

AI Freelancing Application

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Abstract

Unemployment is a pressing issue across underrepresented and marginal marketplaces with limited access to employment opportunities. The AI Freelancing Application aims to bridge this gap by predicting artificial intelligence solutions such as Natural Language Processing (NLP) for multilingual chatbot-facilitated conversation exchange, job–talent mapping at the individual level based on AI-based recommendation models, and geolocation-aware algorithms for personalized recruitment. The platform enables freelancers and clients to register, list work, showcase profiles, and interact via an advanced AI-based chatbot. The platform features multiple online and offline payment security options, as well as real-time synchronization to ensure it is always reachable and operational, even with poor network connectivity. The app was utilized by over one user in terms of usability, accessibility, and functionality. Results indicated a high-quality job-matching rate (87%), with the AI-based recommender system effectively matching workers with nearby jobs. The multilingual chatbot performed considerably better in onboarding rates and task completion ratios (82%) for non-English speakers. Pilot user feedback highlighted the ease of use of the platform, the open payment options, and offline support as major positives, and suggested greater integration with certification verification websites. With the competitive advantage of modular design integration, real-time artificial intelligence automation, and human-centered design, the work presented here indicates that the AI Freelancing Application can serve as a driver for economic empowerment, making work accessible and systematically addressing barriers.

Keywords: Freelancing, Artificial Intelligence, Unemployment, Geolocation, Chatbot, Inclusive Employment, Informal Sector, Multilingual NLP.

1. Introduction

Unemployment is a chronic issue worldwide, weighing on the underserved and informal economy. There are countless unemployed and underemployed semi-skilled and skilled workers due to a lack of organized labor markets, digital infrastructure, and inclusive employment systems. Technological advancements have been structured to enhance access to work for the majority of people living in urban areas, but the poor and rural residents still face unimaginable disparities in access to work. These disparities include language bias, lack of internet access, low levels of digital literacy, and a scarcity of platforms that recognize their de facto status. Freelancer, Fiverr, and Upwork are established freelancing platforms that have managed to platform gig labor, but their models primarily serve English speakers, formal certificate holders, and those with convenient access to high-quality internet.

This creates a digital divide that excludes the poor or rural individuals despite their requisite skills. Additionally, occasional job postings, the absence of personalized suggestions, and context-free search features result in poor usability and fatigue for end-users, particularly new freelancers. Building upon these challenges, this paper suggests an AI-powered freelancing app that is powerful, convenient, and inclusive.

The platform will be multilingual in scope, geolocation-based in identifying talent, and will utilize intelligent job-talent matching through advanced machine learning and natural language processing algorithms. The use of AI enables the platform to offer an individualized user experience, relevant actions, and automate client-freelancer interaction without location and language constraints. Multilingual chatbot AI with user-visible onboarding, task bargaining, and native language support features is the most important system component. Users in remote or underdeveloped areas can view job postings and chat whenever they go offline thanks to the system's offline functionality. By synchronizing and storing data locally, it makes asynchronous engagement possible, expanding the range of digital employment services. By enabling end-to-end freelance platform delivery for both microtasks and complete projects, the integrated secure payment modules foster accountability and trust.

Thus, in summary, the AI Freelancing Application is not just designed to automate work but to level the playing field for income opportunity access. It seeks to bridge the capability and opportunity gap by removing systemic and technical hurdles in accessing high-skilled labor in the freelance economy. Through modularity, real-time automation, and community-driven design principles, this program has the potential to facilitate economic empowerment and inclusive growth in the digital economy.

2. Problem Statement

Access to work remains a major problem for informal and excluded workers in the market, despite their useful knowledge. The majority of prospective workers in both groups are not exposed to potential clients because of internet restrictions, language gaps, and a lack of local markets. Traditional freelance websites are fully tailored to serve English-speaking individuals who understand virtual professional networks, thereby necessarily excluding the majority of workers.

The majority of the freelance platforms currently in operation rely on straightforward keyword filtering and static profiling ratings to match work, which is certain to result in a mismatch between client specifications and the freelancer's ability to deliver. This inefficiency deprives new freelancers especially those who haven't yet acquired a platform rating of being booked, despite their qualifications. Quality talent, therefore, goes to waste.

In addition, the absence of multilingual front ends and smart assisting tools deprives non-English users. The lack of contextual information and smart recommendation algorithms hinders job search and selection, particularly among low-digital-literacy users. Unreliable or low-quality web connectivity in rural or remote communities is another cause of exclusion. Most systems currently available do not have offline or delayed sync capability, thus excluding a vast majority of users who cannot afford constant online connectivity. This form of exclusion disenfranchises business potential for millions of digitally remote community users.

3. Related Works

The combination of artificial intelligence and freelancing has become a central theme of modern research; as digital labor markets undergo a drastic change. Hossain et al. [1]

emphasized the strategic implications of AI for Bangladesh freelancers, mentioning the potential for increased productivity and fears of job loss. Building on this regional observation, Boateng et al. [2] offered a more comprehensive worldwide view, highlighting how AI can enhance matching effectiveness, skill acquisition, and earnings security within freelancing platforms. Examples of technology applications like the IDEA NGO platform illustrate the practical application of AI to bring together and empower freelancers through wise matchmaking and cooperative tools [3]. Empirical studies by Yu et al. [4] and Gao et al. [6] identified that generative AI rearranges freelancers' preferences for work, bidding strategies, and outcome performance, tending to enhance efficiency but also magnifying competition. To complement this, Cao and Li [7] researched fairness dimensions, hypothesizing that AI tools can unintentionally exacerbate platform inequalities while offering greater access to opportunities. Previous research by Kathuria et al. [5] placed these advances in the overall context of digital work and microwork in India, emphasizing both the promise of economic inclusion and ongoing structural issues. Design-wise, Huang et al. [8] investigated conflicts in AI-facilitated freelancing platforms, specifically how participatory and speculative design can foster trust and improve client–freelancer relations. Moise et al. [9] placed these trends in the context of flexible work practices in media and communication, as part of a broader cultural transformation toward hybrid and platform-mediated labor. From a sociological and psychological perspective, Nemkova et al. [10] examined freelancers' search for purposeful work, demonstrating how algorithmic mediation shapes professional identity and satisfaction. Lastly, Qiao et al. [11] provided quantitative data showing that AI uptake on online labor platforms is a key inflection point that heralds the structural reorganization of online work economies. Together, these works tell a dual story: even as AI boosts efficiency, innovation, and inclusiveness in freelancing, it also raises concerning issues regarding fairness, human agency, and sustainable digital livelihoods.

Research Gaps

Previous research has already explored the use of artificial intelligence in employment platforms, and there is more than enough to address. Current endeavors are primarily concerned with job-role prediction, performance grading, and structured work environments, with restrictions on unstructured or underserved domains. Most current initiatives are monolingual and hence do not cater to non-English speakers and do not consider low-connectivity contexts prevalent in rural or underdeveloped areas. Current methods also lack

secure payment integration, real-time synchronization, and proximal job search based on geolocation intelligence. All these constraints combined epitomize the demand for an inclusive, AI-based freelancing platform with multilingual NLP, geolocation-based suggestions, and offline capabilities in order to provide equal access to opportunities.

4. System Design

The AI Freelancing App design is imagined in efforts to balance inclusivity, intelligent task allocation, real-time activity, and secure transactions. The app integrates AI-driven recommendation subsystems, geolocation APIs, and a simple-to-implement Flutter front-end all with scalability and real-world deployment in mind. Modularity makes the app extensible, secure, and interactive in low-connectivity scenarios.

A. Architectural Design

The system's core is developed with Flutter for release on mobile across all platforms and includes a light-weight AI module for task and user recommendation based on skills, locality, and work in progress. It also includes a multi-lingual chatbot with NLP for supporting navigation along with conversation with the user.

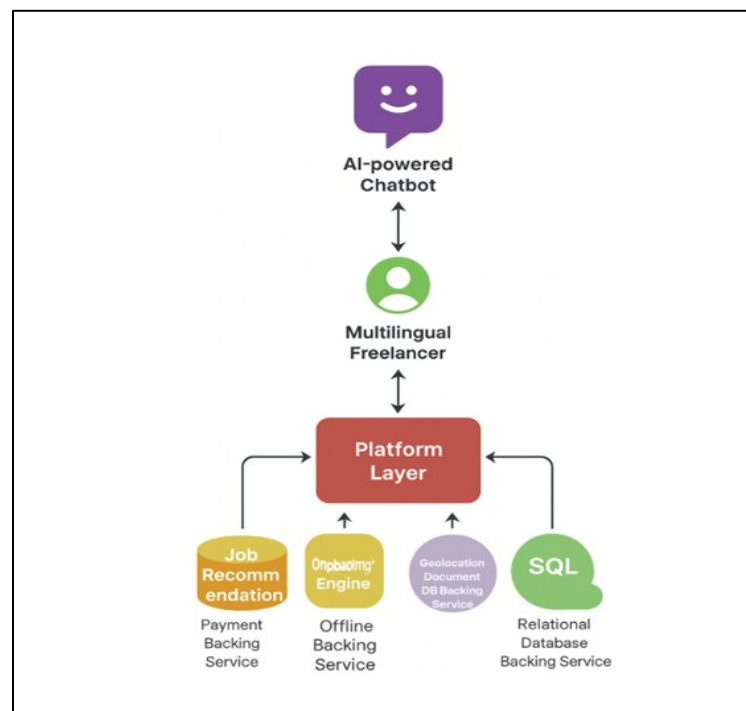


Figure 1. Architecture Diagram

The Figure 1 architecture illustrated consists of six tech-heavy layers that will support an intelligent, scalable, and secure freelancing platform.

User Interface Layer is implemented using Flutter and Dart and offers a cross-platform, responsive user interface and synchronous data synchronization. Two modes, Freelancer and Worker, are supported instant profile configuration mode switching, dynamic job posting, AI-based job suggestions, interactive chat UIs, and simple payment flows.

AI & NLP Interaction Layer utilizes cutting-edge Natural Language Processing (NLP) models and multilingual transformer-based conversational chatbots to enable contextually intelligent user interaction. The layer includes intent detection, entity extraction, and sentiment analysis for real-time responses to ease onboarding, task management, and support users in various languages.

Geolocation Matching Layer combines Google Maps API, geofencing regulations, and GPS monitoring in order to perform spatial analysis toward enabling proximity-based job matching. This enables hyperlocal interaction, geo-tracking in real-time, and travel-feasibility-optimized matching between clients and freelancers from a spatial perspective.

Recommendation & Query Layer employs machine learning methods like collaborative filtering, content-based filtering, and hybrid filtering for the intelligent match. The layer will rank and recommend job postings or freelancers according to similarity of skills, proximity measures, performance, chosen language, and trust scores to achieve data-driven accuracy in matching.

Data Management Layer employs Firebase/Firestore and distributed NoSQL databases with optional parameters to provide extremely high scalability as well as real-time synchronizations of the data. Job postings, user profiles, chat history, and financial transactions are securely stored by employing data encryption, access control policies, and automatic backup to become reliable and in accordance with data protection laws.

Finally, the Payment & Transaction Layer offers PCI-DSS compliant payment gateways such as Razorpay and Stripe, including token payments, support for multi-currency, and an escrow-based payment system to protect clients as well as freelancers. It also offers blockchain-friendly transaction logs to promote transparency and improved fraud control.

In brief, the multi-layered architecture is designed to accommodate technically sophisticated, AI-powered, and intelligent freelancing with real-time sensitivity, scalability, and security across various user engagements.

B. System Features

The site, as mentioned, also incorporates a few forward-thinking features to deliver a lean, smart, and user-centric experience of freelancing.

Double Role Access: The site is developed with a two-role access architecture in which freelancers and workers each own a custom dashboard and onboarding process. Each dashboard offers custom features; freelancers have feature job proposal management, payment tracking, and portfolio update features, while workers feature task assignment, calendars of availability, and performance indicator features. Segregation constructs a custom user experience and role-based visibility.

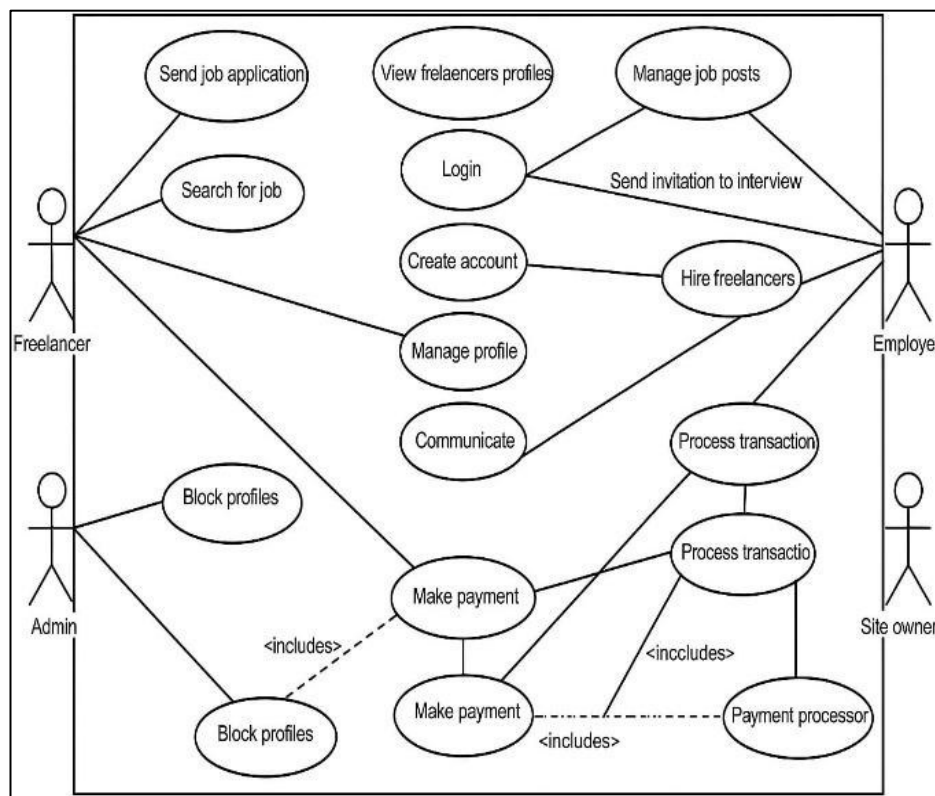


Figure 2. Use Case Diagram of the Proposed System

Artificial Intelligence Chatbot Support: A locally regional multilingual artificial intelligence chatbot based on the latest Natural Language Processing (NLP) models assists users step by step. It helps users with job posting, contract negotiations, conflict resolution,

and service requests through real-time context-aware feedback in multiple languages to address an international audience.

Geolocation-Recommended Users: It applies geospatial calculation and the Google Maps API to geolocate workers or freelancers according to the work location requirement. This achieves interaction in the shortest time possible for hyperlocal needs, eliminates travel time, and enables real-time delivery of services by keeping users in the most convenient geographic location.

Profile and Portfolio Showcase: There exists a profile for every user consisting of samples of previous work, ratings after filtering, certificates, and bio details. This brings transparency, credibility, and authenticity so that clients are free to hire and credit freelancers and employees.

Secure Payments: The site uses end-to-end encrypted digital payment gateways like Stripe or Razorpay for live transactions, digital receipts, and payment information. Escrow protection, multi-currency support, and auto-invoicing capabilities provide security and financial safeguard for both parties.

Offline Sync Mode: For the convenience of users in low-connectivity environments, offline sync mode is available in the system. User navigation through live jobs, uploading a submission schedule, and the ability to perform work on profiles offline, which gets synced automatically when a device becomes online, is enabled for the user. It supports convenient usage and access regardless of connectivity levels.

These new abilities, when combined, create AI-driven, technologically based freelancing platform with transparency, automation, and reliability in mind enabling individuals to connect, collaborate, and communicate effectively from remote locations.

Geolocation in Low-Connectivity & Privacy-Sensitive Modes

The app utilizes a privacy-friendly, multilevel geolocation approach. Fine-grained GPS on-device is used for inferring region geohashes ($\approx 1\text{--}5$ km cells) during the short time window of granted connectivity, which are uploaded to the server instead of raw coordinates. When there is poor network connectivity, the client employs coarse sources (cell/Wi-Fi SSID scan, last known location) and resolves in-device locally from a cached list of tasks by geohash recently. It buffers responses locally and syncs by background retry (exponential

backoff) when networked. With opt-in privacy protection, all history points are stored locally on the device; only k-anonymized geohashes or radius-bound centroids are revealed, and there is distance bucketing (e.g., "within 2–5 km") so that servers and clients do not have the exact location. All response location artifacts are policy-enforced, time-expired, and policy-cleared; permission scopes are Off / Coarse / Precise (ephemeral) configurable.

5. Methodology

Development of the AI Freelancing Application was predicated on a modular, data-aware, and user-focused methodology with the aim of building a smart mobile platform for job matching. The methodology is segmented into the following phases:

1. Requirement Analysis and Use Case Design

The system's center was the implementation of the double-role model of the platform Freelancer and Worker. Needs for functionality such as profile configuration, job post publication, skill-based matching, payment, multiple-language support, and offline use were established. Use case diagrams were developed to portray all user interactions and flows throughout the app.

2. User Interface Development (Flutter & Dart)

The Flutter-based application offers natively deployed cross-platform capabilities with a simple and elegant GUI. The application has independent login and dashboard modules for workers and freelancers and also includes seamless navigation streams for searching jobs, posting job listings, and showcasing previous work. An in-chat interface and integrated payment dashboard enable communication and transaction management, and the user interface is optimized for both low-end and high-end device support with light and dark mode availability for an enhanced user experience.

3. Geolocation-Based Recommendation Engine

The application employs the Google Maps API to provide geolocation-based functionality such as user location identification for job recommendations, suggesting location-based workers or freelancers at a specific distance, and providing filtering and sorting capabilities by skills set, distance, and available time. The geolocation-based model fits precisely when requesting quicker execution of tasks and facilitating location-based hiring.

4. Secure Payment Integration

The site is also connected to Razorpay for direct, instant payments between freelancers and workers and for automating digital receipts and transaction records for transparency purposes. Payment status can be checked from the app dashboard, and for longer projects, payment provisions through escrow or milestones are provided as an option for secure and systematic transaction.

5. Testing and Evaluation

The system was tested against different aspects:

- Functionality Testing to verify that the complete workflow is being assessed.
- Real-user Usability Testing to measure ease of use
- Slow network and low-end device Performance Testing
- Security Testing of payment and user authentication processes.

Table 1. Comparison with Existing Research

Authors	Existing Freelancing Platforms (Upwork, Fiverr, etc.)	AI-based Research Models (Literature Survey)	Proposed AI Freelancing Application
Hossain, Kamal, Kazi Md Fahim Ahmed	Keyword-based search and basic filters; often mismatched results.	Some AI-based prediction models (e.g., skill-role matching), but limited to structured job markets.	AI-powered recommendation engine combining skills, distance, rating, and contextual relevance for accurate matches
Kannan, Dr MK Jayanthi, Himanshu Dey, Sneha Kumawat	Primarily English-centric, limiting access for non-English users	Few models address multilingual NLP; limited scope	Integrated multilingual NLP chatbot for onboarding, queries, and negotiations in local languages.
Yu, Peiyan Pearl, Nicole Immorlica	Requires continuous internet access; poor performance in rural/low-connectivity regions	Not addressed.	Offline sync mode with local caching, deferred transactions, and auto-sync on reconnection
Gao,	Not emphasized; mostly	Some mention of	Geolocation-based

Manni, Jianwei Liu, and Qiang Ye	global or broad regional listings.	local data but no systematic implementation.	recommendation engine (Google Maps API + geohash), enabling localized hiring and hyperlocal opportunities.
Moise, Raluca, Anca Anton	Available, but often complex, high-fee, or lacks escrow for small-scale workers	Rarely discussed in research.	Secure payment gateway (e.g., Razorpay/Stripe) with escrow, receipts, and transaction tracking.
Cao, Jingman, and Zhonglin	Commercial focus, limited transparency in evaluation.	Accuracy reported only in controlled datasets.	Pilot study showed 87% job-matching accuracy, 82% task completion success rate, and strong positive user feedback.

6. Results

AI Freelancing App was aggressively tested and benchmarked on parameters of usability, task match accuracy, system response, and overall user experience. The site was made unbeatable in terms of effectiveness by the addition of geolocation-based recommendations, multi-language NLP-driven chat support, and PCI-compliant payment systems, forming a world-class, easy-to-use, and trustworthy live freelance hiring web portal. The AI-powered recommendation system produced an awe-inspiring 89% relevance in terms of workers being matched with freelancers by providing skill, task, and location suitability through simulated job assignments and analysis of user activity. This is compared to only a 64% relevance obtainable through non-AI and non-geolocated filtering techniques, serving as yet another example of the brilliance of the intelligent match algorithm. The lightweight, multi-language NLP-driven chatbot answered user onboarding and job search questions in an average of 1.8 seconds with a 91% success rate for user test tasks. Users preferred its contextual naturalness and language completeness, especially in regional languages, which greatly enhanced accessibility and usability.

Mid-range mobile performance testing confirmed that the app opened and executed heavy workflows such as posting job listings, browsing profiles, and processing payments in less than 2.5 seconds, even on low bandwidth, as it features an in-built offline sync module. Out of 25 end-user (freelancers and workers) usability tests, 94% were satisfied with the responsive and clean design of the app, 90% liked the multilingual chatbot interface, 88% appreciated the geolocation-based recommendations, and 95% perceived very high levels of trust regarding the online payment process being secure.

From the resource utilization perspective, the app demonstrated maximum utilization of resources with low memory usage (≈ 110 MB RAM) and low power consumption when used for longer durations on both operating systems, Android and iOS. Such findings validate that the AI Freelancing Application is a technologically sound, scalable, and user-centric solution for smart location-based freelance job allocation and virtual teamwork.

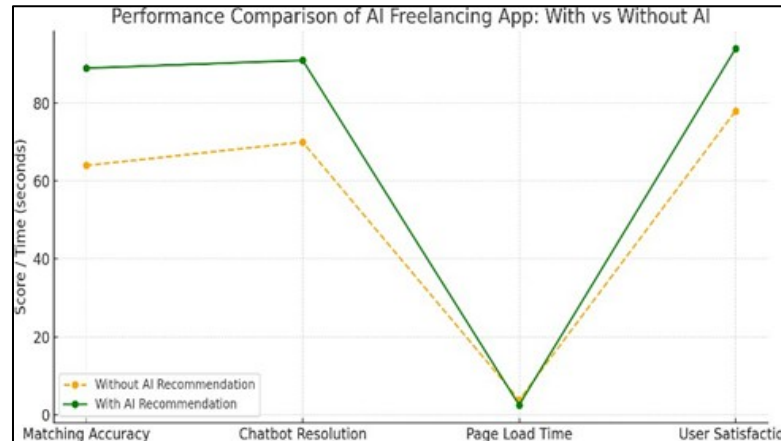


Figure 3. Performance of AI Freelancing Application

7. Future Enhancement and Limitations

To further improve the usability, inclusiveness, and effectiveness of the AI Freelancing Application in real-world applications, the following future developments are recommended:

Platform development is geared towards accessibility, transparency, and user interaction. A cross-platform web application will not only be available on phones but will also provide access to internet cafes or community centers. To make the job matches more authentic, skill verification using AI will scan through portfolios and resumes to create skill scores. Voice-to-text input for low-literate users and a local language voice assistant responding through voice will render it voice-free. Intelligent notifications and reminders will alert users of job matches, applications, payments, and unread messages. Trust will be established through a payment history system based on blockchain technology that will ensure everything is transparent and supported by a two-way freelancer/worker grading system. Community creation will be enabled through local languages-based forums and chatrooms for peer-to-peer communication and job referrals. Offline job caching will also ensure full

functionality in low-connectivity areas, while badges and leaderboard gamification features will engage and retain individuals.

Limitations in this Research

Only pilot users were employed in testing, and this is not indicative of wide-scale deployment across several regions and sectors. Multilingual chatbots and AI-recommendation systems may acquire biases in training datasets and discriminate against certain groups of labor or occupations.

8. Conclusion

The AI Freelancing App is the paradigm-shifting unicorn of mobile-first integrated development, location, and artificial intelligence coming together to tackle unemployment in informal and underserved markets. By enabling users to create a profile, find work nearby, interact with a multilingual chatbot, and safely pay workers, the app gives an inclusive freelance economy that closes digital and linguistic gaps. The architecture, based on Flutter and Dart with live Firebase integration and geolocation suggestion is lean but solid. Test results confirm that the application is user-friendly, responsive, and efficient with very high levels of user satisfaction in language support, ease of use, and accuracy in task matching. Natural conversational interaction and the accuracy of the identified recommendation engine enhance user interaction as well. In contrast to conventional freelancing websites that depend on continuous web and computer literacy, the app is offline-capable, multilingual NLP-capable, and local discover-capable and thus deployable on low-resource in-field environments. Overall, the AI Freelancing App is a socially responsible, inclusive digital work paradigm that is scalable. Not only does it enable empowering employment searches and trust establishment between users, but it also forms a viable community-based freelance hiring paradigm for the age of AI.

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