Nia*T*rust App – White paper.

Overview

NiaTrust is a group-controlled finance application designed to enhance trust and accountability in shared financial management like Njangis, CIG, Families (Parents jointly manage and monitor school and other allowances with their kids). The platform includes escrow services, multi-signature authorization for withdrawals, SMS notifications, and a secure wallet system for deposits, withdrawals, and inter-wallet transfers.

1. User Roles and Authentication

Roles:

- **Master Admin**: This Mobile money number Has full control and receives all authorized Withdrawals. And update settings and preferences.
- **Sub-Master 1 & 2**: Approve transactions (minimum 2 of 3 must approve). Master and either of them. Any one of the admins can initiate a withdrawal.
- **Regular Users other Group members**: Can only receive transaction notifications.

Functions:

- **Users log in (Admin)** via Account number (auto Generated after registration, phone number verification + password.
- **Sub-Master (Admin)** the log in portal has 'log in as a sum master' option. Where you input account number and your phone number and a onetime sms code is sent for you to confirm your login. They can only make deposits from their registered phone numbers and initiate withdrawals. Transaction validation is done in the pending transaction with each members' secret code.
- JWT or OAuth token-based session management.
- Roles are assigned based on phone numbers configured by the admin.

2. Escrow Services

Description:

Escrow ensures that funds are held securely and only released after meeting predefined conditions (e.g., approval by multiple parties).

Features:

- Create Escrow Wallet
- Set 2 Approvers
- Display Escrow Balance
- Top-up escrow via Mobile Money or transfer from the main wallet.
- Approve/Reject transaction releases
- Transaction lifecycle tracking

- Pending transactions. Each registered transaction has an Appeal like for customer service interference and investigation.

3. Deposit System

Description:

Allows any registered user to deposit funds into their wallet or escrow wallet.

Supported Methods:

- Mobile Money (Orange)
- Manual Entry (for admin override)
- Or transfer from one Niatrust account to another

Backend Actions:

- Trigger deposit event (connect to 3rd-party mobile money API).
- Validate deposit and update wallet balance.
- Record transaction in history log.

4. Withdrawal System

Description:

Withdrawals require approval from 2 of the 3 admins (Master and two Sub-Masters).

Backend Flow:

1. User initiates withdrawal.
2. Request goes to all 3 approvers. Via SMS notification and Email.
3. If 2 confirm, funds are released.
4. SMS or email is sent to all parties.

Backend Actions:

- Initiate a withdrawal request.
- Approver action.
- Execute transfer if quorum reached.
- List for admin panel.

5. Inter-Wallet Transfers

Description:

Allows users to transfer money between personal wallets, escrow, or other users.

Backend Actions:

- Validate user, check balance, and update both accounts.
- Track all inter-wallet activities.

6. Transaction History

Description:

Users can see a detailed list of their past transactions, with filters for date, type, and status.

Backend Actions:

- Returns a JSON list of transactions for the user.
- For escrow-specific history.

7. SMS Notifications

Description:

Send real-time alerts for transactions (top-up, withdrawal, approval required).

Features:

- Admin-defined list of recipients
- Enable/disable SMS toggle
- Support for third-party SMS APIs

Backend Actions:

- Triggered on important events.
- View current configuration.
- Update recipient numbers.

8. Admin Settings

Description:

Central control for setting Master and Sub-Master numbers and SMS routing. Any request for changes is approved with a one time SMS code sent to the registered master number.

Backend Actions:

- Retrieve configuration.

Update phone numbers for approval and notification.

9. Language Support

Description:

Allow users to switch between English and French.

Backend Flow:

- Store preferred language per user.
- Return localized content via translation files or headers.

Security

- All sensitive actions require token validation and role checking.
- Rate limiting on transactions.
- Secure mobile money APIs with encrypted tokens.

Database Design (Simplified)

Tables:

- **Users**: Id, Phone, Role, Language, Created_At
- **Wallets**: Id, User_Id, Balance, Type
- **Transactions**: Id, Type, Amount, Status, From_Wallet_Id, To_Wallet_Id, Created_At
- **Escrow**: Id, Name, Balance, Approver_1_Id, Approver_2_Id
- **Notifications**: Id, User_Id, Type, Message, Created_At