

PS Code : **CL03**

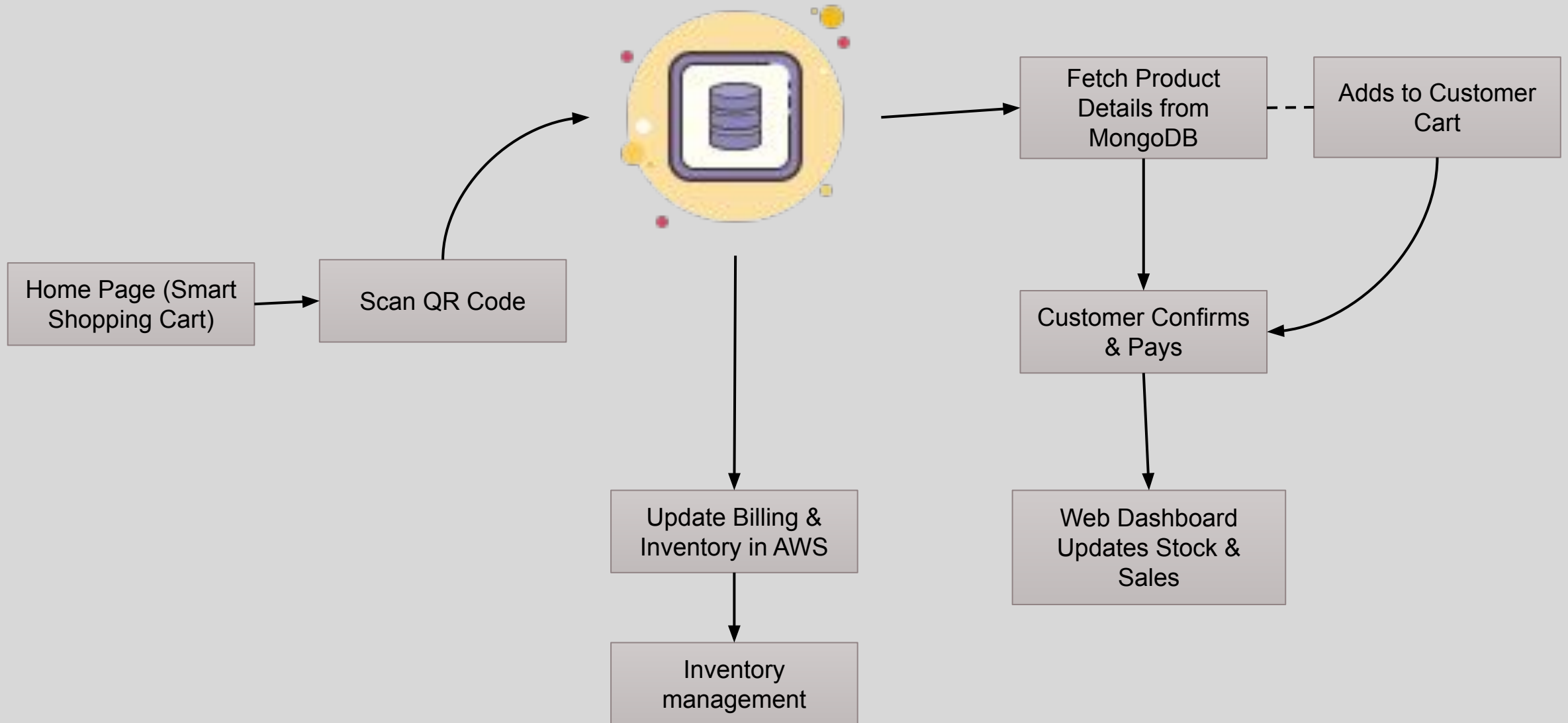
Domain : **Cloud Computing**



Title : **Cloud-Powered Smart Shopping Cart for Automated Inventory Detection and Billing**

Overview : The **QR Code-Based Smart Shopping System** is an innovative solution designed to revolutionize retail shopping by eliminating traditional checkout lines. By leveraging **QR codes, MongoDB, Next.js, and AWS cloud computing**, this system ensures real-time product detection, automated billing, and seamless inventory management.

# Detailed Workflow for QR Code-Based Smart Shopping System



# System Component

## Smart Shopping Cart QR Code

**Scanner:** Scans product QR codes for identification.



## Payment Gateway:

**•Multiple Payment Options:** Supports UPI, cards, wallets, etc.



## Centralized Server:

**•Database:** Stores product details, prices, and inventory.



**•Digital Promotions & Discounts:** Personalized offers via QR scans and mobile app.



## •Real-Time Inventory

**Management:** Updates stock instantly.

**•Billing System:** Processes payments and generates receipts



## Customer Behavior

**Analytics:** Tracks shopping patterns for better recommendations.



## Cloud Infrastructure:

**•Scalability:** Handles multiple transactions efficiently.



**Ease of Use:** Customers scan QR codes via smartphones to add items and track purchases, eliminating the need for extra hardware.

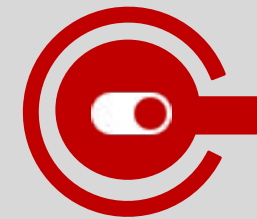


## Customer Interface:

**•Mobile App:** Scans QR codes, tracks purchases, and allows payment.



**Theme Toggle:** Switch between light and dark modes



# Comprehensive Technology Stack

The backbone of the system

## Scalable Database Solution

MongoDB's flexibility and scalability make it an ideal choice for managing large volumes of transaction and stock data efficiently.(Atlas and Compass)

## Dynamic Framework Usage

Next.js serves as a comprehensive framework for developing both frontend and backend applications, ensuring a seamless user experience ,Used Vercel For Frontend Deployment

## Cloud Services for Performance

AWS not only provides secure data storage but also offers processing power that supports real-time analytics and data handling effectively.

## Robust Security Measures

End-to-end encryption plays a crucial role in safeguarding transactions, ensuring that sensitive customer data remains protected.

# Solution Overview Architecture/Workflow

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## 1. Scan & Add to Cart

- ◆ Customers **open the web app** on their phone.
- ◆ Scan the **QR code** on a product.
- ◆ Instantly view product details, price & stock status.
- ◆ Click **“Add to Cart”** – The item appears in the **virtual cart!**



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## 2. Real-Time Cart & Inventory Updates

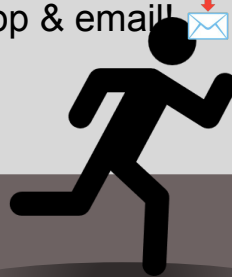
- ◆ The system **fetches product data** from **MongoDB via Next.js**.
- ◆ **AWS cloud** verifies stock & updates inventory **instantly**.
- ◆ **Remove an item?** Your cart & total adjust automatically!



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## 3. Instant Billing & Secure Payment

- ◆ Tap **“Proceed to Checkout”** in the **web app**.
- ◆ Choose **UPI, credit/debit card, or wallet** for payment.
- ◆ **AWS secures transactions** while your bill updates in real time.
- ◆ Get a **digital receipt** via app & email 



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## 4. Smart Inventory & Store Insights

- ◆ **Store managers** monitor stock levels in the **web dashboard**.
- ◆ **Low stock?** Automatic alerts ensure timely restocking.
- ◆ Sales data, trends & customer preferences are analyzed for better decision-making. 



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## 5. Personalized Shopping Experience

- ◆ AI-powered **recommendations & discounts** based on past purchases.
- ◆ Loyalty rewards & real-time promotions sent **directly to the web app**.
- ◆ A smooth, **checkout-free** shopping journey! 



# Thank You

Github Url : <https://www.github.com.arnvjshi/SITnovate/>

Vercel Url : <https://si-tnovate.vercel.app/>

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