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PROJECT TYPE
POS system for
counter-service bars

TECHNOLOGIES
React, Node.js, PostgreSQL,
IndexedDB, WebSocket, Docker,
ESC/POS integration

DURATION
4.5 months

METHODOLOGY
Scrum

TEAM
1 PM,
1 BA,
2 developers (frontend + backend),
1 UI/UX,
1 QA

Industries: Hospitality / Food & Beverage
Region: Netherlands

POS system for a fast-growing Dutch beer & snack bar chain

We developed a modern POS system tailored for counter-service-only bars, featuring fast tap-based ordering, integrated payments, shift tracking, multi-location menu sync, real-time branch performance monitoring, and offline mode.

The Client, BitterBier, is a fast-growing chain of Dutch beer & snack bars known for local brews and casual bitterballen platters. With 8 locations and growing demand during busy evenings, they faced operational limitations from an outdated POS setup: no remote menu control, slow cashier workflows, no offline mode, and no consolidated reporting.
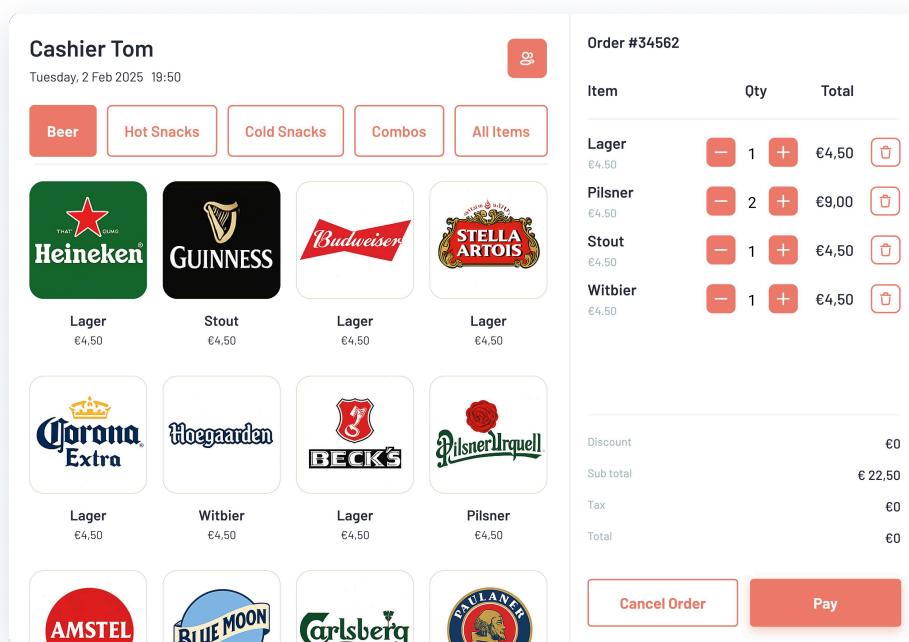
Project Special Features

✓ **Tap-to-sell interface** optimized for touchscreen terminals.

✓ **Role-based access** with cashier/branch manager/Head Office manager hierarchy.

✓ **Head office manager dashboard** with real-time sales analytics per branch.

✓ **Offline mode** with auto-sync.

✓ **Multi-location menu sync** with per-store overrides.

✓ **Comprehensive testing:** real-device testing, role-based access matrix validation, sync conflict simulation, offline mode behaviour testing.

✓ **Time-based pricing** (e.g., happy hour) and combo deals.

✓ **Shift management** with float tracking and Z-reports.

Business challenge

Build a responsive POS system that:

✓ allows for rapid order-taking and payment at the counter;

✓ enables easy shift management;

✓ supports centralized menu management for multiple locations;

✓ provides centralized operations oversight.

Our solution

We developed a modern, high-speed POS system built for touchscreen terminals and integrated with receipt printers, cash drawers, and card terminals. The solution supports Cashier, Branch Manager, and Head Office manager roles with granular access controls, centralized menu and pricing management, offline order queueing, real-time multi-branch reporting, and robust shift tracking.

Operation analysis and hardware standardization

Development was organized into short iterative sprints. We began the project with a deep analysis of BitterBier's daily operations across multiple branches. We identified that their existing hardware was inconsistent across locations, so we helped them assess options for receipt printers, cash drawers, and card terminals.

After reviewing several options together, the Client selected Zettle by PayPal as the card reader, and ordered a complete test kit: touchscreen terminal, Zettle device, thermal printer, and drawer.

Iterative development began

Next, we focused on developing the cashier interfaces. We interviewed BitterBier's current cashiers to understand their daily workflows, what they liked about the old system, and which pain points needed solving. After several rounds of prototyping and feedback, we delivered intuitive touchscreen interfaces that were unanimously approved by the team.

In parallel, we gathered requirements for the Branch Manager features. Their key functions included:

✓ opening and closing shifts;

✓ approving and issuing refunds;

✓ viewing and printing X and Z reports;

✓ monitoring shift sales summaries;

✓ adjusting local menu item availability;

✓ assisting cashiers with locked or restricted actions.

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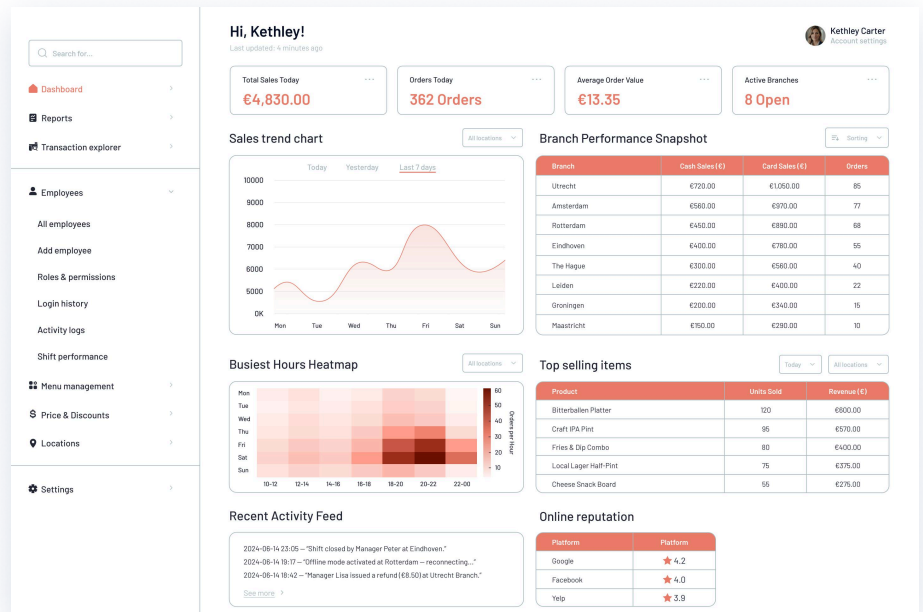
For the HQ Manager role, we defined their core responsibilities as overseeing all branch operations and managing company-wide menus, pricing, and employee accounts through a centralized back-office dashboard. Their opportunities include:

✓ managing the master menu and pricing;

✓ configuring combo deals and happy hour discounts;

✓ monitoring real-time sales across all locations;

✓ accessing comprehensive multi-branch reports;

✓ managing user accounts and permissions;

✓ overseeing system health and sync status.

Building the core logic for all roles was fairly straightforward: the real challenge wasn't in coding the features, but in ensuring they worked under every practical scenario. From the beginning, we allocated significant time to testing.

System validation under realistic conditions

BitterBier provided us with a full hardware setup – touchscreen terminal, receipt printer, card reader, and cash drawer. So, we were able to test the system under **realistic bar conditions** in our office.

Once it arrived at our office, we configured the system end-to-end – tested connectivity, verified printer commands, ensured drawer triggers worked on cash payments, and paired the terminal with Zettle's sandbox environment.

Here are the core test cases we used to validate the system:

✓ **Process a typical order** with a combo deal, card payment, and receipt print.

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- ✓ **Verify cash payments** – open the cash drawer and produce a correctly formatted receipt.

- ✓ **Push a menu update** from HQ Manager and confirm it syncs across all 8 branches.

- ✓ **Test local override** – a Branch Manager hides an item at one branch only.

- ✓ **Validate happy hour pricing**, auto-applying and expiring based on schedule.

- ✓ **Simulate offline mode**, enter orders, then reconnect and verify sync integrity.

- ✓ **Test refund flow**, ensuring only managers can issue them and that reasons are logged.

- ✓ **Run a full shift** with float entry, X-report mid-shift, and Z-report at close.

In addition, we implemented a **role-based access matrix** to validate which user types could perform specific actions rigorously. We simulated real-world conditions – like network interruptions, printer disconnections, and cash drawer jams – to ensure stability under pressure.

As a result, the POS system was functionally complete and battle-tested for the fast, high-volume environment of a BitterBier bar on a Friday night.

Customer's benefits

After the rollout, Head Office staff praised the convenience of tracking live sales and operational performance from a single dashboard. Menu changes, time-based promotions, and pricing updates can now be managed across all branches instantly.

Internet outages no longer disrupt operations, thanks to the offline mode.

Internal staff described the new system as **"twice as fast as the old one"** and "remarkably smooth during peak bar hours."

What's happening with the project right now?

BitterBier is expanding into two new cities and planning to add a loyalty module and inventory tracking features. The POS system is running reliably in all current venues.