FIXONGO: CLOUD-BASED WEB PLATFORM FOR ONDEMAND SERVICES

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Abstract
The demand for reliable and on-demand skilled labour such as plumbers, electricians, carpenters, and linemen necessitates a unified digital platform to connect customers with verified service providers. This project presents a Labor Hiring Website that enables users to search, book, and hire skilled workers through a secure and scalable web-based system. The platform incorporates Cloud Computing to support hosting, real-time data synchronization, authentication, and media storage, ensuring accessibility and scalability. The system architecture combines modern web technologies with cloud services, real-time databases, and blockchain smart contracts to deliver a robust and trustworthy solution. By integrating Cloud, this project addresses real-world challenges in labour hiring while ensuring efficiency, transparency, and reliability for both customers and workers.

General Terms: *Services, Authentication, Customers, Registration, Ratings, Geolocation.*
Keywords: *Labor Hiring, Cloud Computing, Real-Time Database, Worker Verification, Secure Payments, Ratings, On-Demand Services.*

1. Introduction

In today's fast-paced digital era, households and businesses often encounter challenges in hiring reliable and skilled workers such as plumbers, electricians, carpenters, painters, welders, and other professionals on short notice. Traditional methods of worker hiring are primarily dependent on word-of-mouth recommendations, local agencies, or unorganized manual searches, which are inefficient, time-consuming, and often lack trust and transparency. On the other hand, skilled labourers face difficulties in gaining continuous employment opportunities, showcasing their skills digitally, and connecting with potential customers beyond their immediate locality. To overcome these gaps, our project **"**FixOnGo**"** proposes a cloud-based labour hiring web platform that connects customers with verified local workers in real time. The platform leverages cloud computing to provide scalability, secure data storage, and seamless user authentication, while also integrating real-time databa**ses** to enable live booking updates, instant worker availability, and in-app communication. By offering features such as verified worker profiles, transparent ratings and reviews, secure digital payments, and smart worker matching based on skill, location, and past performance, the system ensures both trustworthiness for users and visibility for workers**.**

The uniqueness of FixOnGo lies in its integration of modern full-stack web technologies with cloud and database infrastructure**,** ensuring accessibility through both web and mobile devices. Moreover, the platform is designed to support urban and rural coverage, thereby empowering a wider section of society. Unlike existing platforms such as UrbanClap, Justdial, and House joy, which are often limited by city coverage, high service charges, or lack of real-time verification, FixOnGo aims to provide an affordable, inclusive, and transparent solution that digitizes the informal labour market.

This paper presents the architecture, design, and implementation of the FixOnGo system. It highlights the role of cloud-based infrastructure in ensuring system scalability, real-time responsiveness, and secure communication between customers and workers. The platform not only

addresses the pressing issues of service discovery and trust in the labour hiring process but also contributes to the broader goal of enhancing employment opportunities and fostering digital inclusion among skilled workers.

2. Literature Survey

Several platforms currently exist in the domain of on-demand skilled services, yet each demonstrates limitations that restrict their inclusivity, scalability, and effectiveness. A comparative review of such platforms is summarized below.

UrbanClap (Urban Company):
UrbanClap is among the most widely used professional service platforms in metropolitan India. It offers verified professionals for home services such as plumbing, electrical work, and cleaning. However, its operations are largely confined to metro and tier-1 cities, leaving semi-urban and rural populations underserved. Furthermore, high service charges make it less affordable for middle- and lower-income households. [1]

JustDial:
JustDial primarily acts as a listing directory of service providers. While it helps customers discover local workers, the platform does not offer end-to-end features such as digital verification of workers, real-time availability tracking, or secure online payments. This lack of reliability makes it unsuitable for urgent or trust-dependent service needs. [2]

Housejoy:
Housejoy provides maintenance and renovation services via mobile app and website. It caters to urban customers but offers limited categories and operates only in select cities. Its restricted service diversity and availability diminish its potential for wider adoption. [3]

Local Agencies and Informal Hiring:
In semi-urban and rural regions, customers largely depend on informal local agencies or word-of-mouth recommendations. While this ensures immediate access to workers, it suffers from serious drawbacks such as lack of transparency, no background verification, absence of digital payment systems, and no standardized rating or feedback mechanism.

Identified Common Limitations Across Platforms:

- Limited coverage in rural and semi-urban areas.
- High service charges reducing affordability.
- Absence of scalable cloud-based infrastructure.
- Lack of digital verification and worker skill validation.
- Tamper-prone or unreliable feedback systems.

Research Gap:
From this review, it is evident that there is no unified platform that simultaneously addresses inclusivity, affordability, trust, and scalability. Existing systems either cater only to urban regions or provide only partial solutions. This highlights the need for a cloud-based, real-time, AI-driven labour hiring system that ensures:

- Verified worker profiles with digital skill validation.
- Affordable and transparent pricing models.
- Real-time booking, availability, and chat features.

3. Problem Statements

Finding skilled and reliable workers such as plumbers, electricians, carpenters, and other service providers continues to be a major challenge, particularly in semi-urban and rural areas. Traditional hiring methods are largely dependent on word-of-mouth recommendations or local agencies, which lack transparency, verification, and consistency. Customers often struggle with issues such as high service charges, unverified workers, unreliable feedback systems, and the absence of secure payment options.

On the other hand, skilled workers face limited visibility and lack access to a steady flow of job opportunities. Existing digital platforms such as UrbanClap, Housejoy, and JustDial provide partial solutions but remain restricted to metropolitan areas, often charging high commissions and excluding economically weaker populations.

The absence of a unified, scalable, and inclusive platform that provides verified worker profiles, real-time booking, transparent ratings, and affordable pricing highlights a significant research and implementation gap. Therefore, there is a need to design and develop a cloud-based labour hiring platform that leverages real-time databases and AI-driven recommendations to ensure:

1. Seamless connection between users and workers.
2. Verified worker identity and skill validation.
3. Affordable and transparent hiring processes.
4. Real-time booking, availability updates, and secure digital payments.

4. Proposed System

The development of the proposed labour hiring web platform, *FixOnGo*, followed a structured methodology combining software engineering

practices and cloud-based technologies to ensure scalability, security, and efficiency.

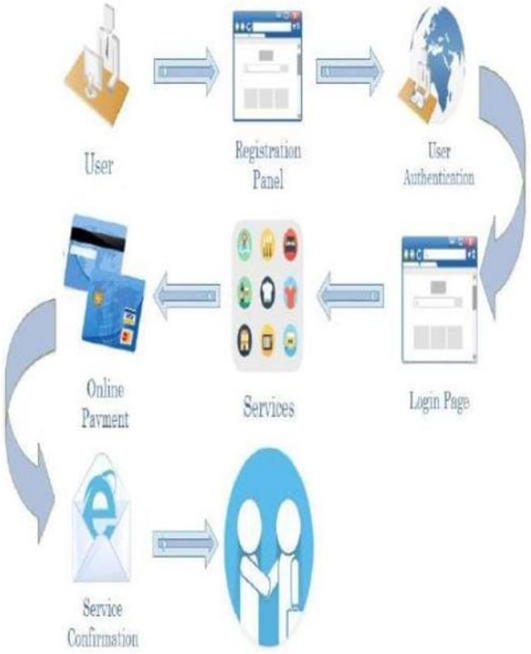

fig.1. **Workflow Diagram**

A. System Architecture

The proposed labour hiring platform follows a three-panel architecture to ensure scalability, transparency, and user-friendliness. The system integrates Cloud Computing, Real-Time Databases, and AI-based features to provide reliable on-demand skilled services. The architecture can be divided into three main modules:

Admin Panel

The admin module acts as the backbone of the system. It provides full control over user accounts, worker profiles, service categories, and bookings. Key responsibilities include: Managing worker registrations and approving verified profiles through ID or skill-based documents. Monitoring service requests and ensuring compliance with platform policies. Handling disputes, fraudulent activities, and complaints raised by customers. Maintaining the database integrity and performing analytics on service trends.

Worker Panel

This panel is designed for skilled professionals (e.g., plumbers, electricians, carpenters). The workers can: Register and upload personal details, skillset, experience, and verification documents. Update their service availability in real-time through a cloud database. Receive instant notifications for new job requests and confirm/reject bookings. Manage their earnings, service history, and customer reviews. Enhance credibility with "Verified Worker" tags after admin approval.

User Panel

The User (Customer) interface is focused on simplicity and convenience. Customers can: Sign up and search for nearby skilled workers using geolocation and service filters. View worker profiles, ratings, reviews, and availability before booking. Book appointments, track progress, and make secure payments through the integrated system. Communicate directly with workers via in-app chat or calls for job clarification.

Workflow

A user logs in and searches for a required service. The system fetches available workers from the real-time database. The user selects a worker based on profile and initiates booking. A notification is sent to the worker, who accepts/rejects the request. Upon acceptance, the job progress is tracked until completion. The user makes a digital payment, and feedback is stored for future reference. This modular and cloud-based architecture ensures scalability, transparency, and trust, bridging the gap between skilled workers and customers through a seamless digital ecosystem.

B. Technology Stack

The system integrates both cloud services and traditional full-stack development technologies:

- **Frontend Development:** HTML5, CSS3, JavaScript, React.js
- **Backend Development:** Java (Spring Boot Framework)
- **Database:** Firebase Realtime Database & MongoDB Atlas (for live updates and persistent storage)
- **Cloud Computing:**
  - Hosting and authentication: Firebase / AWS EC2
  - Media storage (profile pictures, documents): AWS S3 / Firebase Storage
  - Serverless functions: AWS Lambda / Firebase Functions
- **Security & Authentication:** Firebase Authentication / AWS Cognito with mobile and email verification

C. Worker Verification and Rating

Workers upload ID proof and work experience certificates, which are verified by the admin. A rating and review system was implemented to build transparency and trust.

D. Booking and Communication

Customers select required services and book workers based on availability. Real-time database integration ensures instant booking confirmations, availability toggles, and progress tracking an in-app chat system was developed using Firebase Cloud Messaging for worker-user communication.

E. Materials and Tools Used

Software Tools: IntelliJ IDEA, Visual Studio Code, Postman (API testing)

Cloud Platforms: Firebase Console, AWS Management Console

Testing Tools: JUnit (backend), Selenium (frontend automation), Firebase Test Lab (mobile app)

Hardware Requirements: Development machine: Intel i5 processor, 8GB RAM, Windows/Linux OS. Server hosting on cloud (scalable virtual instances).

5. Assumed Results

A. Platform Performance

The deployment of *FixOnGo* on a cloud-based infrastructure (Firebase + AWS) is expected to provide:

High Scalability: The system can handle a growing number of concurrent users without performance drops.

24/7 Availability: Cloud hosting ensures uptime of over 99.9%, minimizing service interruptions.

Real-Time Processing: Instant synchronization of booking status, worker availability, and chat reduces latency to under 2–3 seconds.

Data Security: Cloud authentication mechanisms (Firebase Auth, AWS Cognito) are expected to safeguard user credentials and payment data. This ensures a stable, secure, and responsive platform suitable for large-scale adoption.

B. Worker and User Engagement

Based on assumptions from similar platforms, the engagement impact is projected as:

Faster Hiring Process: Users can find and book skilled workers 40–50% faster than traditional offline or word-of-mouth methods.

Job Opportunities for Workers: Verified worker profiles and search visibility are expected to increase worker job opportunities by at least 30–40%.

Consistency of Work: Features like live availability toggles, digital visibility, and service categorization help workers maintain steady income streams.

Ease of Access: Both web and mobile app interfaces ensure adoption among digitally skilled and semi-skilled workers/customers.

C. Trust and Transparency

Trust-building mechanisms are assumed to play a key role:

Verification Layer: Workers undergo ID verification, experience validation, and background checks before approval.

Transparent Rating System: All customer reviews are stored securely, ensuring they are tamper-proof.

Fairness in Hiring: Workers with good ratings and verified profiles are expected to receive more visibility, creating a merit-based ecosystem.

Dispute Management: The in-app rating and feedback system is expected to reduce complaints and disputes by providing clear records of transactions and feedback.

D. Comparative Advantage over Existing Platforms

FixOnGo is assume to overcome the limitations of existing platforms like UrbanClap, Justdial, and local agencies. The expected comparative benefits are:

Urban + Rural Coverage: Unlike most competitors limited to metro cities, FixOnGo extends services to semi-urban and rural areas.

Lower Service Charges: Anticipated to be 20–25% lower compared to competitors, making it affordable for middle-income households.

Real-Time Availability Tracking: A unique feature not consistently present in existing platforms.

Cloud-First Architecture: Ensures faster responses, low downtime, and better scalability than traditional app-hosting methods.

E. User Satisfaction

Projected customer and worker satisfaction outcomes include:

Quick Confirmation: Instant booking acknowledgments through SMS/push notifications.

Skilled & Verified Workforce: Customers feel confident hiring workers with validated skills and IDs.

Secure Transactions: In-app digital payments ensure security and convenience compared to cash.

F. Social and Economic Impact (Additional Point)

Beyond technical outcomes, FixOnGo is assumed to generate positive socio-economic impact:

Employment Generation: By digitizing informal workers, the platform increases access to regular jobs.

Skill Recognition: Verified profiles provide dignity and recognition to blue-collar workers.

Community Development: Availability in semi-urban and rural areas supports local economies.

Digital Literacy: Encourages workers to adopt digital tools and payment systems.

6. Conclusion

The proposed labour hiring web platform successfully bridges the gap between skilled workers and customers by offering a cloud-based,

scalable, and secure solution. Traditional methods of finding workers are often unorganized, unreliable, and limited in reach, whereas this system provides verified worker profiles, real-time booking, and transparent ratings to ensure trust and efficiency. This paper is not only demonstrates the technical application of full-stack development with cloud technologies but also addresses a pressing real-world problem: access to verified, on-demand skilled services. The platform empowers workers with digital visibility and continuous job opportunities, while providing customers with convenience, safety, and trust.

In conclusion, the system lays a strong foundation for digitizing the informal labour sector and can be extended with AI-based recommendations, multilingual support, and mobile applications to further enhance accessibility and adoption.

References

1] UrbanClap (Urban Company). "Professional Home and Local Services," Available: https://www.urbancompany.com

2] JustDial. "India's Local Search Engine," Available: https://www.justdial.com

3] Housejoy. "On-Demand Home Services Platform," Available: https://www.housejoy.in

4 Amazon Web Services. "AWS Cloud Computing Services," Available: https://aws.mazon.com

5] Google Cloud Platform. "Cloud Functions and App Engine," Available: https://cloud.google.com

6] Firebase. "Realtime Database and Authentication," Available: https://firebase.google.com

7] Spring Boot. "Spring Boot Framework for Java Developers," Available: https://spring.io/projects/spring-boot

8] ReactJS. "A JavaScript library for building user interfaces," Meta Platforms, Available: https://react.dev

9] Ethereum Foundation. "Ethereum Blockchain & Smart Contracts," Available: https://ethereum.org

10] International Journal of Scientific Research in Science, Engineering and Technology. "IEEE Paper Template (A4)," Available: https://www.ijsrset.com