Autviz Solutions

QR Loyalty and Multi-Payment POS Integration Solution

Retail & Customer Loyalty Solutions

App-to-App POS Integration

QR Code-Based Transactions

Digital Loyalty & Rewards

Payment Automation

Project Overview

ExtraMiles is a **digital loyalty and rewards** app developed to enhance customer engagement through **QR-based transactions**, providing seamless and rewarding interactions between customers and partner merchants. The application facilitates the allocation of reward miles based on user-selected offers while integrating third-party payment systems to streamline **point-of-sale (POS) operations**.

This solution involved the development of a robust backend logic for reward calculation and the complex integration of multiple payment gateways, transforming ExtraMiles into a comprehensive loyalty and transaction processing ecosystem.

Client

⦿ **Middle East**

👥 **No. of Employees: 50+**

ExtraMiles is a regional business focused on digital engagement through loyalty programs. The client collaborates with retail merchants to provide rewards-based experiences and sought a scalable system that could easily integrate with POS systems and third-party payment providers.

Requirements

QR-Based Rewards with POS and Payment Gateway Integration

The client originally needed a system that could accurately calculate and award loyalty miles based on selected offers. This required seamless interaction between the mobile app, admin portal, and POS systems.

However, the project inherited an incomplete integration with Airpay, posing a significant roadblock. Moreover, the app required real-time app-to-app communication between the ExtraMiles platform and POS systems.

The client also requested additional integrations with new payment systems like Geidea and Vault to improve reach and operational flexibility across stores.

Challenges

Following are the challenges faced by the client –

Inherited Technical Debt from Incomplete Integration

The integration with Airpay was partially developed by a previous team and left unresolved, with several bugs and missing features. This required our team to conduct a complete audit of the existing code and processes to fill the gaps.

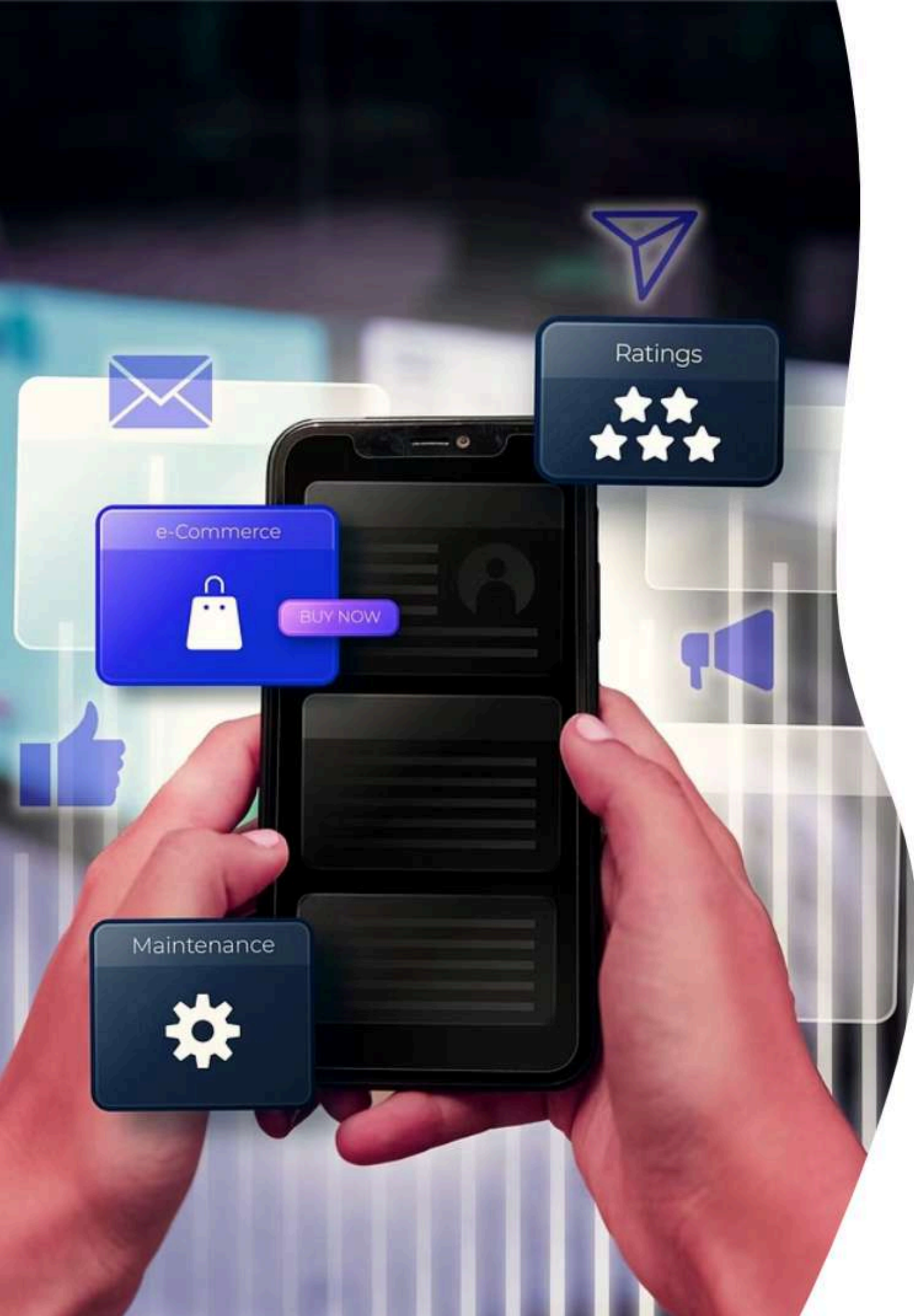### POS Integration Complexity (App-to-App Communication)

Developing a real-time, responsive app-to-app POS integration was complex due to inconsistent APIs, transaction state handling, and merchant-specific flows. This necessitated robust error handling, seamless syncing, and compatibility with various hardware.

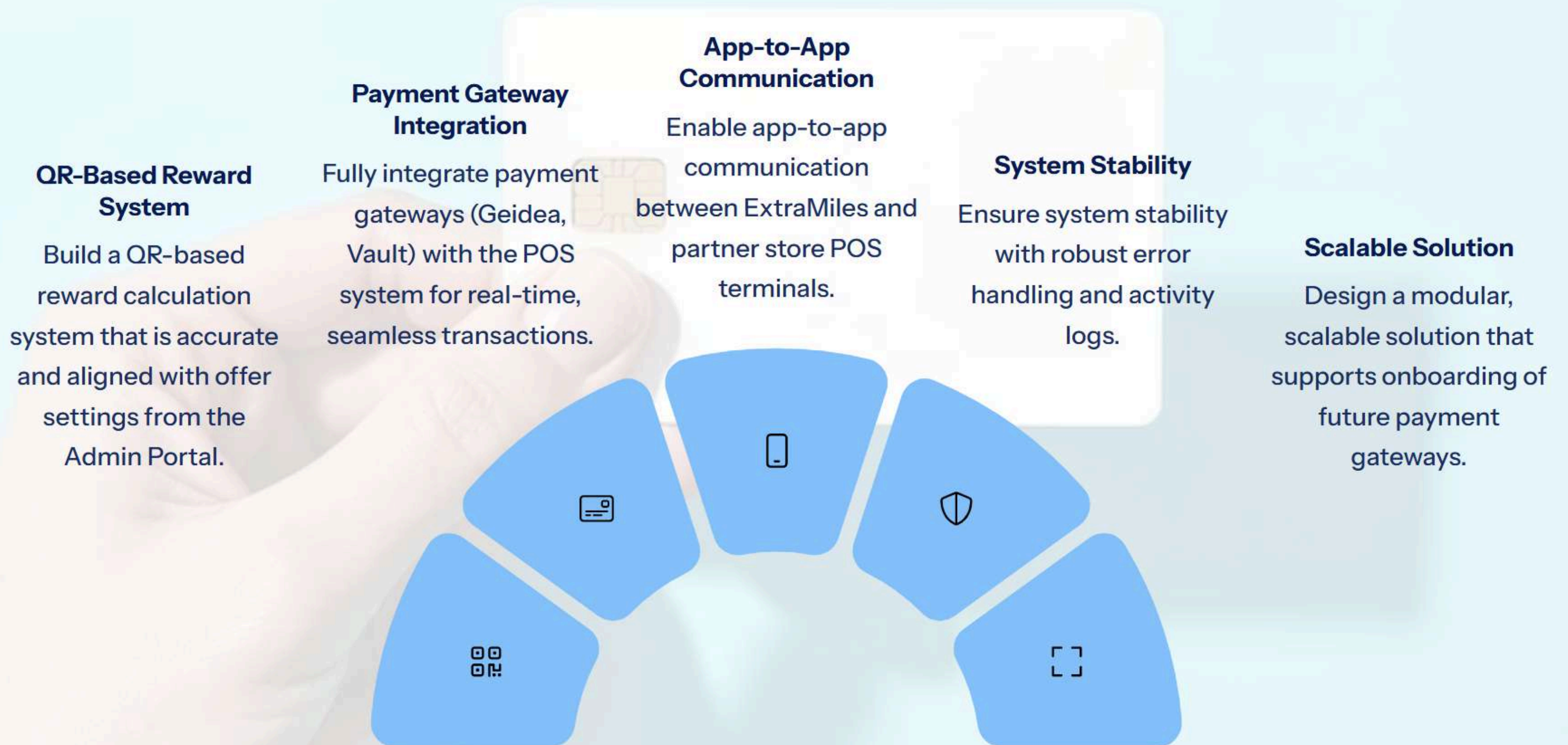### Onboarding New Payment Providers

Integrating Geidea (successfully implemented) and Vault (ongoing) demanded thorough documentation review, sandbox testing, and endpoint mapping while ensuring compatibility with the current architecture.

System Stability & Error Recovery

Without proper monitoring, transaction failures could not be tracked or resolved quickly. Error logs, fallback mechanisms, and comprehensive testing were necessary to avoid disruptions in partner stores.

Goals

QR-Based Reward System

Build a QR-based reward calculation system that is accurate and aligned with offer settings from the Admin Portal.

Payment Gateway Integration

Fully integrate payment gateways (Geidea, Vault) with the POS system for real-time, seamless transactions.

App-to-App Communication

Enable app-to-app communication between ExtraMiles and partner store POS terminals.

System Stability

Ensure system stability with robust error handling and activity logs.

Scalable Solution

Design a modular, scalable solution that supports onboarding of future payment gateways.

Solution – Modern Digital Loyalty & POS Payment Ecosystem

Technology Stack

.NET
Core

React Native

Firebase

Azure

Duration & Resources

ⓘ **Duration**: Ongoing

ⓘ **Team:** 6 specialists

We adopted a phased and modular approach to resolving the existing technical issues and implementing new integrations:

1

Auditing & Fixing Existing Integration

- Conducted a complete code and process audit of Airpay integration.
- Fixed missing implementations, added transaction fail-safes, and streamlined communication between app and payment layer.

2

POS System Integration

- Built and deployed a custom POS system with real-time app-to-app communication.
- Implemented QR code scanning and redemption workflows integrated with merchant systems.

3

Geidea Integration (Completed)

- Reviewed Geidea documentation and configured sandbox testing.
- Successfully deployed Geidea payment integration across multiple partner stores.
- Implemented refund handling and transaction monitoring.

4

Vault Integration (In Progress)

- Reviewed Vault API documentation and started sandbox integration.
- Currently building connectors and defining transaction workflows.

5

Monitoring & Deployment

- Added advanced error logging and real-time monitoring dashboards.
- Launched Geidea integration in selected partner stores, scaling gradually with feedback loops.

Outcomes

Successful Payment System Integration & Platform Stabilization

80%

Reduction in Manual Errors

Automation of miles calculation and payment processing drastically reduced the likelihood of human error.

95%

Payment Success Rate

With Vault fully integrated, transaction reliability significantly improved, minimizing failures and enhancing customer trust.

60%

Faster Transactions

POS integration streamlined operations, cutting down average transaction times and reducing customer wait periods.

100%

Readiness for Future Integrations

Modular architecture and robust documentation ensure scalability and ease of onboarding new payment gateways.

Client Feedback

"The platform had some gaps when we started, but Autviz Solutions stepped in and handled it with clarity and structure. Everything's stable now, and we're in a much better place to move forward with future work."