

Jaypee Institute of Information Technology, Noida

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING AND
INFORMATION TECHNOLOGY



Major Project Title: FACE-ATM:Cardless Transaction System

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Course Name: MAJOR PROJECT PART-2
Course Code: 22B12CS413
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4. MODELLING & IMPLEMENTATION DETAILS

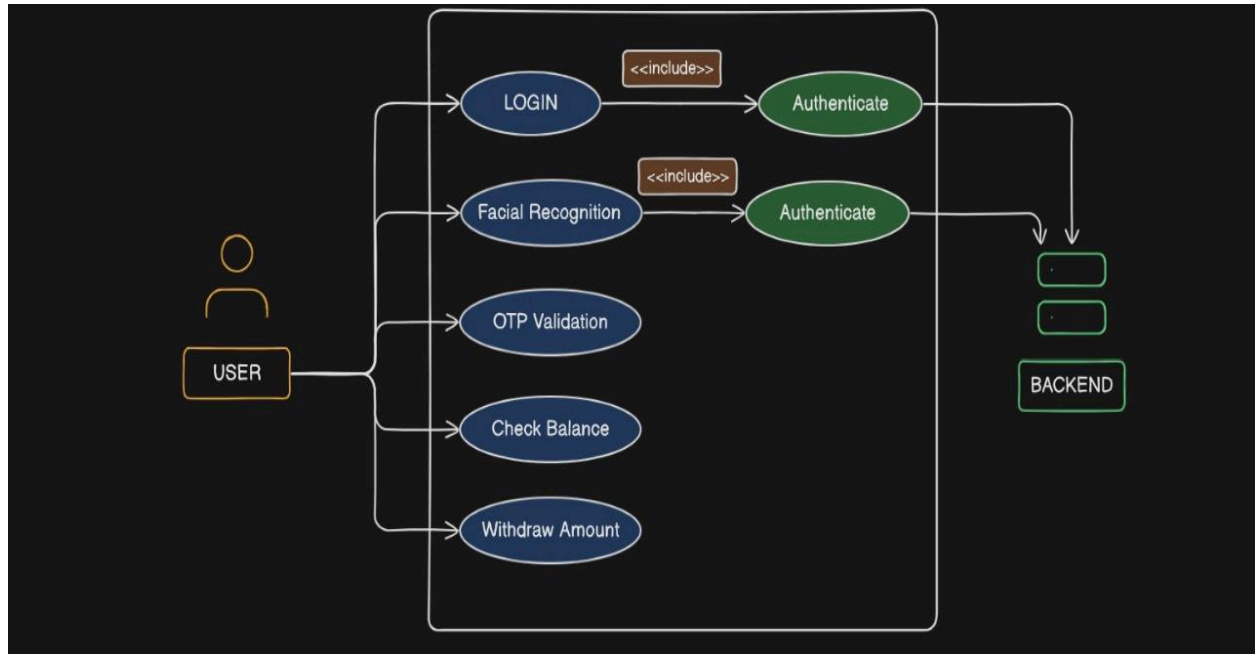


Figure 4.1.1: Use Case Diagram

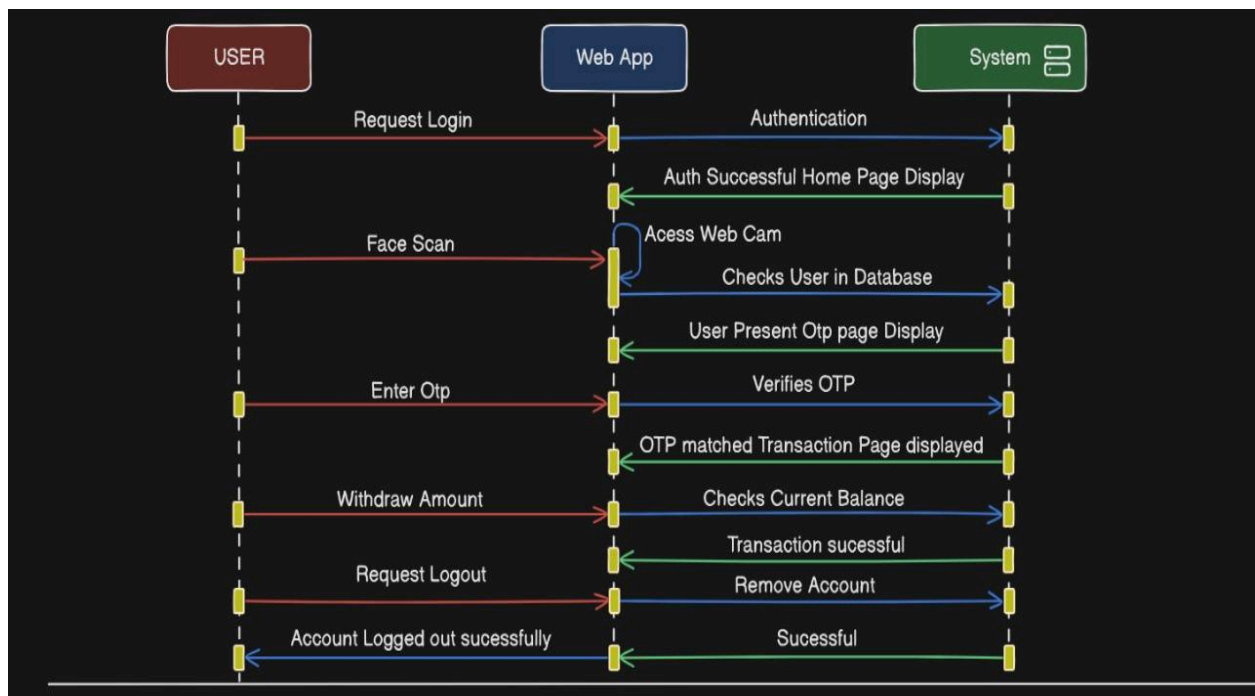


Figure 4.1.2: Sequence Diagram

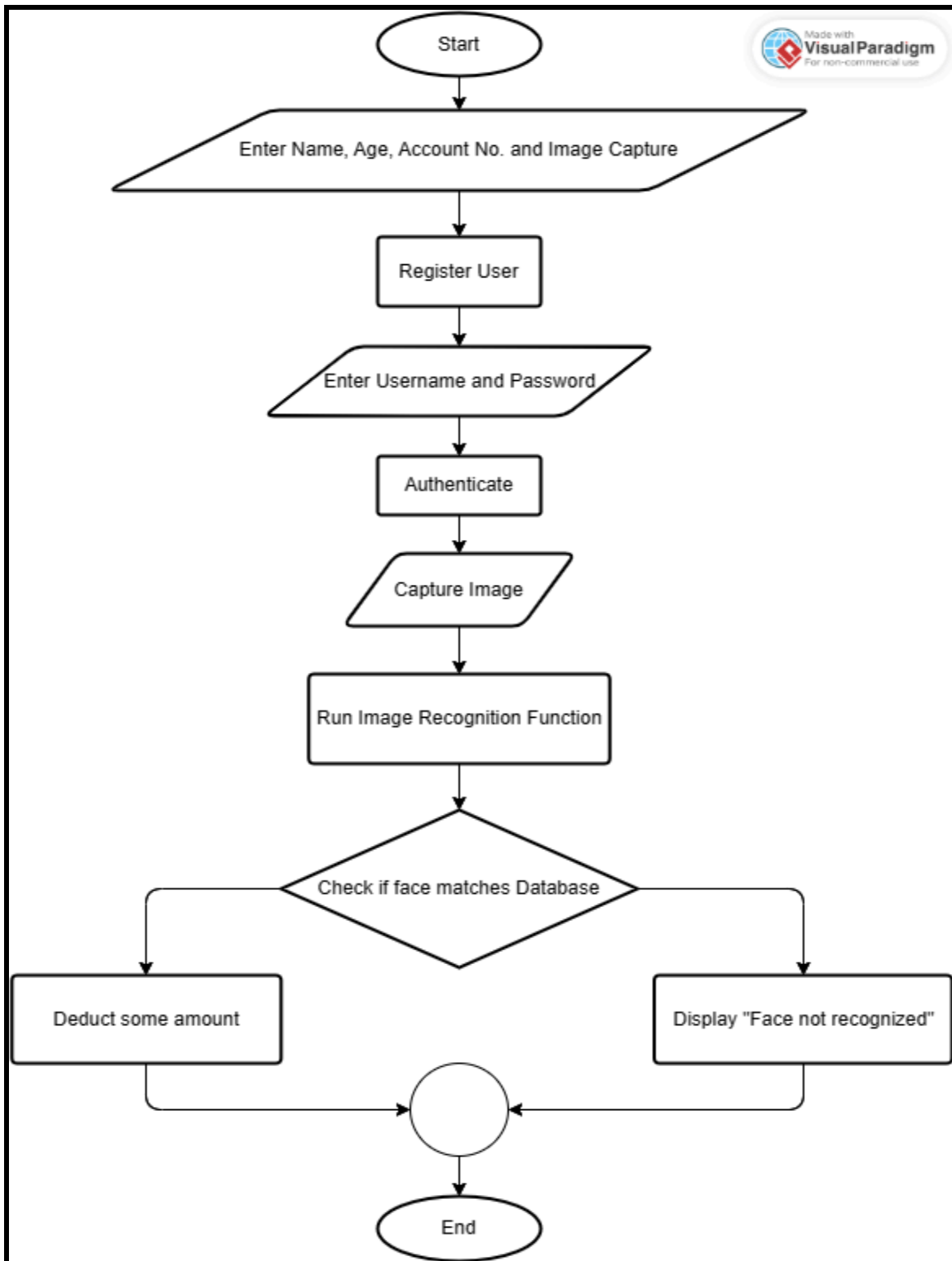


Figure 4.1.3: Flow Chart Diagram

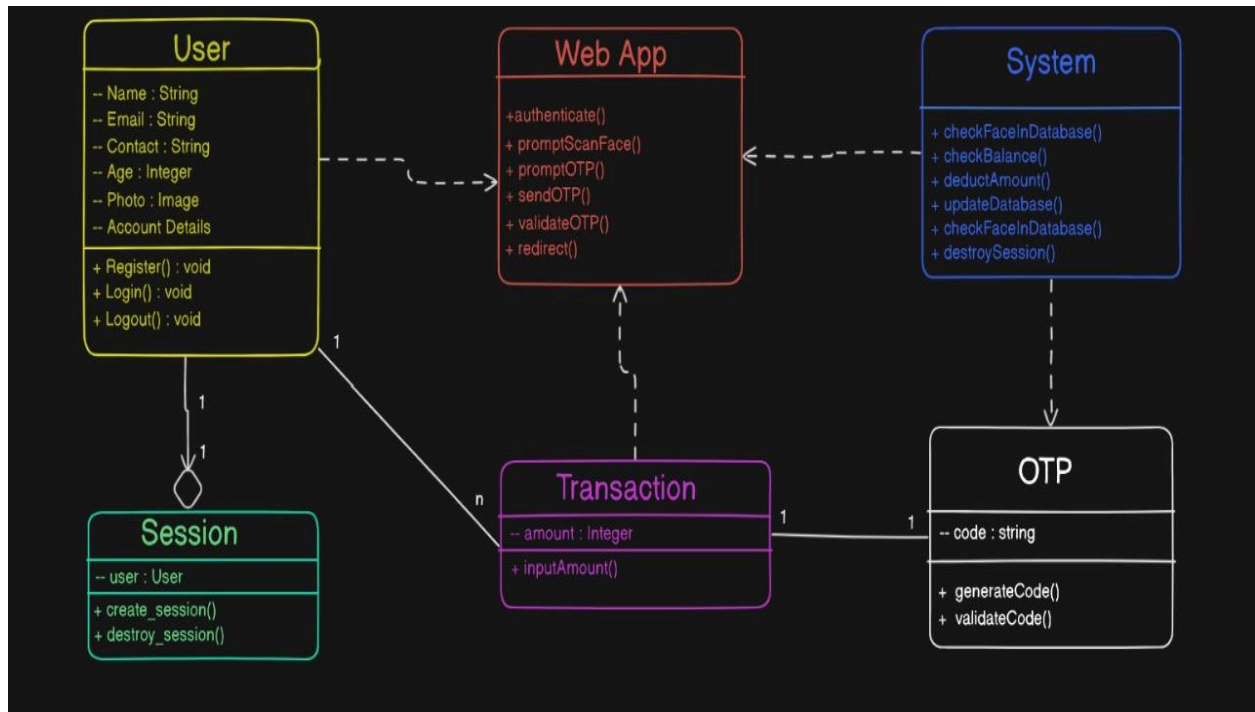


Figure 4.1.4: Class Diagram

4.2 Implementation Details and Issues

Technology Stack:

The Face-ATM system leans on a powerful combination of technologies to deliver a secure and user-friendly experience:

- **Django (Backend Development):** As the foundation for the system's backend, Django offers a robust and high-level Python framework. Django streamlines development by providing pre-built functionalities for common web application needs.
- **Python (Backend Programming Language):** Python serves as the primary programming language for the backend logic of the Face-ATM system.
- **OpenCV (Facial Recognition):** OpenCV, a free and open-source library, takes center stage for the crucial facial recognition tasks.

Figure 4.2.1.1: Register Page - User Details



This figure shows a registration form for user details. It includes input fields for Contact, Age, Email address, Password, and an Upload Photo section with a 'Choose File' button. A 'Show' icon is visible next to the password field.

Contact

Enter contact

Age

Enter age

Email address

Enter email

Password

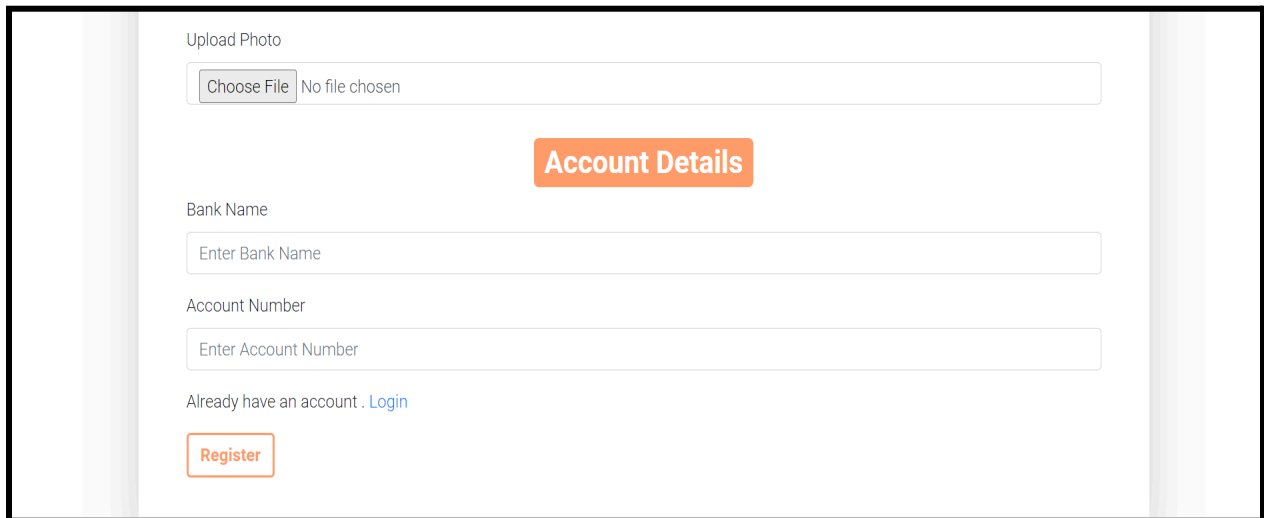
Password 

We'll never share your password with anyone else.

Upload Photo

No file chosen

Figure 4.2.1.2: Register Page - User Details



This figure shows the account details section of the registration form. It includes an 'Upload Photo' section, a prominent 'Account Details' button, and input fields for Bank Name and Account Number. A 'Login' link and a 'Register' button are also present.

Upload Photo

No file chosen

Account Details

Bank Name

Enter Bank Name

Account Number

Enter Account Number

Already have an account . [Login](#)

Figure 4.2.1.3: Register Page - Account Details

4.2.2. Login and Authentication Process:

Email and Password Authentication:

- a. Email:** Users enter the email address associated with their Face-ATM account.
- b. Password:** Users input their secure password chosen during registration.

Authentication:

Upon submission of email and password, Face-ATM verifies the credentials against the stored data in its database. If the provided credentials match, authentication is successful.

Session Creation:

Upon successful authentication, a session is created for the user. This session allows the user to access Face-ATM services without the need for repeated authentication during the session duration.

The image shows a login page with a white background and a black border. At the top, the word 'Login' is displayed in a large, black, sans-serif font. Below it, there are two input fields. The first is labeled 'email' in a small, gray font, and the second is labeled 'Password' in a small, gray font. Both input fields have a light gray border and contain placeholder text matching their labels. Below the password field, there is a link that says 'Don't have an account . Register' in a small, blue font. At the bottom, there is a red button with the word 'Login' in white text.

Figure 4.2.2.1: Login Page - Authentication

4.2.3 Face Scan Process:

Home Page Display:

Upon login, users are directed to the Home page where their personal information, such as name and account details, are prominently displayed for easy reference.

Initiation of Withdrawal:

Users navigate to the withdrawal section and click on the "Withdraw" button to initiate a withdrawal request.

Face Scan:

Upon clicking the "Withdraw" button, the system prompts the user to allow access to the camera. Once permission is granted, the camera interface pops up, and the user's face is scanned.

Facial Recognition:

The scanned facial image is processed by the Face-ATM system to extract facial features and generate facial encodings. These encodings are compared against the database of registered users to verify the user's identity.

User Verification:

If the user's facial features match those stored in the database, the system proceeds to the next step. Otherwise, an error message is displayed indicating that the user was not found in the database.

OTP Page:

Upon successful facial recognition and user verification, the system directs the user to the One-Time Password (OTP) page to proceed with the withdrawal transaction. An OTP is generated and sent to the user's registered mobile number or email address for additional security.

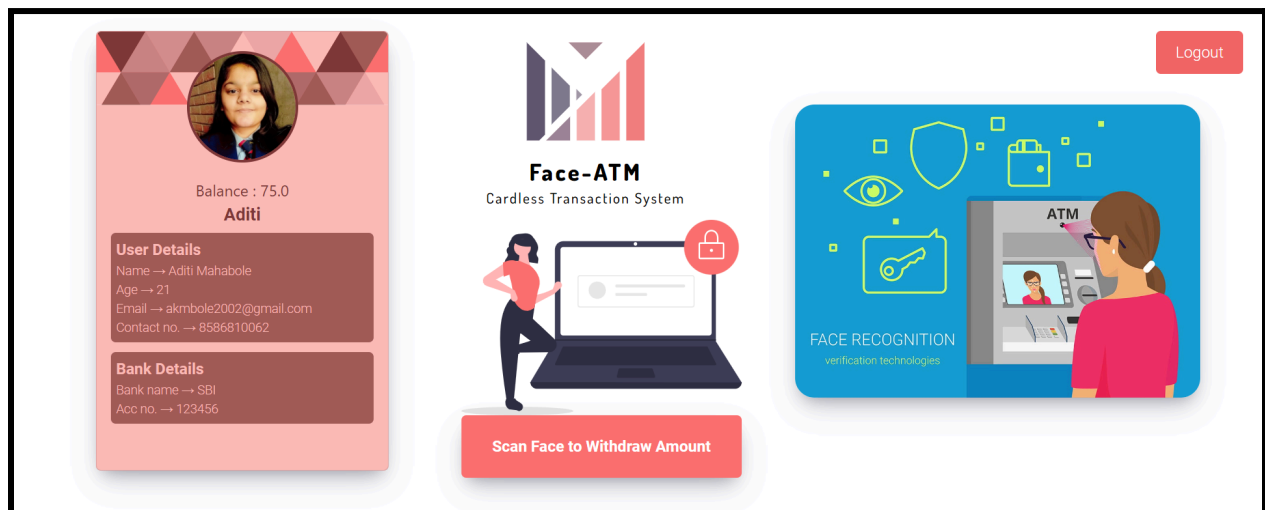


Figure 4.2.3.1: Home Page

4.2.4 OTP Verification and Transaction Process:

OTP Page:

Upon successful facial recognition, users are directed to the OTP page where they are prompted to verify their identity using a One-Time Password (OTP).

OTP Generation Options:

Users are presented with two options for receiving the OTP:

a. Get OTP by Email: Users click on this option to receive the OTP via email.

b. Get OTP by Phone: Users select this option to receive the OTP via SMS on their registered phone number.

OTP Generation and Delivery:

Depending on the selected option, the OTP is generated and delivered to the user's preferred communication channel (email or phone) securely.

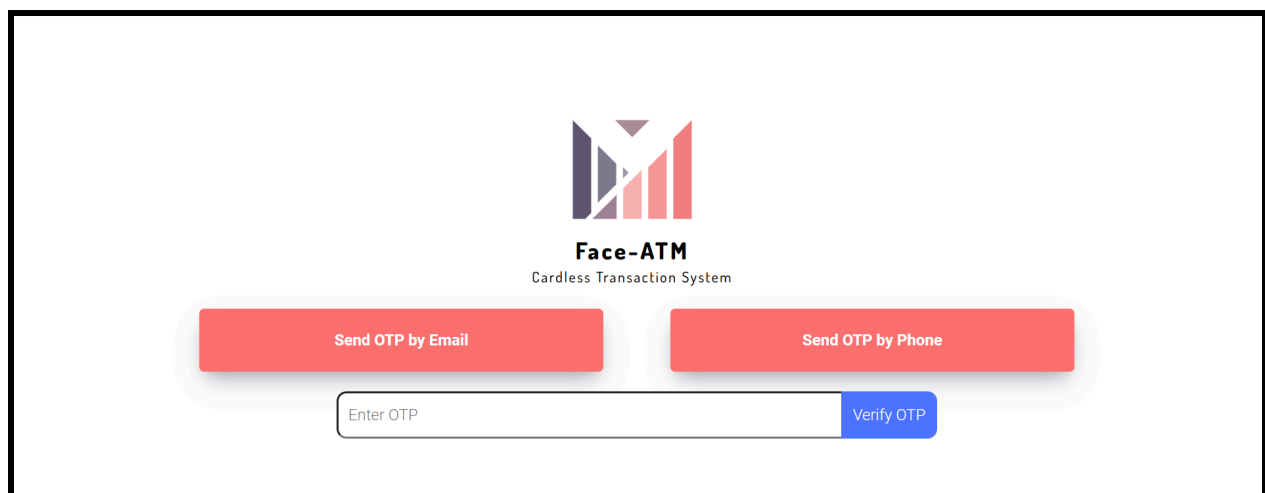
OTP Input: Users input the received OTP into the designated input field on the OTP page.

OTP Verification:

The entered OTP value is compared against the OTP generated and sent to the user. If the entered OTP matches the generated OTP, verification is successful. Otherwise, an alert is triggered indicating "Invalid OTP."

Transaction Page Access:

Upon successful OTP verification, users are granted access to the transaction page, where they can proceed with their desired transaction securely.



The image shows a user interface for the Face-ATM Cardless Transaction System. At the top center is a logo consisting of a stylized 'M' made of vertical bars in purple, blue, and red. Below the logo, the text 'Face-ATM' is displayed in bold, with 'Cardless Transaction System' in a smaller font underneath. There are two red rectangular buttons with rounded corners: 'Send OTP by Email' on the left and 'Send OTP by Phone' on the right. Below these buttons is a white input field with the placeholder text 'Enter OTP'. To the right of the input field is a blue button with rounded corners labeled 'Verify OTP'.

Figure 4.2.4.1: Otp Page

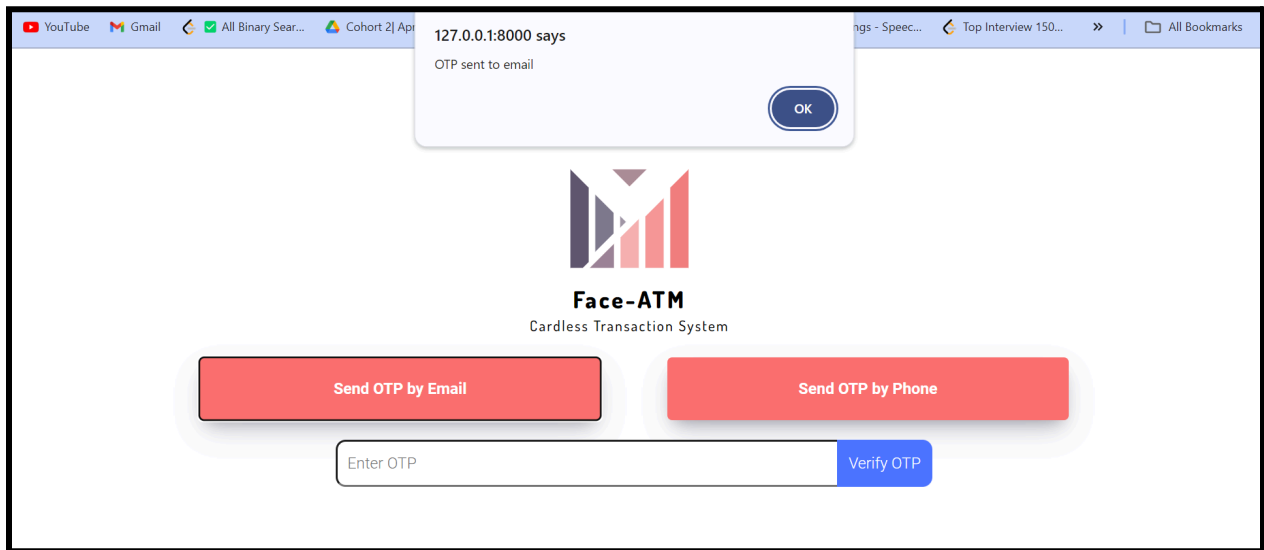


Figure 4.2.4.2: Otp Page - OTP sent Successfully

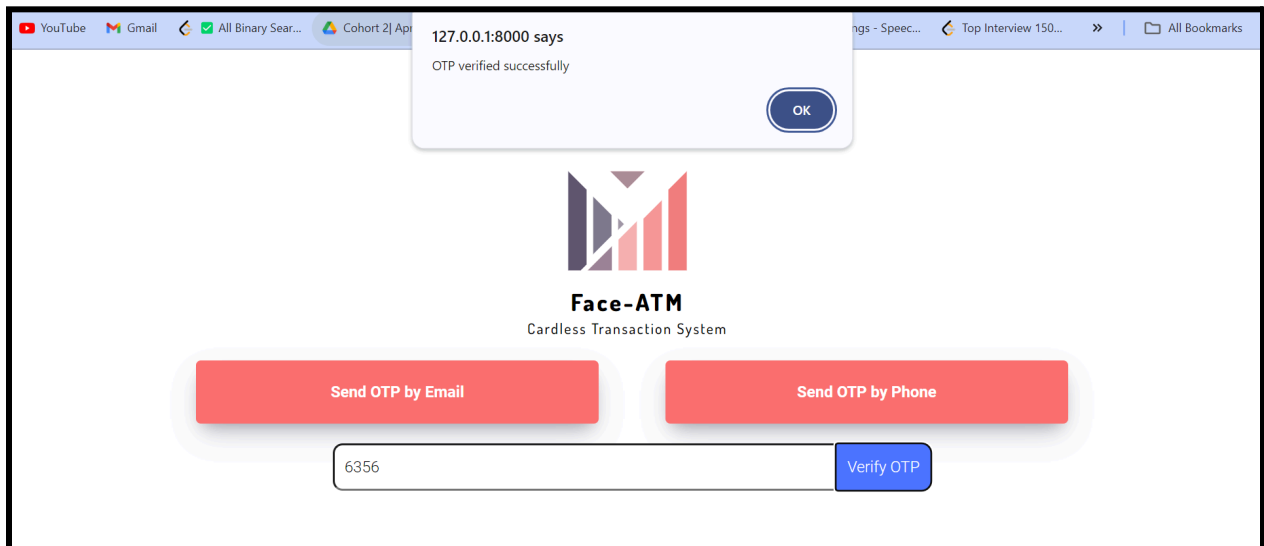


Figure 4.2.4.3: Otp Page - OTP Verification

4.2.5 Transaction Process:

Transaction Page:

Upon OTP verification, users are redirected to the transaction page where they can input the amount they wish to withdraw.

Amount Input:

Users input the desired withdrawal amount into the designated field on the transaction page.

Balance Validation: The entered withdrawal amount is compared against the user's current account balance retrieved from the database. If the withdrawal amount exceeds the available balance, an alert is triggered, indicating "Amount exceeds the current balance. Please enter a lower amount."

Database Update: If the entered withdrawal amount is within the available balance, the transaction is processed. The deducted amount is subtracted from the user's account balance in the database.

Transaction Success: Upon successful deduction of the withdrawal amount from the database, users are redirected to the Home page.

Personal Info Update: On the Home page, users' personal information, including their account balance, is updated to reflect the deducted amount.

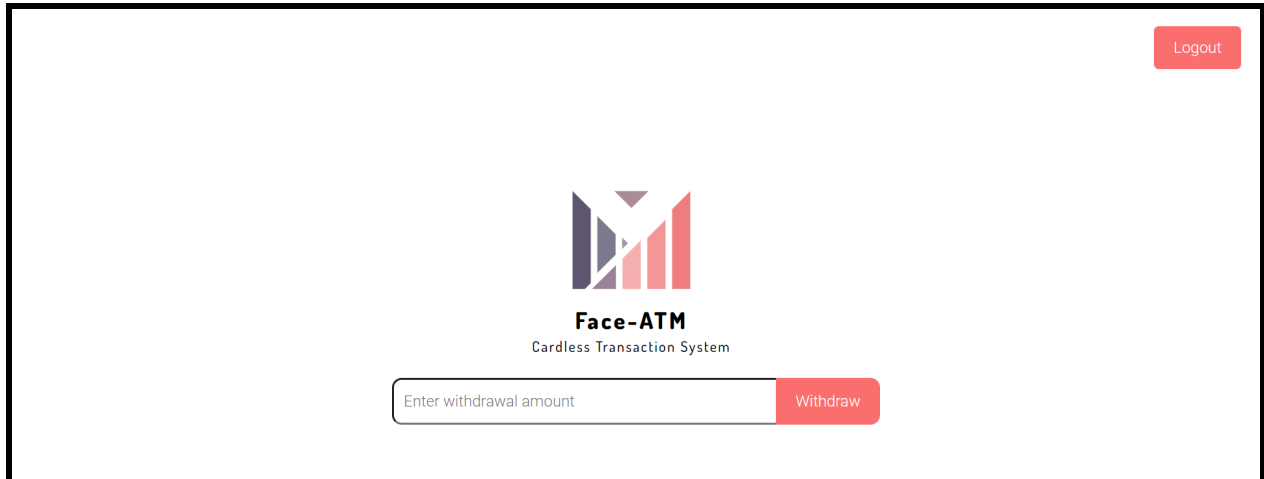


Figure 4.2.5.1: Transaction Page

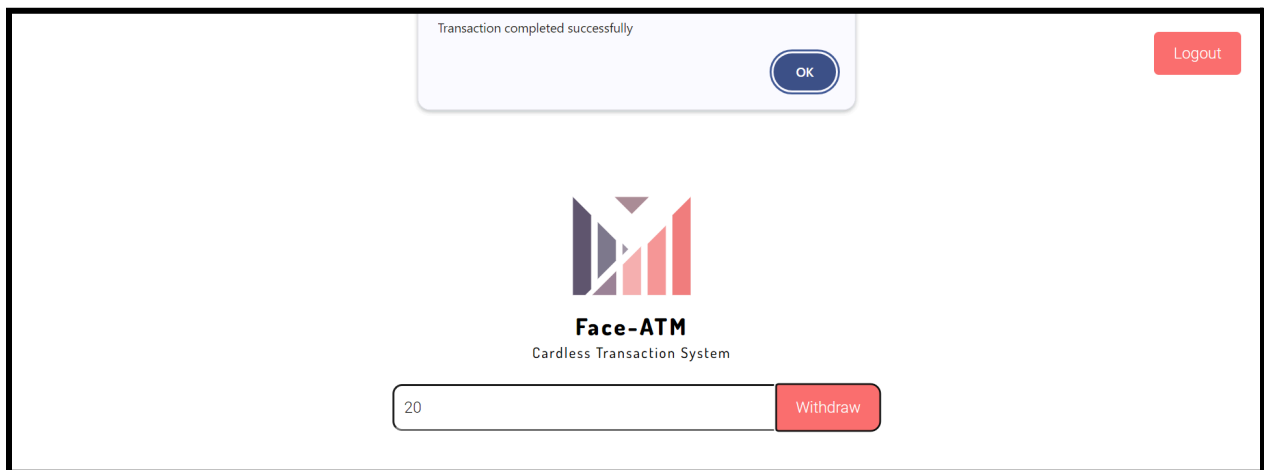


Figure 4.2.5.2: Transaction Page - Successful Transaction

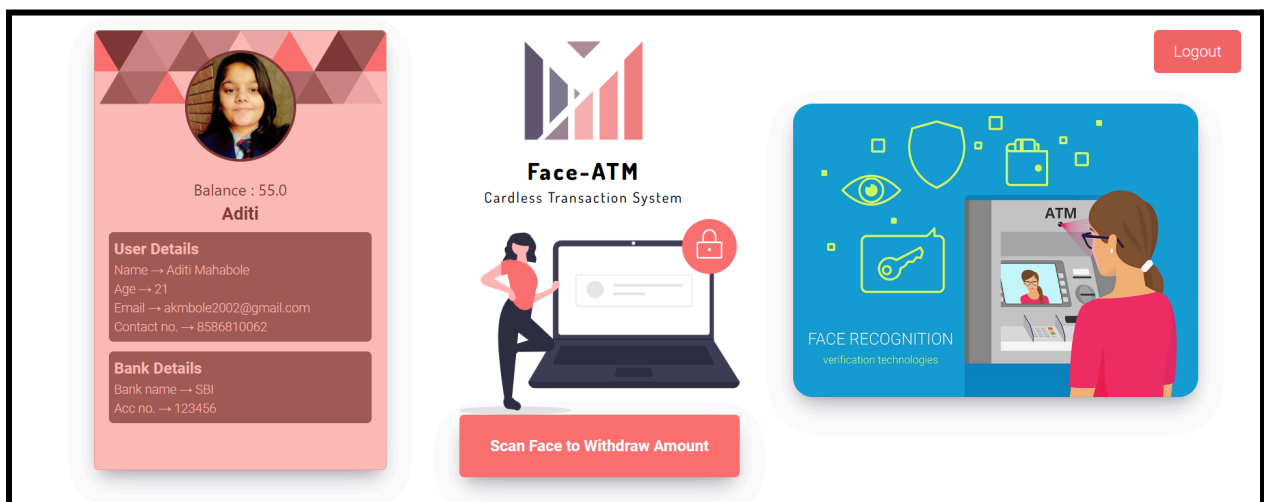


Figure 4.2.5.3: Transaction Page - Updated Balance Display on Home Page

4.2.6 Logout

Upon clicking the Logout button:

- User session is terminated.
- User is redirected to the Login page.

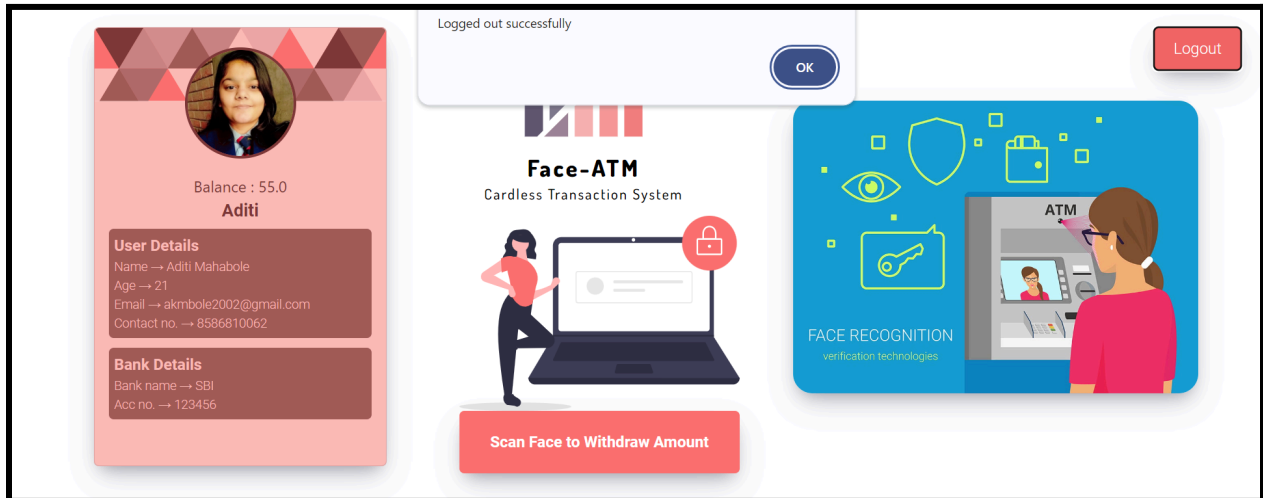


Figure 4.2.6.1: Logout



Figure 4.2.6.2: Logout - Redirected to Login Page