

Project Report: MMW (Mix and Match Web)



Duration: 2025



Role: Software Engineer

✂ **Technologies Used:** PHP, CodeIgniter, MySQL, JavaScript

1. Project Background

The **MMW (2025) module** is an **extension of the Nubox3 Admin Portal**, designed to generate **QR codes** for customers to scan and access the vending machine's web interface. This allows users to **browse and purchase items online** before collecting them from the vending machine.

Key Features:

- ✓ **QR Code Generation** – Unique QR codes for each machine and session.
- ✓ **Seamless Web Access** – Customers can scan the QR code to **access the web-based purchase system**.
- ✓ **Integration with Vending Machines** – Ensures real-time synchronization of available items and payments.
- ✓ **Secure & Role-Based Access** – Only authorized users can generate and manage QR codes.

2. Key Responsibilities & Contributions

◆ QR Code Generation for Vending Machines

- Implemented **automatic QR code generation** using **PHP and JavaScript libraries**.
- Ensured **dynamic QR code creation** for each vending machine session.
- Enabled **secure access links** that redirect users to the vending machine's purchase portal.

◆ Web-Based Purchase Flow

- Integrated **QR code scanning functionality** for a smooth user experience.
- Ensured customers can **view available products, select items, and proceed to checkout** via the web.
- Synced the system with **real-time inventory updates** to prevent overselling.

◆ Security & Data Management

- Implemented **session-based QR codes** to prevent unauthorized access.
- Ensured **secure payment redirection** for completing transactions.
- Logged **QR code scans and transactions** for audit purposes.

3. Challenges & Solutions

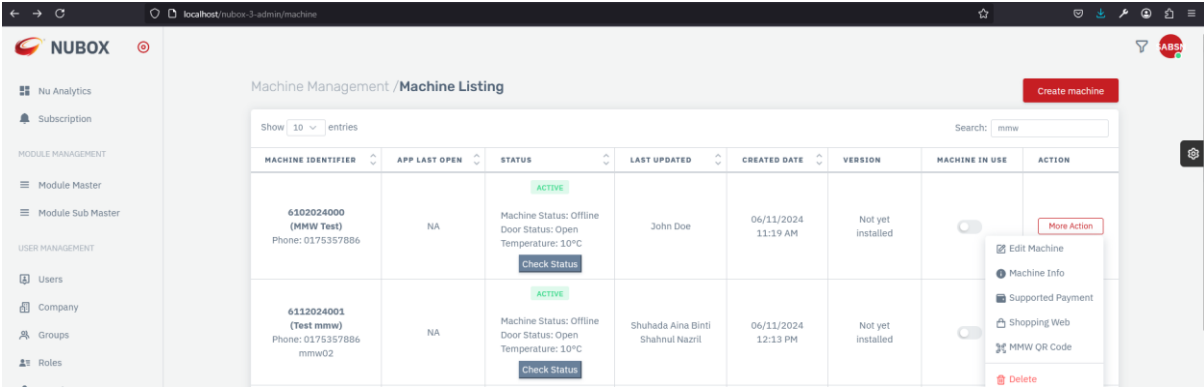
Challenges	Solutions Implemented
Generating unique QR codes per transaction	Implemented a session-based QR system to avoid duplication.
Ensuring real-time inventory sync	Integrated database triggers and API calls to update product availability.
Preventing unauthorized access	Used token-based authentication for secure QR code access.
Ensuring smooth mobile compatibility	Optimized the purchase page for mobile responsiveness .

4. Impact & Results

- ✔ **Improved Customer Experience:** Allowed seamless vending machine purchases via mobile.
- ✔ **Enhanced Security:** **Session-based QR codes** prevented unauthorized transactions.
- ✔ **Real-Time Inventory Management:** Prevented stock mismatches and over-purchasing.
- ✔ **Increased Sales & Engagement:** QR-based access streamlined the buying process.

5. Screenshots & Visuals

(Disclaimer: All data shown in the screenshots is for testing purposes only.)



5. Conclusion

The **MMW (2025) module** successfully streamlined vending machine transactions, making them more accessible and **user-friendly through QR code integration**.