International Journal of Creative and Open Research in Engineering and Management
ISSN: **3108-1754 (Online)**
Volume 02 Issue 05 May-2026 | Impact Factor: 3.5

A Digital Leap in Supply Chain Management Using Location Based Services

Ms. TRIVENI POLICE PATIL
Student, Department of Computer Science Engineering, Nagarjuna College of Engineering and Technology, Bengaluru, Karnataka- 562110
triveni.pp.03@gmail.com
Ms. VATSALA
Student, Department of Computer Science Engineering, Nagarjuna College of Engineering and Technology, Bengaluru, Karnataka- 562110
vatsalark1810@gmail.com
Ms. VYSHNAVI K
Student, Department of Computer Science Engineering, Nagarjuna College of Engineering and Technology, Bengaluru, Karnataka- 562110
vyshnavi1227k@gmail.com
Dr. GOPINATH A R
Associate Professor, Department of Computer Science Engineering, Nagarjuna College of Engineering and Technology, Bengaluru, Karnataka- 562110
ar.gopinath@ncetmail.com

How to Cite this Article:

PATIL, T. P., VATSALA, & K, V. (2026). A Digital Leap in Supply Chain Management Using Location Based Services. International Journal of Creative and Open Research in Engineering and Management, 02(05). https://doi.org/10.55041/ijcope.v2i5.536

https://doi.org/ 10.55041/ijcope.v2i5.536

ABSTRACT

The purpose of this web application is to facilitate and improve the efficiency of demand and supply chain management. It accomplishes this by utilizing location-based data to determine the availability of skilled labour. Finding the appropriate personnel at the right time is a challenge for many firms, particularly those operating in multiple countries. Through the use of intelligent technology, this platform assists in resolving that issue by connecting companies with qualified people who are available in the appropriate locations. Maps displaying the locations of various types of knowledge are continuously updated and checked by the program. This implies that it can react fast when a business needs particular abilities in a particular location. Businesses receive quick, precise matches rather than squandering time and money on searches. This platform helps the entire supply and demand system function more efficiently by making it simpler to link businesses with qualified labour. It facilitates quicker decision making, cuts down on delays and aids companies in making better use of their resources. All things considered will results in a more adaptable, profitable and responsive company environment.

INTRODUCTION

Finding skilled professionals has become challenging in today's fast-paced world, especially when services are needed quickly and within a specific location. The proposed web application addresses this problem by providing a single platform that maintains a well-organized database of experienced workers from various fields.

Users can easily search and select suitable professionals based on their availability and proximity. The system helps individuals and organizations connect with reliable workers who can complete tasks within the required time frame. By efficiently matching service requests with available experts, the platform ensures better utilization of skills and timely completion of work.

The application features a simple and user-friendly interface that makes it easy to understand user requirements and assign the most suitable workers nearby. This structured approach improves productivity, reduces the risk of hiring unqualified workers, and saves both time and operational costs.

By implementing this Expert Management System, organizations and individuals can improve service efficiency, achieve better outcomes, and reduce overall service expenses.

LITERATURE REVIEW

Over recent years, several studies have focused on the development of digital platforms to improve job recommendation systems, recruitment efficiency, and workforce allocation. These approaches aim to reduce mismatches between job seekers and job opportunities while enhancing recommendation accuracy, response time, and overall user experience.

Singh, Patel, and Singh proposed a job recommendation method that integrates machine learning and deep learning techniques to enhance matching accuracy by analysing candidate attributes and historical employment patterns. Their approach effectively addresses challenges such as cold-start problems and limited data availability, resulting in more relevant job recommendations and improved recruitment outcomes. [1]

Jang et al. examined the impact of online employee reviews on job seeker–company matching performance. Their findings show that positive employee feedback increases organizational attractiveness and improves matching efficiency, whereas negative reviews significantly reduce candidate interest. However, the study highlights potential bias due to the subjective nature of online reviews. [2]

A job recommendation system presented at ICEARS focuses on matching candidates with suitable job opportunities based on parameters such as skills, experience, and personal preferences. The system significantly reduces job search time while improving relevance for both job seekers and employers, thereby enhancing overall recruitment efficiency. [3]

Another framework introduced at the OITS Conference 2023 proposes an advanced intelligent job recommendation system that analyses user profiles, educational background, and skill sets. By minimizing irrelevant job suggestions, the system improves user satisfaction and streamlines the hiring process through personalized recommendations. [4]

Khan et al. developed an online career and recruitment platform that enables digital interaction between employers and job seekers through profiles and application management systems. Their study demonstrates that such platforms expand hiring reach, reduce recruitment processing time, and modernize conventional hiring practices. [5]

A study published at ACIT 2021 presents a system designed to match applicants with suitable job positions by aligning qualifications with job requirements. This approach minimizes skill mismatches, improves placement accuracy, and supports effective workforce planning and allocation. [6]

Jiang et al. proposed a person–job fit model that combines resume information with past application behaviour using feature fusion techniques. Their results indicate improved matching accuracy and more effective evaluation of candidate suitability, leading to better employment alignment. [7]

Wang et al. introduced the Person–Job Fit Co-Attention Neural Network (PJFCANN), which assesses job compatibility by combining resume analysis with historical recruitment data. Experimental results demonstrate enhanced matching performance when historical hiring information is incorporated into the model.[8]

Izwan Amsyar et al. developed a mobile application to support the hiring of skilled construction workers in response to Industry 4.0 demands. While the system improves accessibility and visibility of services, challenges such as low digital awareness and difficulty in verifying worker skills were identified. [9]

Afolabi et al. evaluated a web-based recruitment system for skilled labour in the construction industry. Their findings show improved labour availability and reduced hiring costs, although concerns regarding technical literacy and accurate skill verification persist. [10]

The reviewed literature demonstrates that digital recruitment and job recommendation systems significantly improve workforce matching and allocation. However, issues such as system complexity, data reliability, and skill verification remain unresolved. These limitations indicate the need for a simple, location-aware, and user-friendly workforce management system that ensures accurate matching and timely service delivery.

SYSTEM ANALYSIS

A. Existing System

The existing system for identifying skilled individuals relies on manual and traditional methods, leading to inefficiencies and delays. Data is often scattered across spreadsheets and offline records, resulting in errors, duplication, and outdated information. The lack of system integration and a centralized database make skill matching difficult. Limited real-time access, slow updates, and outdated skill assessment methods reduce accessibility, adaptability, and effective workforce utilization.

B. Problem Statement

Current methods for identifying skilled professionals based on location, skills, and availability are outdated and inefficient. Manual processes cause errors, delays, and limited access, making expert-task matching difficult. Without a centralized system, both employers and professionals miss valuable opportunities. A smarter, dynamic solution is essential to streamline identification and optimize resource allocation of the customer requirements.

C. Proposed System

The objectives of the proposed system are as follows:

1. To balance service demand and expert availability by considering location, skills, and current availability.
2. To maintain a centralized database containing complete expert details such as skills, experience, qualifications, and availability.
3. To dynamically assign tasks to the most suitable experts using predefined matching rules.
4. To ensure secure, scalable, and efficient workflow management with proper access control and system scalability.

D. Advantages

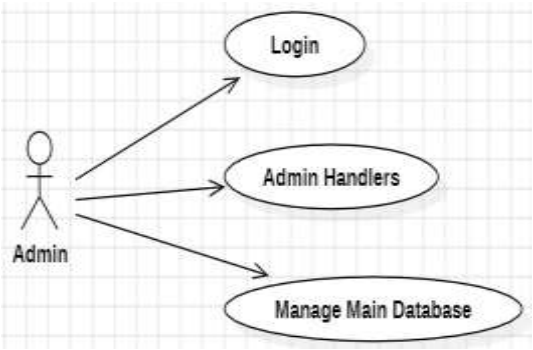
1. It quickly connects businesses with the right experts based on skills, location, and availability.
2. It automates task assignment, reducing manual effort and speeding up decision-making.
3. It easily scales as the organization grows and user demand increases.
4. It improves coordination between admins and experts through smooth communication and feedback.
5. It operates with a decentralized structure, without third-party involvement.
6. It directly links experts with customer needs at no service cost**.**

SYSTEM DESIGN

The design is divided into following modules,

A. Admin module

The admin module handles all backend operations of the application. It manages user and employee accounts, maintains system data, monitors activities, and addresses reported issues. The admin also takes care of database maintenance, verifies data accuracy, and enforces security through access control. Overall, this module ensures the system runs smoothly, securely, and reliably.

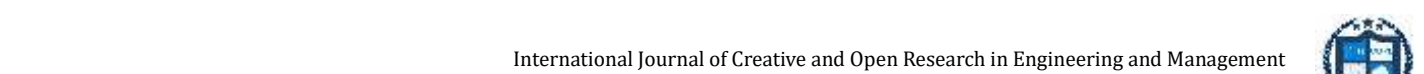


B. End-user module

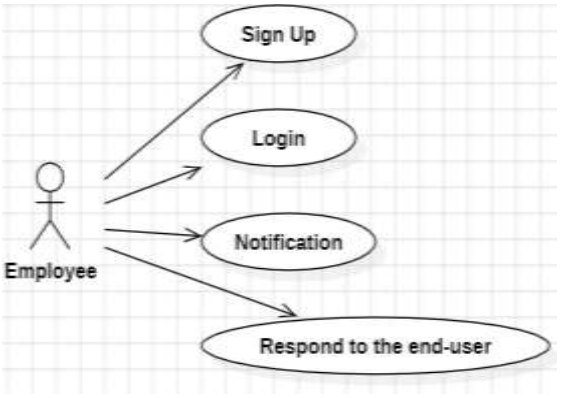
The End-User module enables users to choose the service they need and provide their location. Using this information, the system finds nearby service providers through location-based matching. Only providers within the selected area are considered, ensuring accurate results and efficient service discovery.

C. Employee module

The Employee module alerts service providers when a job request matches their skills and location. Employees can choose to accept or reject requests based on their availability. From the accepted responses, the system

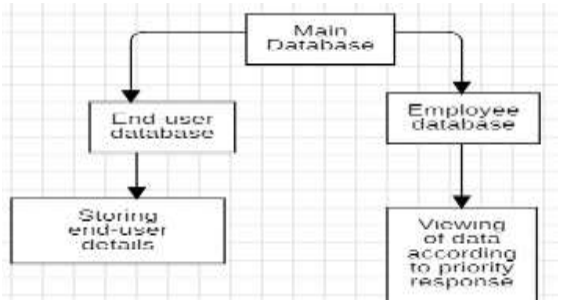


selects the most suitable employee using response time and predefined eligibility criteria. Only the selected employee's profile is then shared with the user.



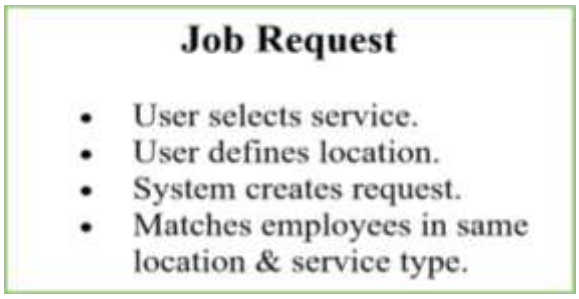
D. Main Database

The Main Database stores login details, user profiles, employee information, service categories, and job records. It provides real-time access to availability and location data, helping the system make quick decisions. If an employee declines a request, the system automatically refers to the database to find the next eligible service provider.



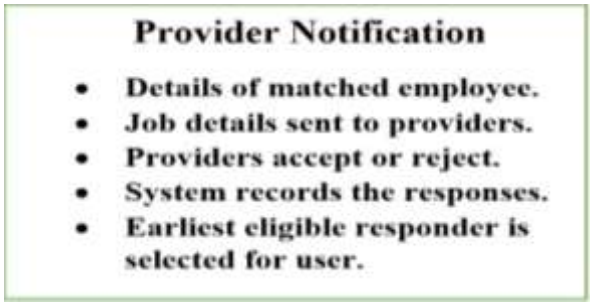
E. Job request module

The Job Request module handles service requests submitted by end users. Each request includes the required service, user details, and location. Using this information, the system identifies eligible employees in the specified area and forwards the request to them for further action.



F. Provider notification module

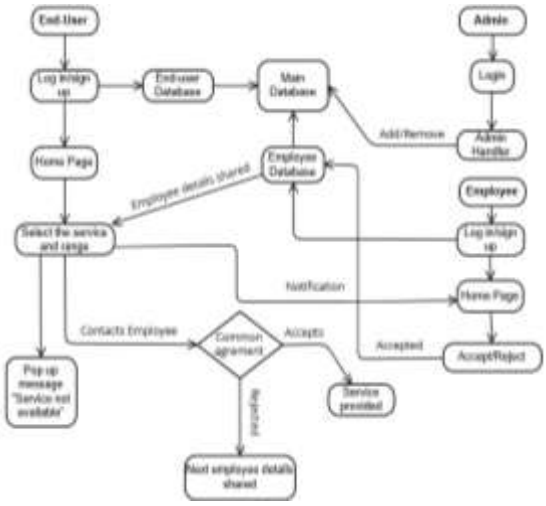
This module sends real-time notifications to matched employees when a new job request is created. Employees receive essential job details and can respond immediately. The system tracks responses and assigns the job to the earliest suitable employee, ensuring quick and efficient job allocation.



G. Data Flow Model

The system operates with three main roles: Admin, End User, and Employee.

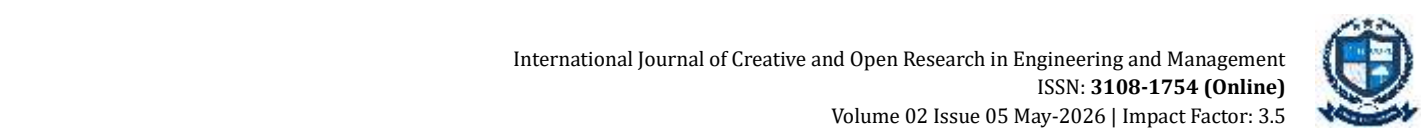
The admin manages user accounts, employee details, system monitoring, and security to ensure smooth operation. The End User selects a required service and provides their location. The system identifies nearby employees offering the requested service and notifies eligible matches. Employees may accept or decline the request. The system shares the profile of the earliest accepting employee with the user. The End User and selected Employee finalize service details such as time, scope, and cost. If no agreement is reached, the system automatically moves to the next suitable employee. Location-based matching and real-time notifications ensure fast, reliable, and efficient service delivery.



Results

The project successfully developed a web application that connects users with suitable service providers based on location and service type. The system accurately filtered providers within the selected area, ensuring that service requests reached only relevant professionals. Real-time notifications allowed providers to respond quickly, and the system reliably selected the earliest eligible responder, reducing waiting time and improving service efficiency. Users received a single confirmed provider, which simplified communication and avoided confusion.

Data handling remained consistent and reliable throughout testing. User information, service requests, and provider responses were stored and retrieved accurately, with no duplication or data loss. The application handled multiple requests smoothly,demonstratingstable performance under regular usage.



The system reduced manual coordination, improved response time, and enhanced the user experience. The results confirm that the application effectively manages service demand and availability through location-based matching, providing a practical and efficient solution for connecting users with nearby service providers.

Fig 1: Login Page

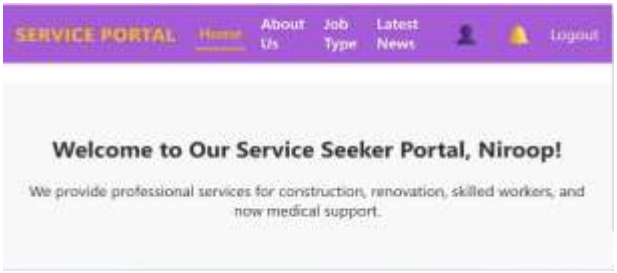


Fig 2: Home Page of End-User

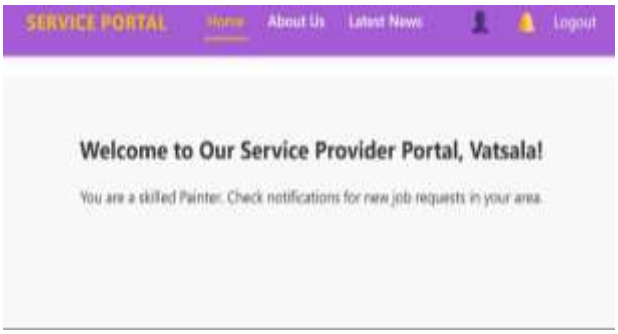


Fig 3: Home Page of Employee

Fig 4: Job Type

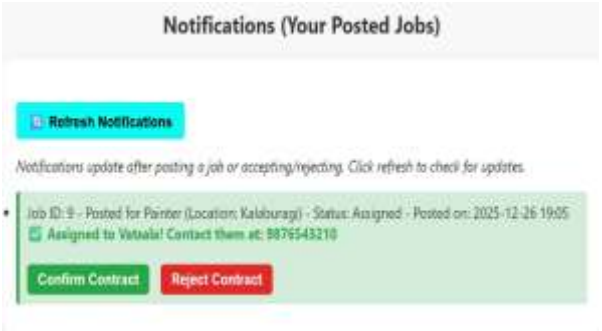


Fig 5: Notification Page

CONCLUSION

The developed web-based notification system improves how employers connect with skilled workers by making the process faster and more accurate. Built using modern frontend technologies with a PHP–MySQL backend, the system automatically matches jobs based on skills and availability, ensuring that only relevant workers receive notifications. Real-time communication through WebSockets allows instant alerts and tracks responses on a first-come, first-served basis, reducing delays and ensuring fairness. Features such as feedback and complaint handling help build trust and accountability. The system delivers quicker communication, better matching, and a more transparent hiring process compared to traditional methods.

REFERENCES

1. Zhang, H., Zhao, Y., Wang, F., Wang, J., & Zhao, J. (2025). A Study on the Multi-level Risk Management System of Power Grid Material Supply Chain Based on Dynamic Data.
2. Yuan, X. (2024). Research on IoT Big Data Intelligent Supply Chain System Based on 5G Wireless Communication Technology.
3. Method for Job Recommendation based on Machine learning and Deep learning Model, Deepak Singh, Nagendra Patel, Upendra Singh, In 2023 IEEE International Conference on Automation, Computing and Renewable Systems (ICACRS).
4. Voice of Employee: Impact of Online Reviews on Company and Jobs Seekers Matching Performance, Haeun Jang, Sanghee Kim, Jongseok Jeon, Joohee Oh, In 2023 IEEE International Conference on Big Data.
5. Recommendation System for Job Opportunities based on Candidate Parameters Conference: 2023 Second International Conference on Electronics and Renewable Systems (ICEARS). 6
6. Designed Framework for Advanced intelligent Job Recommendation System, 2023 OITS International Conference on Information Technology.
7. Online job searching and recruitment-a career site Khan GH, Gangeshwari, Dronesh, Singh S. Online job searching and recruitment-a career site. Int Res J Eng Technology 2021.
8. Matching Applicants with Positions for better allocation of Employees in the Job Market, 2021 22nd International Arab Conference on Information Technology (ACIT).
9. Wang, H. (2021). Construction and Optimization of Closed Loop Supply Chain System for Construction Engineering Based on Ant Colony.
10. Learning Effective Representations for Person-Job Fit by Feature Fusion (Jiang, Ye, Wang, Xu & Luo, 2020).