
EXISTING SYSTEM

Challenges:

- Traditional payment methods require manual card entries or cash handling, leading to delays.
- Fraud risks due to stolen card information or identity theft.
- Lack of biometric authentication, making transactions less secure.
- Inefficient user verification processes during checkout.
- No streamlined solution to link user profiles with payment validation.

PROPOSED SYSTEM

Key Features:

- ✓ **Face Recognition-Based Payment System:**
  - Users register their accounts along with facial recognition data using the face-api.js library.
- ✓ **User Registration Module:**
  - Captures user details, including name, email, phone, and facial recognition data.
- ✓ **Product Management Module:**
  - Lists available products with details like name, category, description, and image.
- ✓ **Payment Verification Module:**
  - Verifies the user's face during checkout to approve or reject transactions.
- ✓ **Role-Based Access Control:**
  - Admin: Manages users, products, and transactions.
  - User: Registers, browses products, and makes payments.

TABLE DESIGN (DATABASE SCHEMA)

1. USERS TABLE

Column Name	Data Type	Description
_id	ObjectId (PK)	Unique user ID
fullname	VARCHAR(255)	Full name of the user
username	VARCHAR(255)	Unique username
email	VARCHAR(255)	User's email address
phone	VARCHAR(15)	Contact number
password	VARCHAR(255)	Encrypted password
face_data	JSON	Facial recognition data for authentication

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2. PRODUCTS TABLE

Column Name	Data Type	Description
_id	ObjectId (PK)	Unique product ID
name	VARCHAR(255)	Product name
price	FLOAT	Product price
description	TEXT	Product details
category	VARCHAR(255)	Product category
image	VARCHAR(255)	Image path for the product

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3. TRANSACTIONS TABLE

Column Name	Data Type	Description
_id	ObjectId (PK)	Unique transaction ID
user_id	ObjectId (FK)	Reference to Users Table
product_id	ObjectId (FK)	Reference to Products Table
amount	FLOAT	Transaction amount
status	ENUM('Success', 'Failed')	Transaction result
date	DATE	Transaction date

TECHNOLOGY STACK

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Node.js, Express.js
- **Database:** MongoDB
- **Face Recognition Library:** face-api.js
