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Group Members:
1)Nawsin Hossain Barta (231146042)
2)Afridur Rahman Khan Mim (2231521642)
3)Md. Zarif Hossain Alvi (2312337042)
4)Nafia Haque Muskan (2311677042)

SafeHire: AI-Powered Service Hiring Platform

Abstract

In today's digital era, people frequently need service providers such as electricians, plumbers, cleaners, and technicians. However, finding trustworthy and verified workers remains a major challenge. Many individuals face problems such as fraud, poor service quality, lack of reliability, and safety risks when hiring unknown workers. This project proposes SafeHire, a web-based service hiring platform designed to connect customers with verified and trusted service providers. The system allows users to search for services, view worker profiles, and hire based on ratings and reviews. It also ensures worker verification to increase safety and trust. The platform aims to provide a secure, efficient, and user-friendly solution for both customers and service providers.

I. Introduction

Hiring service workers through informal and unverified methods poses significant safety, trust, and efficiency challenges. To address these issues, SafeHire is proposed as an AI assistant–based service hiring platform that ensures secure, verified, and transparent hiring. The system leverages artificial intelligence and structured verification to build trust between employers and service providers.

II. Problem Statement

Current offline hiring methods for housemaids, plumbers, security guards, and other domestic workers are unsafe, unverified, and very inconvenient. Most hiring happens through word of mouth or local agents, which offers little to no background checking. Because of this, employers face serious risks such as fake identities, theft, poor work quality, and threats to personal and family safety. There is often no clear record of who is hired, making it difficult to track or report problems when they occur.

On the other hand, workers also suffer under the current system. Many workers do not get steady jobs, fair pay, or proper recognition for their skills. Since there is no verified system, honest workers find it hard to stand out and build trust with employers.

At present, there is no reliable digital platform focused on safe and verified hiring in the informal sector. The lack of such a system creates problems for both employers and workers, leading to mistrust, insecurity, and wasted time. This gap clearly shows the need for a simple, secure, and trusted platform that protects employers, supports workers, and makes hiring easier for everyone.

III. Objectives

1. ***Eliminate hiring fraud through mandatory multi-layer verification.***
2. ***Provide safe, dignified, and fair employment opportunities for informal workers.***
3. ***Reduce employer risk during the hiring process by up to 95%.***
4. ***Build a cost-effective AI-driven platform using open-source technologies.***

IV. PROJECT OVERVIEW

The proposed system, SafeHire, is a web-based AI-powered service hiring platform designed to provide secure, transparent, and efficient hiring of domestic and service workers. The system integrates artificial intelligence with a multi-layer verification framework to ensure trust between employers and workers. The platform is developed using modern web technologies with AI integration for automation and intelligent decision support.

The system consists of the following modules:

A. Employer Module

This module allows employers to register, log in, and create job postings using an AI-based job description generator. Employers can browse worker profiles, view verification status and AI-generated risk scores, and select suitable candidates. Employers can also create and manage digital contracts after hiring.

B. Worker Module

This module enables workers to register, create profiles, and submit personal, address, and reference information for verification. Workers can showcase their skills, apply for jobs, and track their verification and hiring status.

C. Verification Module

This module performs the four-layer verification process, including National ID validation, GPS-based address verification, social reference checks, and AI-based risk assessment. Based on the analysis, the system assigns a verification status and risk score to each worker.

D. AI Module

The AI module provides intelligent functionalities such as automated job description generation, candidate matching based on skills and requirements, chatbot assistance, and background risk evaluation to support employer decision-making.

E. Digital Contract Module

This module enables employers and workers to create and sign contracts electronically. The contracts are securely stored in the system, ensuring accountability and providing a formal employment record.

F. Admin Module

The admin module allows administrators to manage users, monitor verification processes, review system activity, and maintain overall platform security and performance.

V. Proposed Solution

1. *SafeHire is an AI-powered digital hiring platform designed to ensure trust, transparency, and safety through a structured four-layer verification framework:*
2. *National ID (NID) Verification – Validation of government-issued identity documents.*
3. *Address Verification – GPS-tagged physical address confirmation.*
4. *Social Reference Checks – Interviews with 2–3 acquaintances to assess credibility.*
5. *AI-Based Background Risk Assessment – The AI system analyzes available data including profile completeness, reference feedback, work history, and reported issues to generate a risk score.This assessment helps identify inconsistencies or potential risks.*

Important: The system does not access official criminal databases but provides AI-assisted risk evaluation based on available information.

Outcome:
Each worker receives a verification status and AI-generated risk score to help employers make safer hiring decisions.

VI. Key Features

1. *AI Job Description Generator – Automatically creates structured job postings.*
2. *Smart Candidate Matching – Ranks candidates based on skills and experience.*
3. *24/7 AI Chatbot – Handles employer and worker queries related to policies and payments.*
4. *Verification Dashboard – Displays real-time verification status of workers.*
5. *Digital Contracts – Ensures legal protection through e-signature functionality.*

VII. Technology Stack

1. *Frontend: React.js*
2. *Backend: Node.js / Python*
3. *Database: PostgreSQL/SQLite*
4. *AI Layer: Hugging Face (Mistral), Resume Matcher, Botpress*
5. *Verification System: Custom APIs combined with manual verification workflows*

VIII. Methodology

The implementation of SafeHire is structured around the following methods and processes:

1. Data Collection & Verification

Worker Data: Collect NID, address, references, and prior work history through secure registration forms in order to reduce false entries.

Verification Process: Implement GPS-based address verification and social reference checks. Manual reviews are used when automated verification is inconclusive.

Storage: Use PostgreSQL/SQLite database for secure and structured storage.

2. AI Integration

Job Description Generator: Uses a free LLM (e.g., Hugging Face Mistral) to create structured job posts from employer inputs.

Candidate Matching: Compares worker profiles to job requirements using skill-based scoring.

Chatbot Assistance: Botpress AI handles queries about policies, verification, and payments.

Background Risk Assessment: Python-based logic calculates risk scores, uses NLP to analyze reference feedback, and summarizes findings in human-readable form to assist the employers.

3. Platform Development

Frontend: React.js to build a responsive and user-friendly web interface, easily accessible for the employers.

Backend: Node.js / Python to handle API requests, AI integration, and workflow logic.

Verification Dashboard: Displays real-time worker verification status.

Digital Contracts: E-signature functionality to formalize agreements and provide legal protection.

IX. EXPECTED OUTCOME

The implementation of SafeHire is expected to achieve the following outcomes:

1. ***Secure Hiring Process: Employers can hire verified service workers with minimal risk of fraud or misrepresentation.***
2. ***Verified Worker Profiles: Workers gain trust and recognition through a structured verification framework, increasing their employment opportunities.***
3. ***AI-Assisted Decision Making: Risk scores and smart matching algorithms enable faster and more informed hiring decisions.***
4. ***Transparent Transactions: Digital contracts and real-time verification dashboards create a traceable and accountable hiring process.***
5. ***Efficiency and Accessibility: The platform reduces manual effort, saves time, and makes service hiring accessible from any web-enabled device.***

X. Future Roadmap

Phase 1: Launch web-based platform with core verification and AI features

Phase 2: Develop mobile application for wider workforce accessibility

Phase 3: Scale infrastructure to support larger workforce volumes

Phase 4: Introduce a subscription-based revenue model after platform adoption.

XI. CONCLUSION

SafeHire provides a secure, transparent, and efficient solution for the informal service hiring sector. By combining AI-assisted verification, smart matching algorithms, and digital contract management, the platform addresses the key challenges of traditional hiring: safety, trust, and inefficiency.

The platform empowers employers to make informed hiring decisions quickly and safely while giving workers fair recognition and access to legitimate opportunities. With its scalable design and AI-driven features, SafeHire has the potential to transform service hiring into a reliable, accountable, and technology-driven ecosystem.

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