Title: GADA GUIDE

Emotion-Aware Health & Wellness Companion for Tourists and Hospitality

Summary of the Proposal

GADA GUIDE is an inclusive, AI-powered mobile application designed to support the emotional and physical wellness of tourists in Oromia. Leveraging emotion recognition, voice analysis, and camera-based vital monitoring, it provides real-time, offline health and wellness feedback to users, especially disabled, elderly, or illiterate travelers and multilingual support. With culturally intelligent features, emergency alerts, and a wellness heatmap, it enhances safety, comfort and accessibility for all.

Introduction / Review of Literature

Tourism is a major contributor to Oromia's economy and cultural identity. However, the intersection of health, wellness and accessibility in tourism remains underdeveloped. Studies show that travel stress and unfamiliarity can negatively impact tourists, especially those with vulnerabilities. While mobile wellness apps exist (e.g., Google Fit, WHO app), they lack offline functionality, emotion-awareness, and inclusive design. GADA GUIDE addresses this by integrating health AI with cultural and emotional intelligence.

Statement of the Problem (Hypothesis)

Tourists experience physical and emotional challenges, disabilities and language during travel that are not addressed by current tourism or health solutions. An inclusive, offline AI solution can reduce stress, improve health outcomes, and enhance the tourist experience, especially for the underserved and vulnerable.

Objectives of the Research

This project aims to develop an offline-capable mobile health assistant specifically designed for tourists. The assistant will leverage artificial intelligence to detect and respond to both emotional and physical discomfort in real time, enhancing the travel experience and ensuring well-being. Special emphasis is placed on inclusivity, with features tailored to support disabled individuals,

elderly tourists, and illiterate users through intuitive, non-textual interfaces. In addition to health support, the application will provide culturally aware guidance that helps reduce travel-related stress and fosters respectful, informed interactions in local contexts. Ultimately, this solution aspires to elevate the standards of safety, accessibility, and hospitality in the tourism sector, making travel in Oromia more welcoming and supportive for all.

Scope and Limitations of the Study

Scope

This project focuses on enhancing the tourism experience across key sites in the Oromia region by integrating emotion-aware and health-sensitive technology. The intended users include tourists from diverse backgrounds, with a special emphasis on supporting vulnerable groups such as the elderly, individuals with disabilities, and non-native speakers who may face communication or accessibility barriers during their travels. The solution will be deployed as a mobile application, compatible with most smartphones, and optionally supported by external sensor add-ons to enable deeper health monitoring features. This inclusive approach ensures that the tool remains accessible, scalable, and impactful across various types of tourism experiences in Oromia.

To ensure accessibility for international tourists, the GADA GUIDE mobile application includes a multilingual interface with built-in support for major global languages such as English, French, Arabic, Chinese, and more. The app also offers voice-guided navigation and symbol-based interaction, allowing users to access essential features without needing to read or understand local text. Moreover, GADA GUIDE uses AI-powered real-time translation to bridge communication gaps between travelers and locals, providing culturally appropriate phrases and etiquette tips. This enables tourists from outside Oromia regardless of their native language to interact confidently, receive health and safety assistance, and navigate the region comfortably. The app's language support is continuously updated based on user demographics and feedback.

Limitation

The implementation of this solution relies on access to smartphones equipped with functional cameras, which may not be universally available among all tourists. Additionally, the system is

designed as a wellness support tool and does not serve as a substitute for clinical diagnosis or professional medical treatment. As such, it provides guidance and alerts based on general well-being indicators rather than specific medical advice. The effectiveness of the solution also depends on the user's willingness to provide consent for data usage and participation in local testing environments, which could impact adoption rates in certain areas.

Methodology Used

The development of the system involves a multifaceted approach integrating advanced AI and user-centered design. Emotion recognition capabilities are implemented through analysis of facial expressions, vocal tones, and breath patterns using Tiny ML technology, enabling efficient offline processing. The user experience (UX) is designed with inclusivity in mind, featuring a symbol- and voice-based interface that has been co-developed with input from local communities to ensure accessibility. A Minimum Viable Product (MVP) will be piloted in three key tourist hotspots within Oromia, where user feedback will be collected through surveys and usage data to inform improvements. The application supports multilingual interaction, with the language model trained in Afaan Oromo, Amharic, and English to cater to diverse users. Additionally, a culturally intelligent AI component is integrated to offer etiquette tips and context-aware guidance aligned with local customs and traditions.

Time Schedule / Work Plan

Timeline	Milestones
Month 1-2	MVP enhancement + UI improvements
Month 3	Pilot launch in 3 tourist hotspots
Month 4-5	Sensor integration and offline SOS testing
Month 6	Feedback evaluation and version 2 release

Rationale / Justification / Significance of the Research

The tourism sector in Oromia can benefit from innovation that not only improves traveler experience but also boosts inclusivity and safety. GADA GUIDE fills a vital gap by enabling health-aware tourism services that reach underserved travelers. It empowers local hospitality

businesses, reduces health-related disruptions, and showcases Oromia as a tech-forward, welcoming destination.

Budget / Estimated Cost Breakdown

Item	Estimated cost
Sensor integration (rPPG, VOC, breath modules)	$50,000
AI language & dialect model training	$25,000
Pilot deployment & user feedback system	$25,000
Emergency SOS + offline alert development	$10,000
Cultural advisory AI chatbot	$5,000
Total	$115,000

Bibliography / References

This research draws upon several key resources that underpin the design and justification of GADA GUIDE The World Health Organization's 2023 report on Digital Health in Tourism provides insight into the growing relevance of health technologies in travel. The Tiny ML Foundation's 2022 publication on edge AI for health applications informs the offline, device-level processing techniques employed in this project. National insights are guided by the Ethiopian Ministry of Tourism's 2023 reports, which highlight strategic needs and development opportunities within the regional tourism sector. Furthermore, academic literature from platforms like ResearchGate, particularly the 2022 study on the emotional impact of tourism, supports the psychological and wellness dimensions of the solution.

Conclusion

GADA GUIDE represents a transformative step for Oromia's tourism and hospitality industry. By combining real-time emotional and physical wellness monitoring, cultural intelligence, and

inclusive design, it ensures every traveler feels safe, understood, and cared for. The project not only empowers tourists but uplifts the local economy and healthcare ecosystem. We seek support to scale this vision and place Oromia at the forefront of inclusive tourism innovation.