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Title: "Lightweight KYC App for Bharat"

SecureKYC

Subtitle: Product Intern Assignment

Company Name: HyperVerge

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Registration No.: 22BEY10020

Institute Name: Vellore Institute Of Technology, Bhopal

Problem Statement 1 and Context:

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About 65–70% Indians are residents of rural and semi-urban areas, where Digital literacy is seen to be low, internet connectivity is poor and the specifications of smart phone are relatively plain.

Significant Difficulties:

- KYC processes are slow and error-prone in digital with low-end devices and poor internet.
- Novice users don’t understand sellers’ complex KYC process.
- Difficulties filing documents and concerns about data security.
- Offilne support and retry mechanisms are must due to connectivity black-holes.

Solution Overview:

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“**A full right, not just a need.**”

My KYC app “SecureKYC” is designed to keep digital onboarding simple for rural and semi-urban Bharat. The focus is on a simple interface and support for low bandwidth to accommodate literacy and connectivity challenges, with AI-powered voice-activated and visual assistance.

Key Features:

- Language selection and Easy to use for the user
- Next-gen LLM-powered voice & visual chatbots and local language guides.
- LLM based OCR (Optical Character Recognition) for Digilocker & document processing.
- Offline form filling with option to auto-save.
- Digilocker Integration and the document-based KYC (Aadhaar, PAN, Voter ID).
- Liveness and facematch checks for face authentication.
- Integrations into client apps through SDK & webRedirects
- Alert message to the registered mobile number for the form's interrupted submission.

User Challenge and Wireframes:

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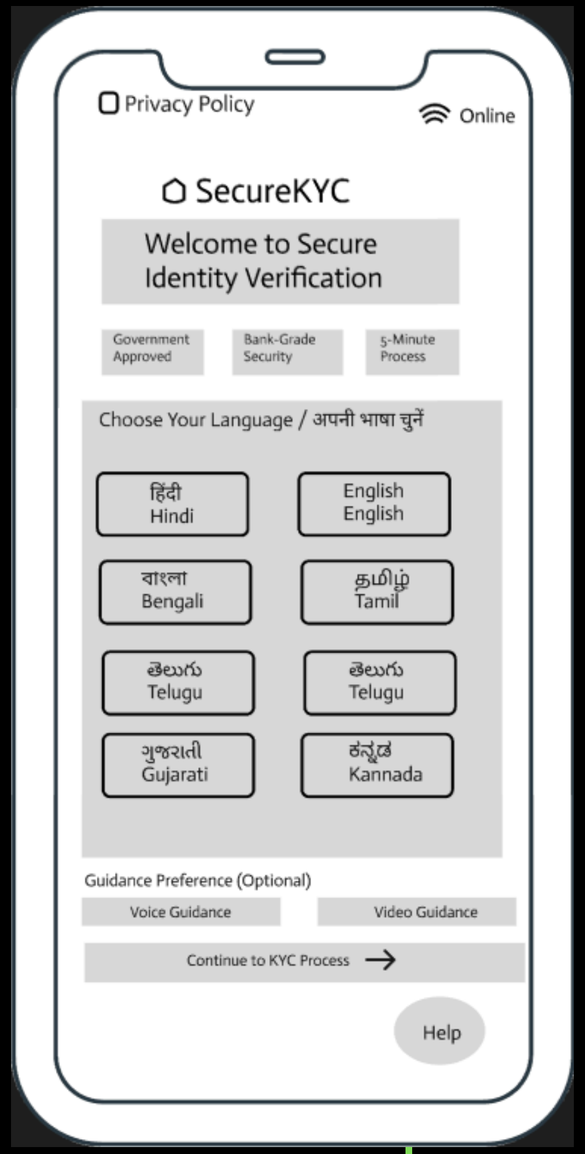
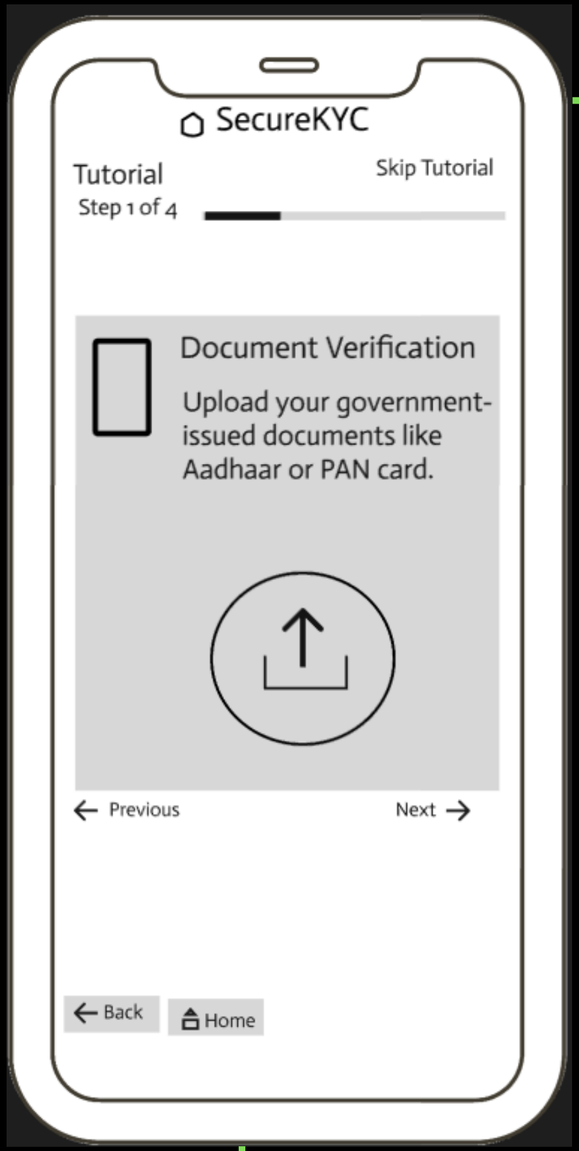
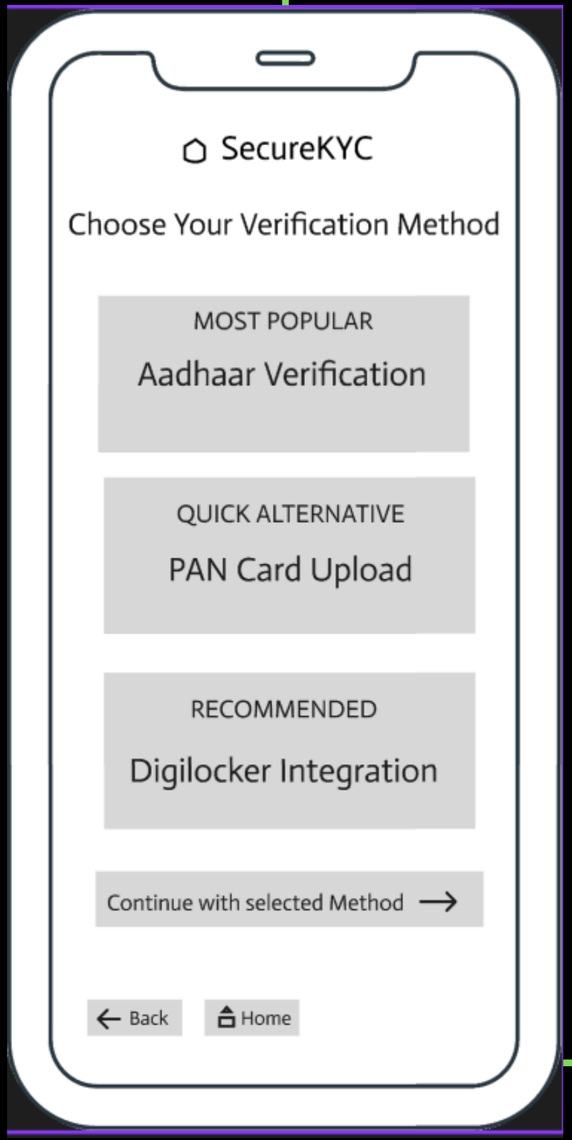
How will the app work for users with low digital literacy?

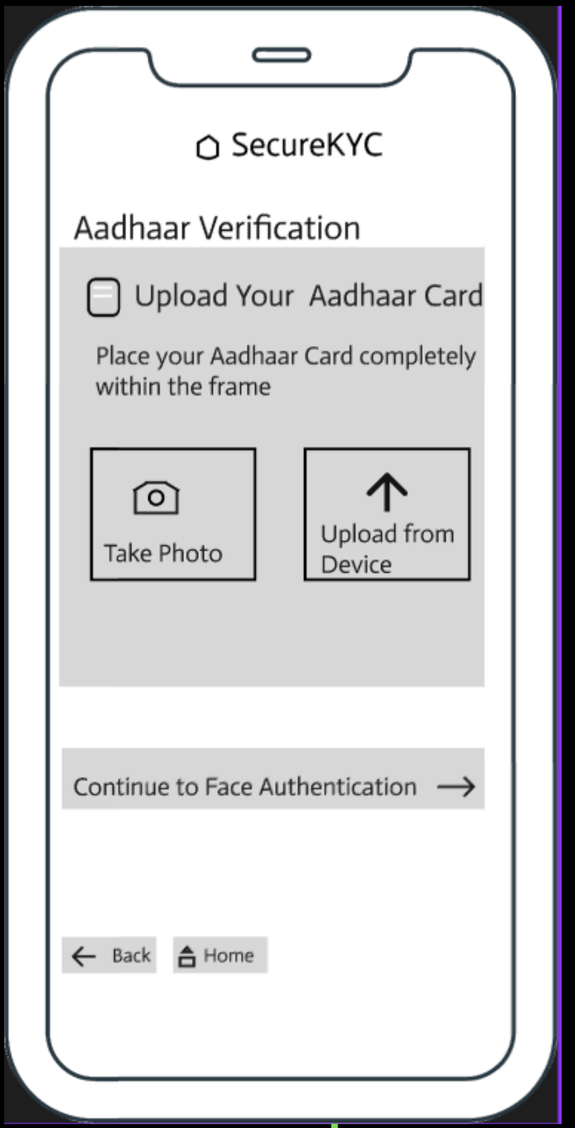
- “SecureKYC” eliminates the language barrier problem by being multilingual, providing user the benefit to choose the language they are comfortable in.
- Simple Interface with clear icons providing easy navigation.
- Support in local language, anyway between application submission process.
- Intuitive onboarding and tutorials can help the users to understand well.

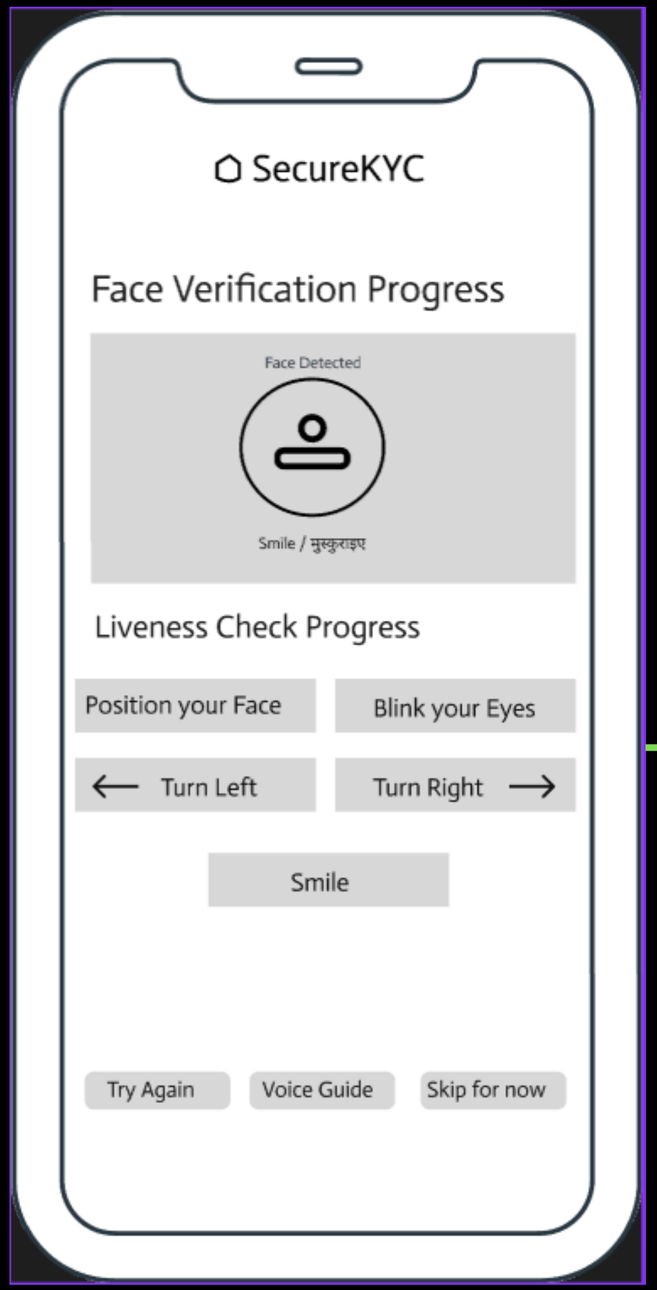
User flow and Wireframes:

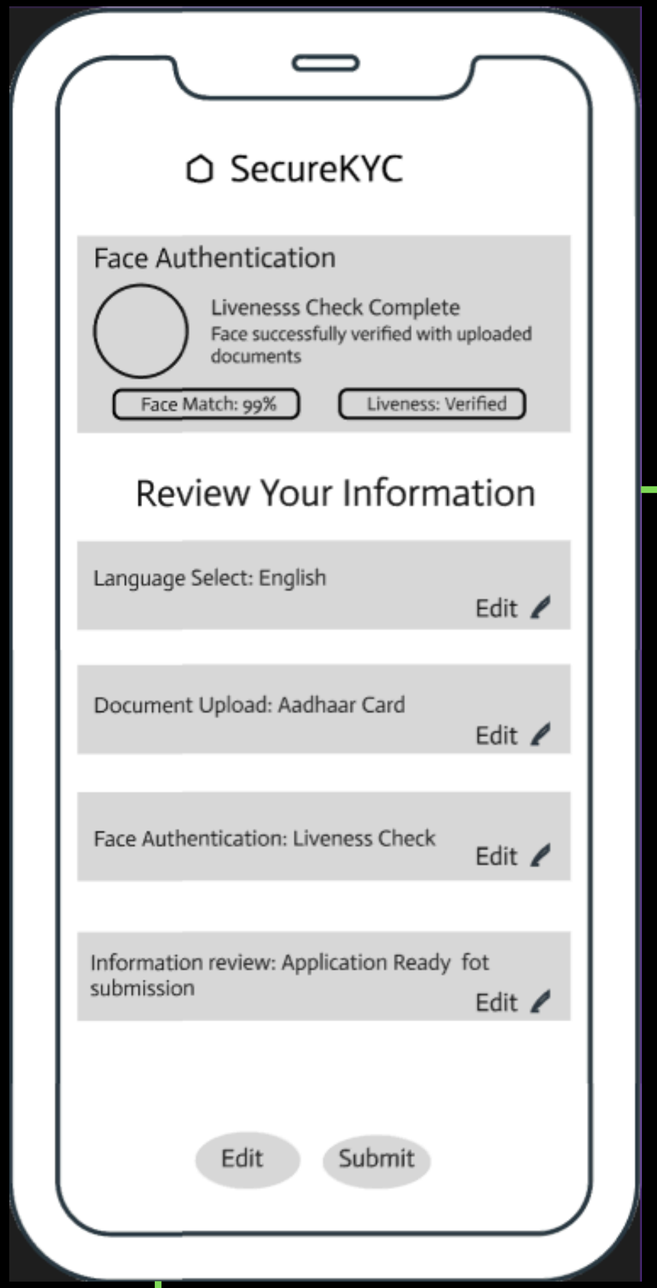









SecureKYC
Face Verification Progress
Face Detected
Smile / मुस्कुराइए
Liveness Check Progress
Position your Face
Blink your Eyes
Turn Left
Turn Right
Smile
Try Again
Voice Guide
Skip for now


SecureKYC
Face Authentication
Livenesss Check Complete
Face successfully verified with uploaded documents
Face Match: 99%
Liveness: Verified
Review Your Information
Language Select: English
Edit
Document Upload: Aadhaar Card
Edit
Face Authentication: Liveness Check
Edit
Information review: Application Ready fot submission
Edit
Edit
Submit

SecureKYC
Application Submitted Successfully
Thank You / धन्यावाद
Back
Home

Innovative Features using LLMs:

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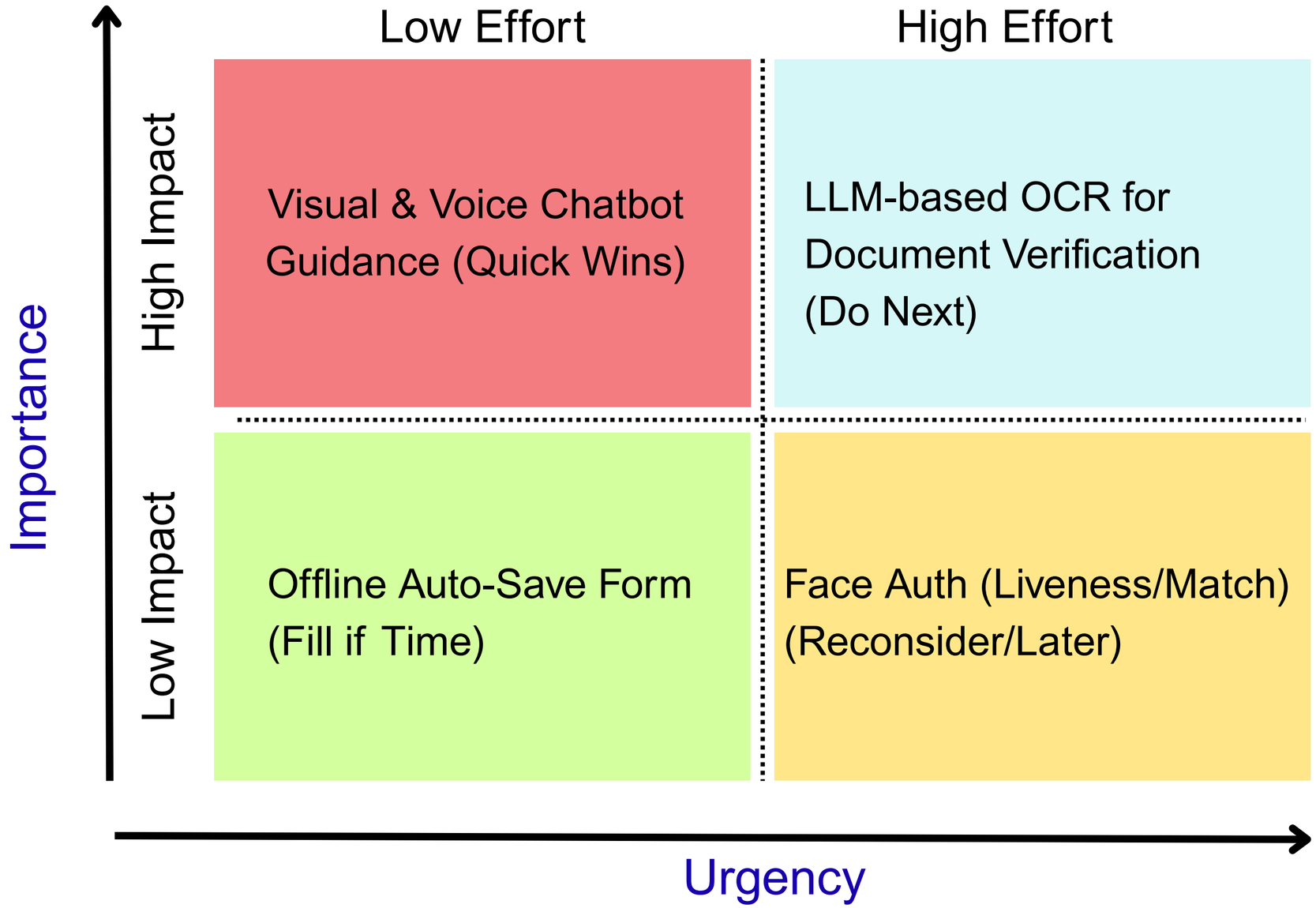
My mobile KYC app leverages Large Language Models (LLMs) to provide personalized user guidance in preferred local language, provide protection against unauthorized document verification, making onboarding easier and more trustworthy also sends alert messages when offline to registered mobile numbers.

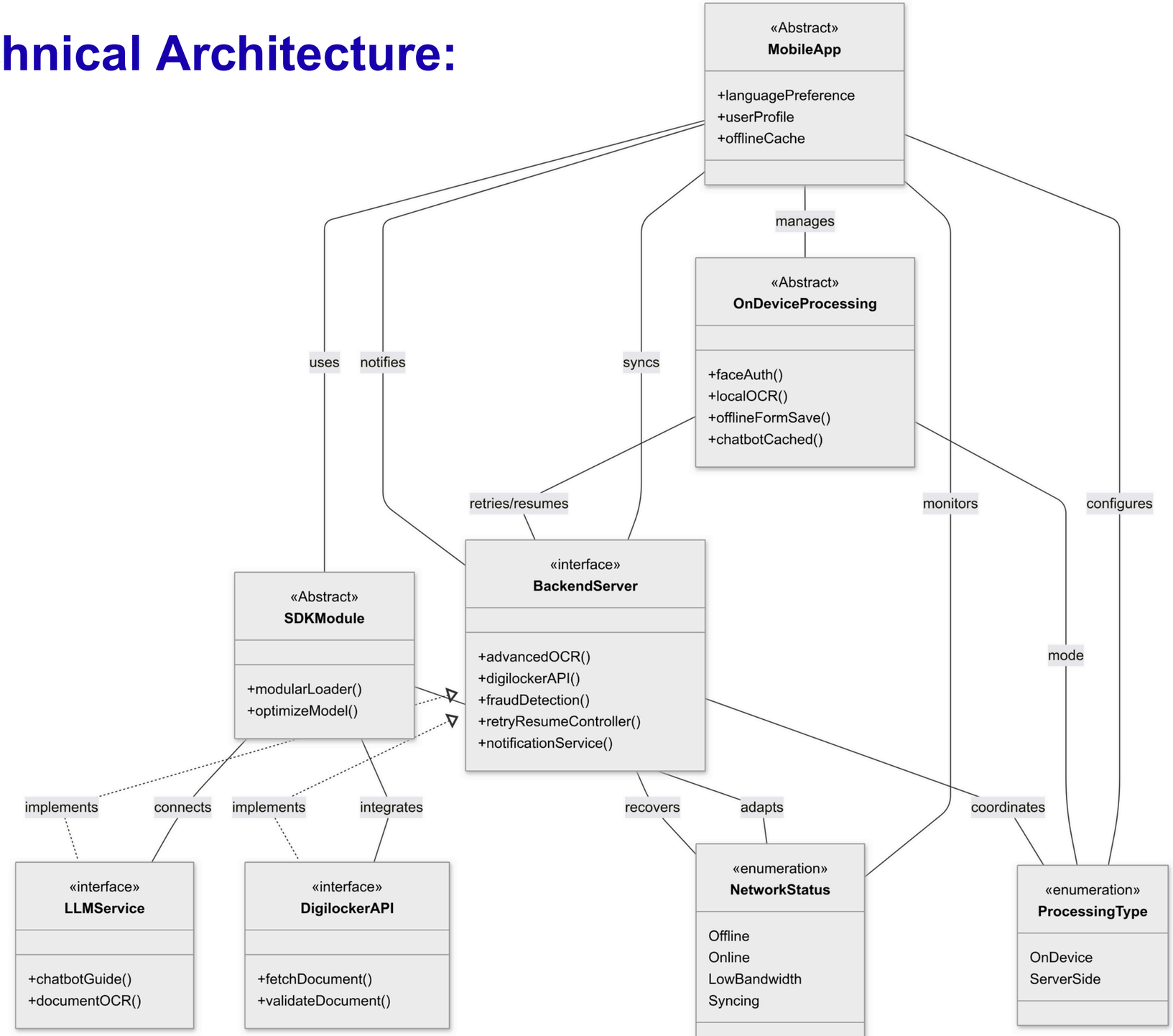
Innovative LLM-powered Features:

- **Voice & Visual Chatbots:** AI-based voice and visual guides help rural and semi-urban users in local languages and provide voice instructions in sequence for every screen, improving trust and ease of use.
- **LLM based OCR for Document Verification:** Straight away extract and validate KYC details from uploaded document or Digilocker documents, reducing manual entry and discrepancy.
- **Offline and retry friendly mode with LLM and local data storage:** Leveraging LLM to logically forecast and process form data in low bandwidth by compressing and interpreting data with the local caching and app design.

Prioritization Matrix



Technical Architecture:



SDK Size Optimization Methods:

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SDK Size Optimization:

- Using modular SDKs to load only needed features on demand or when required.
- Implementing model quantization to reduce the size of Machine Learning Model by lowering precision of weight. which intensely shrinks model storage along with minimal loss of accuracy.
- Model pruning to remove unwanted neural network connection, which reduces complexity hence reduces size.
- Employ lazy loading for extensive external dependencies (e.g. document image processing library), loaded when needed at runtime.
- Offload complex processes like identity verification to backend server using APIs.

On-Device vs Service-Side Trade-Offs:

Task	On-Device	Server-Side
Face Authentication	Fast, offline liveness & face match with lightweight models	Heavy ML model validation, fraud risk analysis
LLM Chatbots	Basic caching & interaction UI	Full LLM API calls for advanced NLP, language processing

Low Bandwidth & Retry/Resume Handling:

- Local data storage mechanism to facilitate offline form filling with auto-save feature.
- Queue management to track processes and actions need to be send to the backend server
- Detection of Network status with the help of events or APIs like navigator.online in browser or App-specific APIs.
- Saving incomplete data in cache and marking it as “interrupted” in the system and triggering alert messages using message APIs when interruption is detected.

Measuring Success & Security Approach

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Measuring Success:

- Analyzing number of user acquisition and retention rates.
- Successful completion and submission of KYC application.
- Time taken during Verification and error scores during digital onboarding.
- User satisfaction and overall feedback percentage by the users.
- Number of downloads by the users, will eventually represent app success.

Security Concerns & Solutions:

- Data privacy: Encryption of sensitive user data using mathematical algorithms
- Device and session authentication: Using multi-factor authentication at the time login other than username and password for extra safety concerns.
- Fraud detection and prevention: Implementing biometric verification like (face liveness, document validation, and face recognition.
- Security via APIs: real-time identity verification and alert messages.
- Offline data privacy: Local data storage along with encryption and auto sync feature.

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Thank You