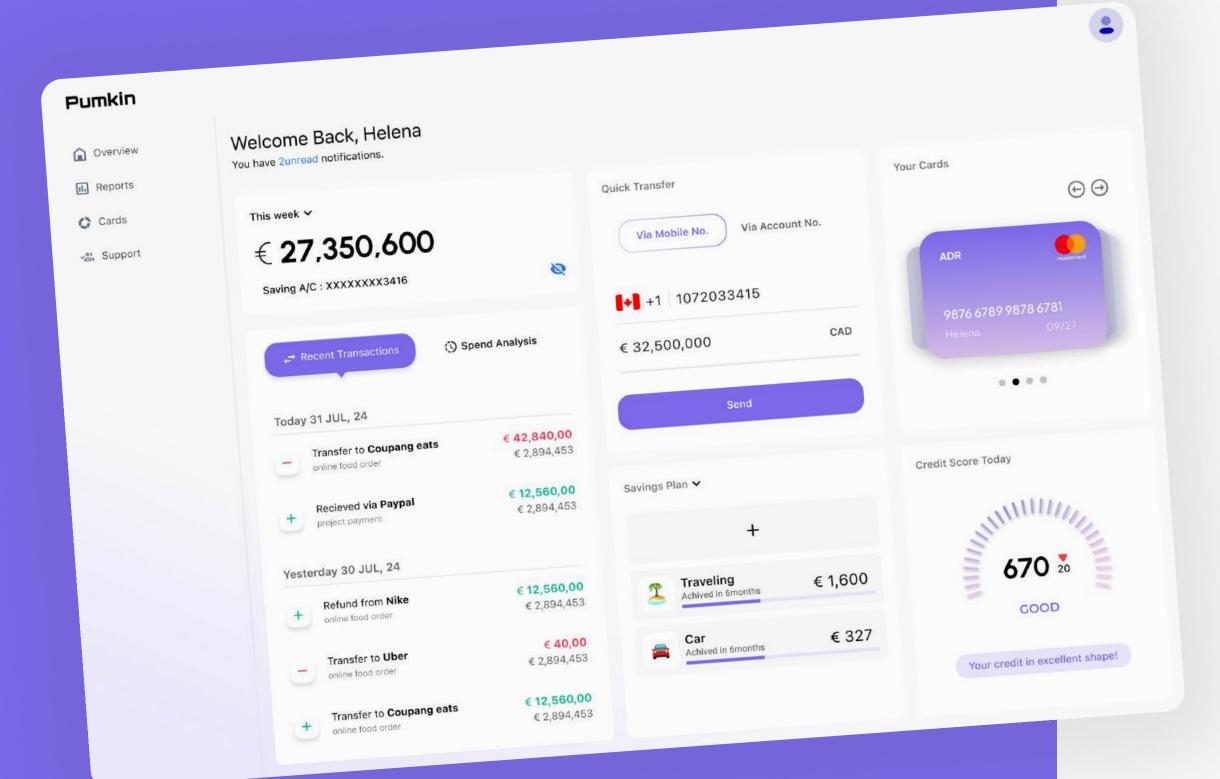
This dashboard focuses on creating an intuitive and user-friendly financial management experience, addressing several challenges in the process. It balances clarity and accessibility by using bright colors and smooth graphs to reduce complexity while maintaining readability. The personalized section reorganization feature required efforts to ensure layout consistency. Additionally, it prevents information overload by effectively structuring key and additional data, while visually emphasized buttons and interactive elements successfully guide user actions. The inclusion of visual feedback, such as savings progress and credit scores, motivates users while carefully minimizing any sense of burden, achieving a delicate balance.

Successful Achievements

This dashboard provides an intuitive user experience by using bright and friendly colors, smooth curved graphs, and interactive elements to ensure that financial management does not feel overwhelming for users. It also supports a personalized experience by allowing users to reorganize various sections, such as account balance, transfers, and savings goals, according to their needs. Key information that users frequently check is placed at the top of the screen, while additional details are structured for easy navigation, preventing data overload while enabling in-depth exploration. Furthermore, visual feedback elements like savings goal progress and credit scores motivate users, while visually emphasized buttons, such as "Send" and "View Analysis," encourage actions effectively.

Pumkin

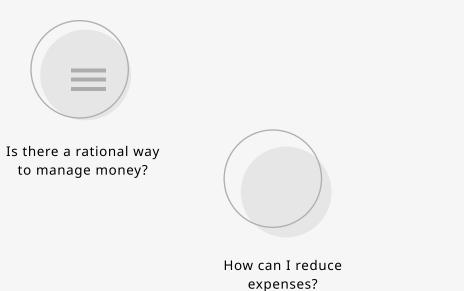
Online finance management service Web dashboard UI design



SUBJECT

Financial Service for spending habits

In OECD countries, people with lower financial literacy tend to have lower savings rates and higher consumption growth than income growth. They also struggle to reduce spending. Therefore, tools to easily track expenses and manage overall finances are needed.





About Pumkin

Pumkin offers a service that allows users to manage bank account statements and credit card statements in one centralized platform. It is designed to address the shortcomings of existing services, enabling more detailed financial management while supporting efficient spending and saving.

Pumkin

BACKGROUND STORY

- O1 The existing services do not integrate bank account statements and credit card statements.
- 02 The existing services do not integrate bank account statements and credit card statements.

HYPOTHESIS

Providing detailed card statements and cash management services together can help improve savings and spending management.

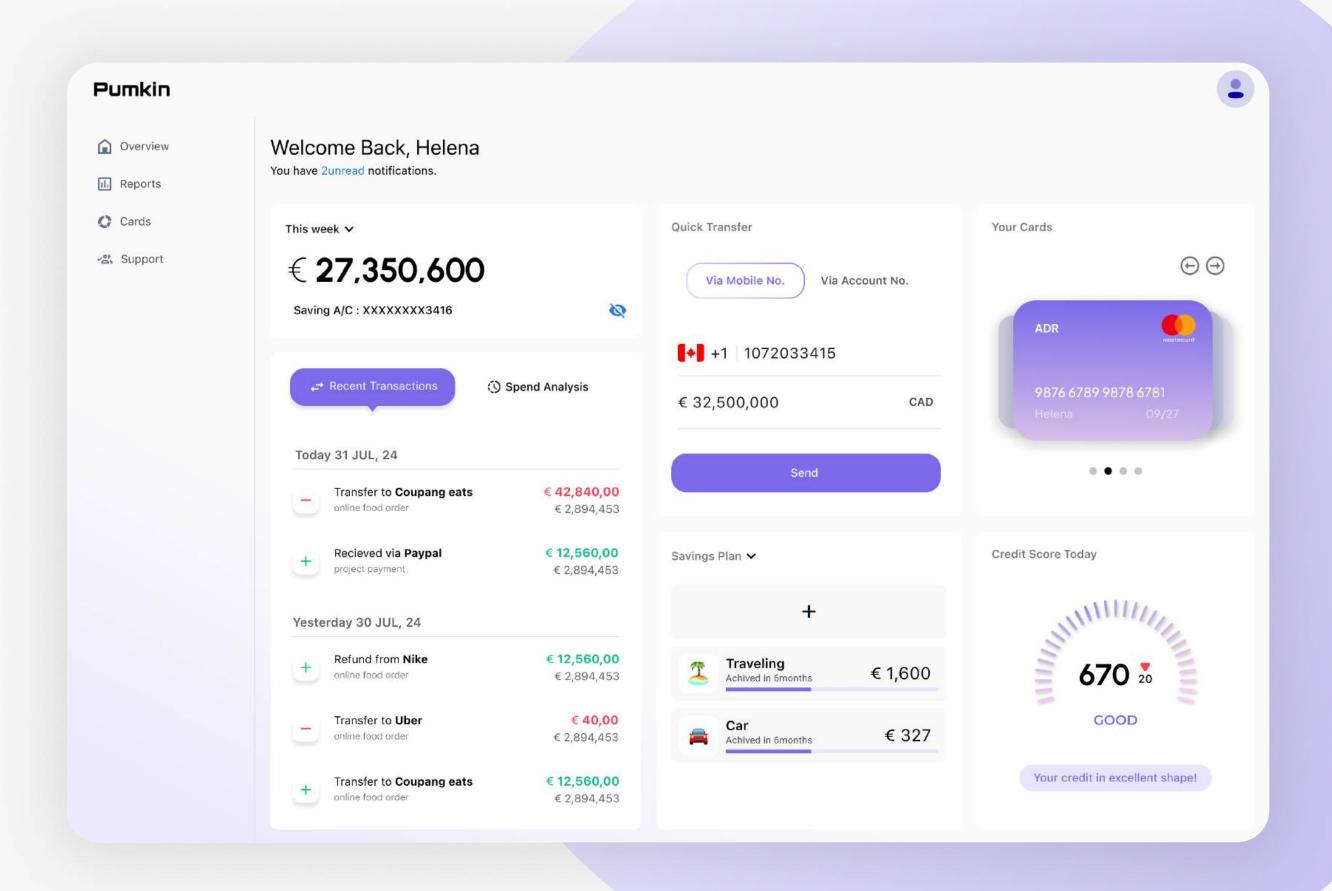
PERSONA

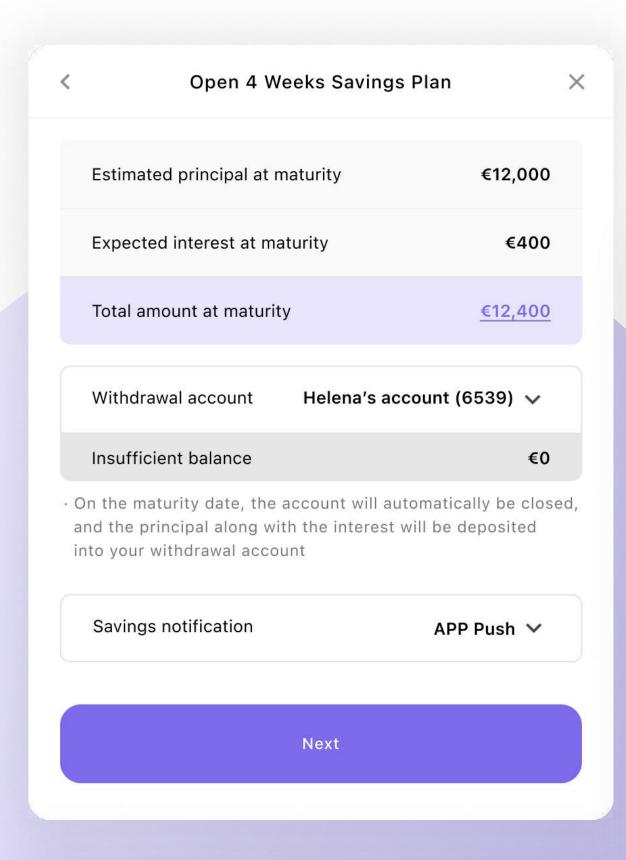
The primary target audience for the service includes individual users who recognize the need for better financial management but face challenges due to the fragmented interfaces of the services they currently use. These users often struggle with tracking and managing their finances effectively because their banking and credit card information is scattered across multiple platforms.

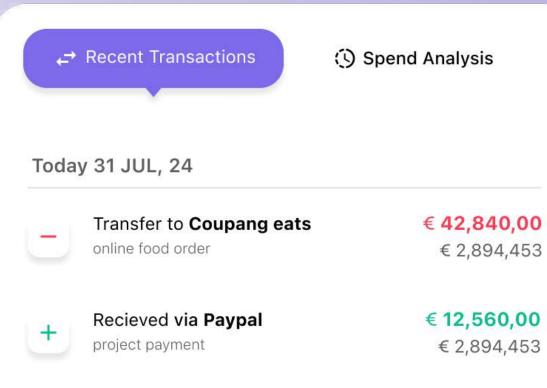


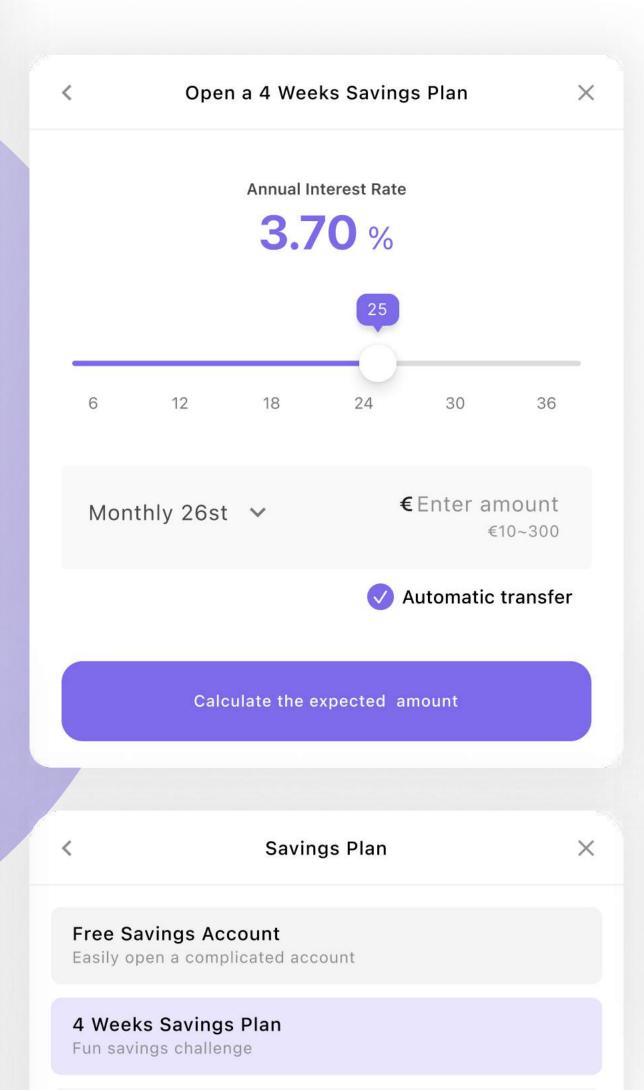
A Dashboard for **Easy Overview**

The dashboard is designed to center around a personalized welcome message and account balance, clearly displaying key transactions and credit scores for quick understanding of the user's financial status, while leveraging a simplified design and color coding to enhance data readability.







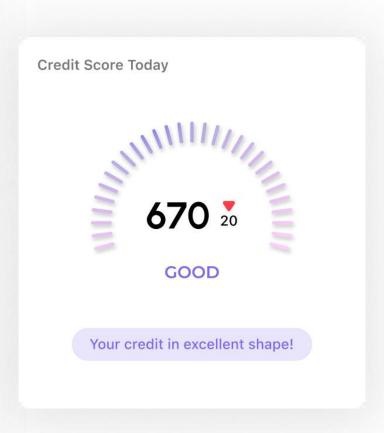


Smart Savings Management Experience with **Personalized features**

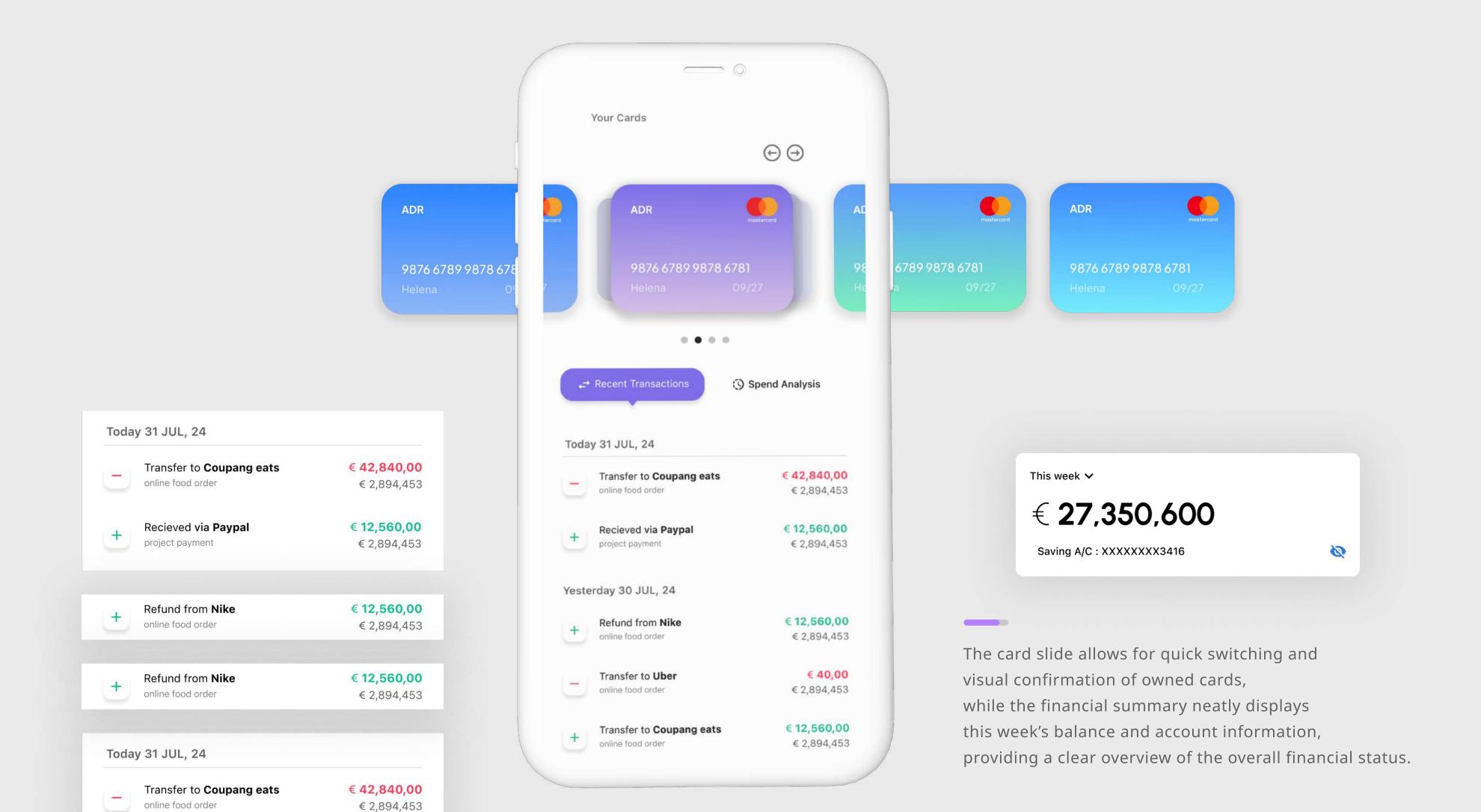
This interface is designed to help users easily set up and manage various savings plans by intuitively presenting key information such as savings amount, interest rate, and maturity date to support effective financial goal achievement.

The slider feature allows users to customize plans
by adjusting interest rates and durations effortlessly.

Monthly auto-transfer options and notification settings
further enhance the convenience of savings management.



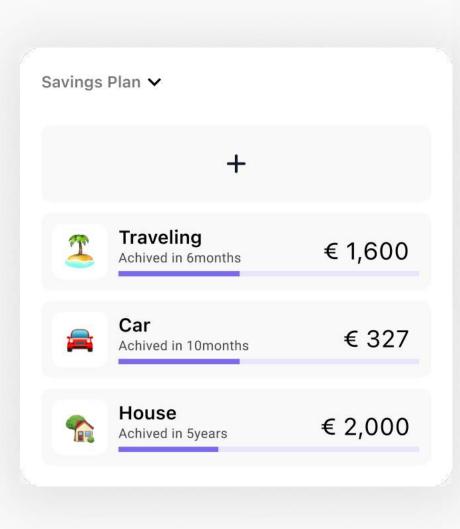
Streamlined Card Navigation and Financial Overview Interface

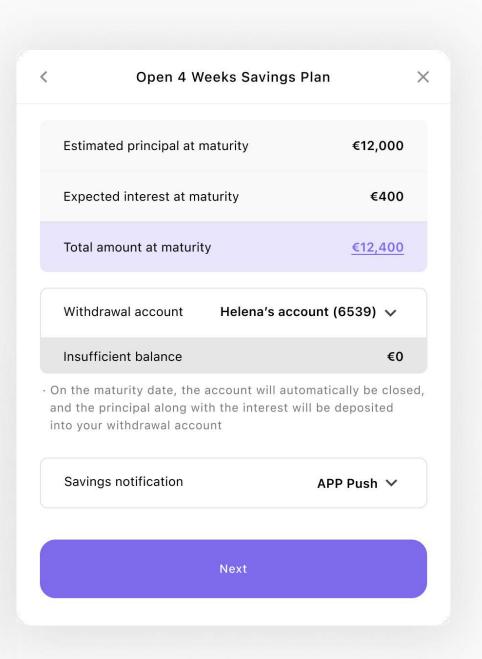


Simple Components for Easy Motivation

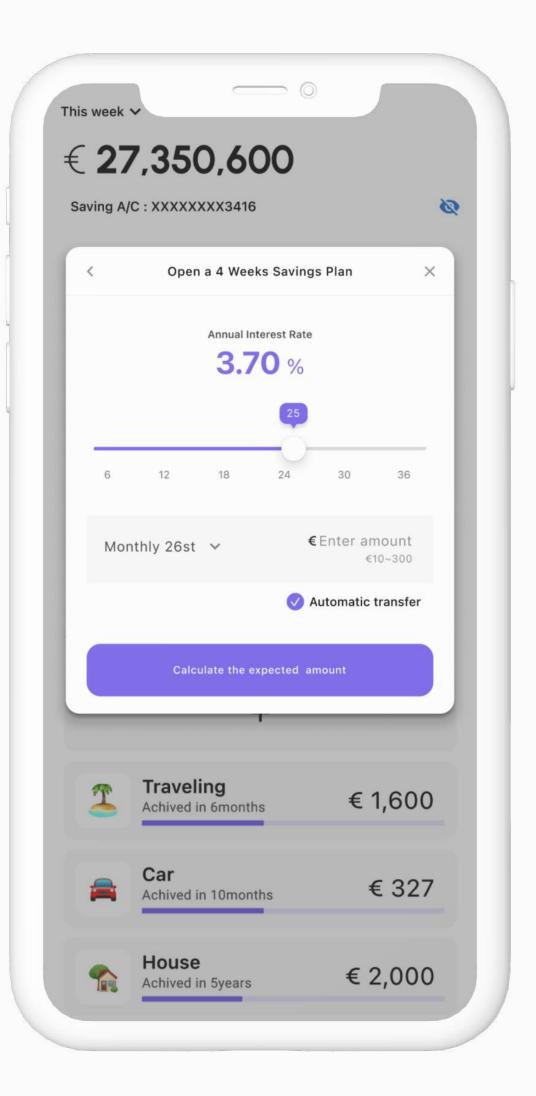
Specific savings goals such as travel, car, and housing are provided in a list format, allowing users to view their progress at a glance.

Each item clearly displays the target amount and achievement period, and users can easily create new plans through the "+" button.





The achievement status of each goal is visually highlighted to provide users with continuous motivation.



Thank you for watching

UI·UX Designer

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