HD Task 4.0 – Proposal

LocalLens App

Introduction

LocalLens is a travel companion app that helps users explore unfamiliar places using their smartphone camera. By pointing their phone at landmarks, menus, or signs, users receive real-time insights through the power of LLaMA 2. The app uses cloud-based AI to provide intelligent, contextual responses that enhance the travel experience.

Objective

The goal of LocalLens is to make travel more immersive, educational, and accessible. It provides meaningful, real-time information about locations, objects, or texts using LLaMA 2's language capabilities to enhance cultural understanding and support users while exploring unfamiliar environments.

Proposed Solution

LocalLens is designed for travelers who seek a deeper connection with the places they visit. The app uses the device camera to scan physical surroundings—monuments, signs, menus, or products—and delivers contextual, informative responses in natural language. These responses are generated by calling a **cloud-hosted LLaMA 2 model via a secure API**.

The core functionality includes:

- **Monument and Landmark Insights:** Pointing the camera at a historical structure triggers a description of its background, architectural style, and cultural relevance.
- **Real-time Translation & Etiquette Tips:** Scanning signs or labels activates on-device text extraction and sends it to the LLM for translation and contextual etiquette (e.g., greeting customs or tipping norms).
- **Food & Menu Descriptions:** For unfamiliar dishes, the app generates brief overviews and dietary notes.

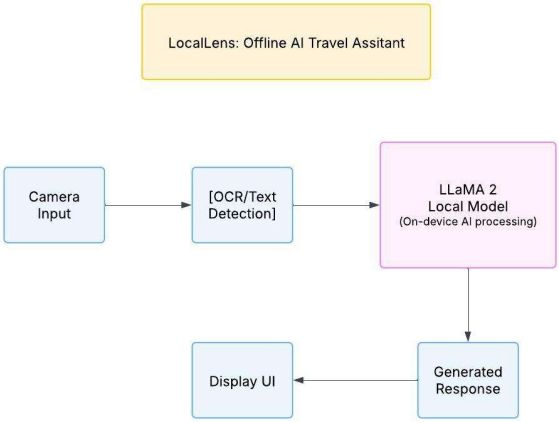
Users interact with the app by tapping on scanned objects or selecting specific content for more detail. The AI-driven backend processes lightweight prompts and returns culturally rich and informative content in real time.

By relying on a hosted LLaMA 2 API (e.g., Hugging Face or custom backend), the app avoids device limitations and delivers high-quality responses. While an internet

connection is required, the architecture ensures quick turnaround and scalable AI support.

Technology Stack & Architecture Diagram

- Frontend: Android Studio (Java)
- Backend **(**Cloud**)**: Hosted LLaMA 2 model (via Hugging Face API or custom Flask/FastAPI service)
- Camera & Image Input: Android CameraX API
- Text Extraction: OCR with ML Kit
- Networking: Retrofit or Volley for API calls
- Optional Cloud Sync: Firebase (only for storing scan history)



Development Methodology

An Agile methodology will guide development. This approach supports iterative design, continuous testing, and feedback collection. Weekly sprints will focus on integrating camera input, OCR, API connectivity, and user interface updates. Agile's flexibility is ideal for refining prompt handling, response quality, and optimizing user interactions with the cloud AI model.

Conclusion

LocalLens offers a powerful and practical use of LLaMA 2 in travel by turning a smartphone into a smart tour guide. By connecting to a cloud-hosted LLM, it delivers intelligent, real-time insights that help users understand their surroundings and engage with local culture in a meaningful way.