

Community Skill Exchange System

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Abstract- When you look around in any local community, you will usually find people who are good at something practical. Someone fixes wiring, someone repairs bikes, someone knows tailoring. The problem is not the lack of skills, it is the lack of simple way to connect these people with others who actually need those services. The Community Skill Exchange System (CSES) was developed with this exact situation in mind. The idea is fairly straightforward, but the execution required careful planning. The system provides a platform where users can either offer their skills or request services from others within the same community. Rather than behaving like a large job portal, the platform focuses on smaller, everyday interactions. Users can register, add skills, send requests, and track what happens next. There is also a feedback system, which in practise turns out to be quite important for trust. Overall, the system tries to make local service exchange more structured, without making it complicated.

Keywords- Community System, Skill Exchange, Web Application, Local Services, MERN Stack

I.INTRODUCTION

If you about how people usually find local services, it often comes down to word of mouth. Someone calls a known electrician, or asks neighbour if they know a plumber. It works, but only up to a point. If you are new to an area, or if the network is limited, things get inconvenient quickly.

That gap, although small, feels quite real in daily life. The idea behind the Community Skill Exchange System came from observing these small but repeated difficulties. Instead of depending on informal communication, the system tries to bring everything into one place, but still keep it local and simple.

At the same time, existing digital solutions do exist. But they do not always fit this specific need. Some are too large in scale, others are too complex, and a few simply ignore how communities actually function.

1.1 Literature Survey

In reviewing previous research, various methods have been used, each addressing a specific part of the problem, but rarely the entire issue. [1] For example, the Job Recommendation System (2014) focuses more on suggesting opportunities rather than enabling actual service exchange. [2] The Social Network Analysis based Matching (2016) approach depends heavily on user connections. That might work in platforms like LinkedIn, but in a local neighbourhood, not everyone is digitally connected in that way. [3] In contrast the Bayesian Multi View model (2017) goes quite deep into recommendation techniques. It is technically strong, no doubt. But when you imagine applying in a small community setting, it feels slightly excessive, may be even impractical. [4] Some marketplace systems developed around (2018) allow service booking, but transparency remains questionable. Users often do not know what happens behind the scenes. [5] The Chaukari Bazaar (2020) system focuses on employment, especially for users who may not have advanced education. That aspect is genuinely useful. However, the system stops just by making a high request. [6] Peer to Peer systems from around (2021) encourage direct interaction, which is closer to what is needed. Yet, the absence of admin control raises concerns about reliability. [7] Take a Cloud based Hiring System from (2022), it simplifies hiring for unskilled workers, which is helpful, but the interaction after hiring is left entirely unspecified. You get a match, and then the platform more or less steps aside. That is a problem. [8] Similarly, a number of digital service platforms from around the same time (2022) improve accessibility, making it easier to find the list services. Yet they overlook something rather significant: trust mechanisms like ratings and reviews. In real world use, these matter quite a lot. They are not just features; they are what give users confidence to engage in the first place. [9] The Skill Link Platform from (2023) tries something a bit different. It puts real time communication front and centre. And on the face

of it, that makes sense. Direct interaction can cut through misunderstandings, and it certainly makes coordination feel less rigid than, say, waiting for an email or filling out another form. That is certainly valuable. Yet communication alone does not build accountability or support growth over time. There is no real mechanism for recording feedback or tracking progress. [10] The Job Hunt Mobile Application (2024) moves in a similar direction by allowing workers to list their skills. It feels more structured, still lacks continuous tracking once a job interaction begins.

1.2 Limitations of Existing Systems

Looking at these systems together, a pattern starts to appear. Many of them solve one piece of the problem but ignore others.

- They often target large user bases rather than close communities
- Request handling tends to stop midway
- Trust is assumed, not built
- Admin level control is either weak or missing

One could argue that not all systems need to handle everything. That is fair. But in the context of a community focused platform, these gaps become difficult to ignore. In a local setting, trust comes from knowing someone followed through, not just from being able to message them.

1.3 Proposed Solution

The Community Skill Exchange System platform was designed by keeping those gaps in mind, though not with the assumption that it is perfect.

It focuses more on keeping the interactions local and manageable. Requests are not just sent, they are tracked. Users not just only connect, they also rate each other afterward. There is also a basic admin structure, which helps in maintaining order.

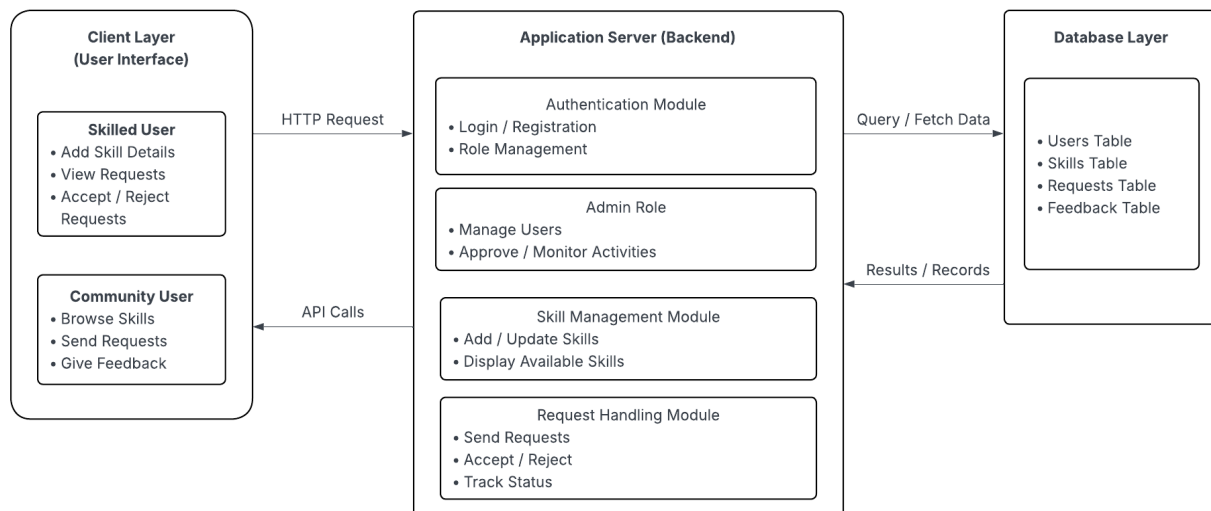
In a way, the system tries to balance simplicity and functionality. Not too complex, but not too minimal either.

II. PROPOSED SYSTEM & METHODOLOGY

2.1 System Architecture

The architecture here is a client server model. Standard, yes, but there is something to be set for not overcomplicating things. The frontend handles user interaction, while the back end processes requests and manages the data that flows between them.

Nothing particularly experimental, and that is intentional. A simpler setup means the system is easier to maintain, easier to understand. For a project like this, the clarity matters more than novelty.



Supports role based interaction and service exchange work flow

2.2 Module Description

Admin Module

The admin holds things together, more or less. Account creation, activity monitoring, making sure the platform does not descend into chaos. It is not glamorous work, but without it, the structure would quickly fall apart.

Skill Member Module

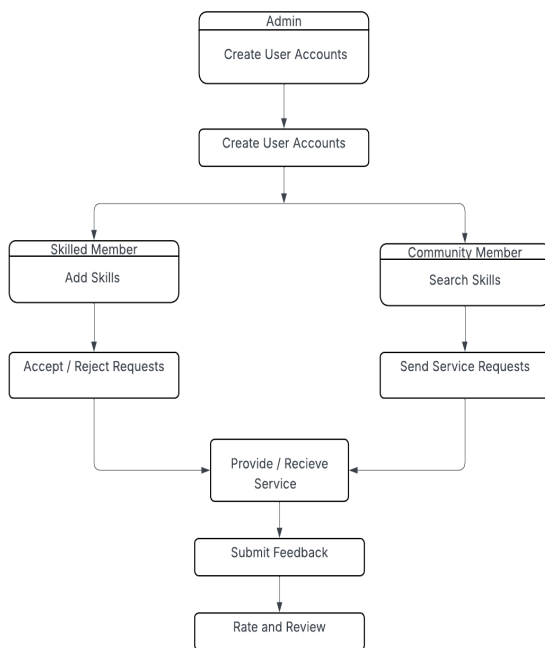
This is where service providers step in. They list their skills, respond to requests. The process is kept simple, partly by design. Too many steps and people start dropping off.

Community Member Module

Then there are the users looking for help. They search, they initiate requests. Their experience needed to be intuitive, almost frictionless. Because if it is not they simply will not use the system. No one wants to wrestle with a platform just to find someone who can fix a leaky faucet.

2.3 Workflow

The Workflow is linear, which helps with clarity.



It looks simple on paper almost too simple but keeping that flow intact, making sure nothing breaks or sleeps through the cracks takes more effort than one might expect.

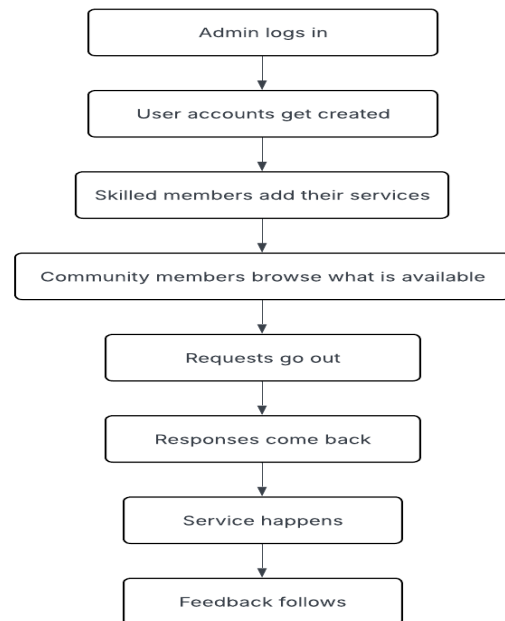
III. IMPLEMENTATION

The Community Skill Exchange System was built with a simple idea in mind: making it easier for people within a community to find and offer help without relying on informal contacts. Instead of over designing the system, the focus stayed on keeping things usable and clear.

The implementation revolves around three roles: Admin, Skilled Members, and Community Members. The admin handles account creation and basic monitoring. It is not overly complex, but it keeps the system organised. Skilled members can login and list the services they can provide, such as plumbing and tutoring. We kept this part flexible because not everyone describes their skills in the same way.

Community member browse available skills and sends requests. Once a request is received, the skilled member can accept or reject it. If accepted, the service happens outside the system, and later both users can be provided feedback. This feedback helps build a sense of trust, although it is not completely foolproof.

Technically, the system uses the MERN stack. MongoDB stores user and request data, while Node.js and Express handle backend operations. React is used for the front-end interface. Overall, the implementation avoids unnecessary complexity and focuses on making the interaction between users smooth and practical.



IV. RESULTS AND DISCUSSION

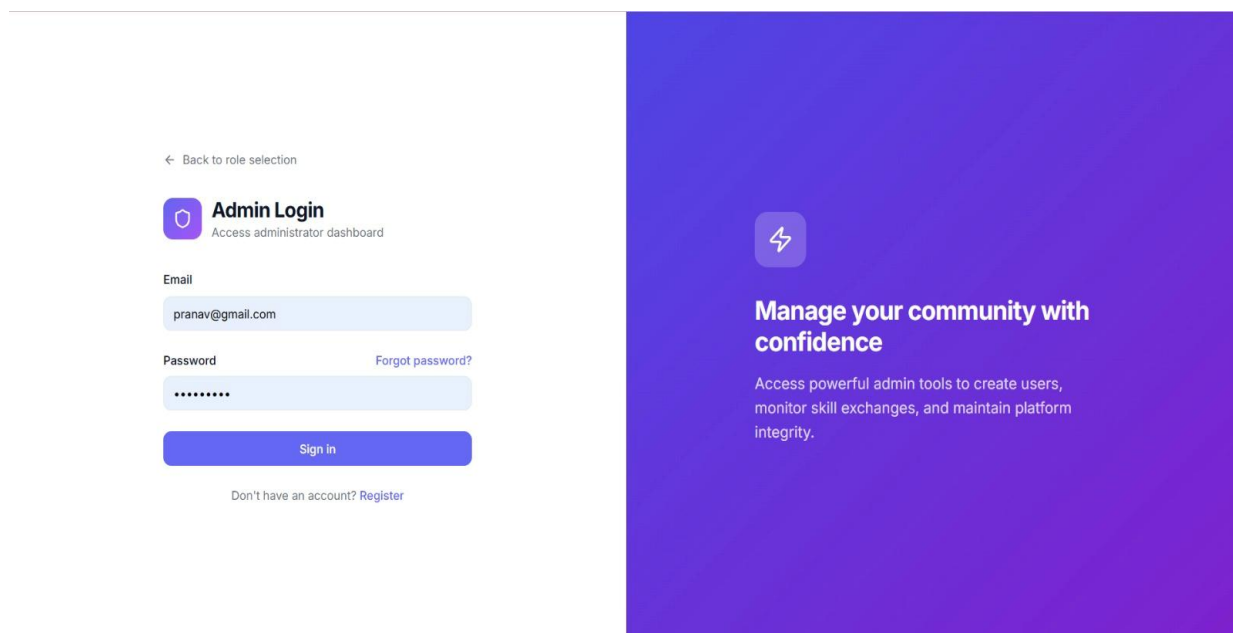
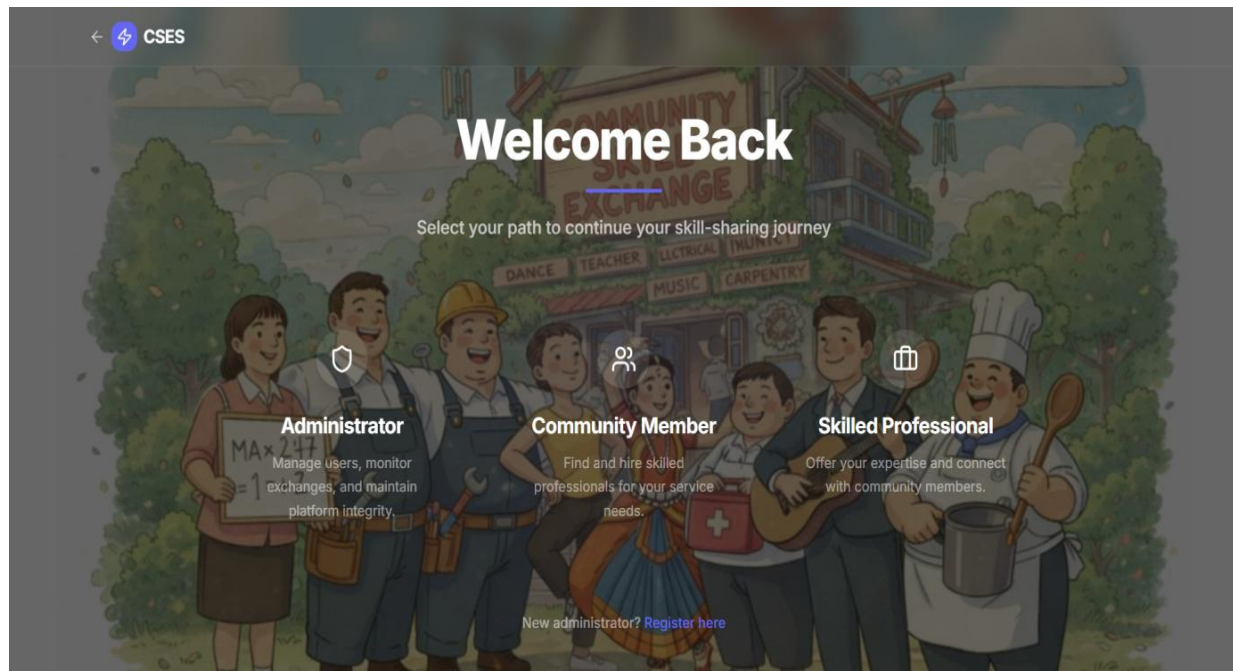
Testing the system turned up a few interesting observations. most users navigated the workflow without much hand holding, which feels like a good sign. People just got it.

Request moved through the system without major hiccups. That said, I should be honest about the

limitations. Performance under heavier user loads has not been thoroughly tested.

Still within a controlled environment, the system holds up reliably. Compared to earlier approaches, it feels more cohesive. More complete, perhaps. Though there is always room to improve.

Login Page



The login page is the entry point. It is designed to be straight forward. And unnecessary complexity here and people will bounce before they even get started.

Dashboard

CSES Admin

Admin Dashboard

Welcome back, Admin
Here's an overview of your platform activity.

Total Users	Community Members	Skilled Professionals	Total Requests
11 Registered members	1 Service seekers	9 Service providers	7 Skill exchanges

Create New User
Add community members or skilled professionals to the platform.
[Create User](#)

Monitor Activity
View and track all skill exchange requests across the platform.
[View Requests](#)

Recent Skilled Professionals

NAME	EMAIL	SKILLS
Ravi Kumar	ravi@gmail.com	House Wiring, Fan Repair, Switch Board Repair
Pranav	pranav@gmail.com	Chef, Vegetable carving, Biryani, Snacks

Once logged in, users are greeted with a dashboard that prioritises clarity over visual flair. The thinking was simple: let people find what they need without having to hunt for it.

Skill Posting Page

CSES Pro

Professional Dashboard

Welcome back, Professional!
Manage your incoming requests and profile.

Pending Requests	Completed Jobs
0 Awaiting your response	2 Successfully delivered

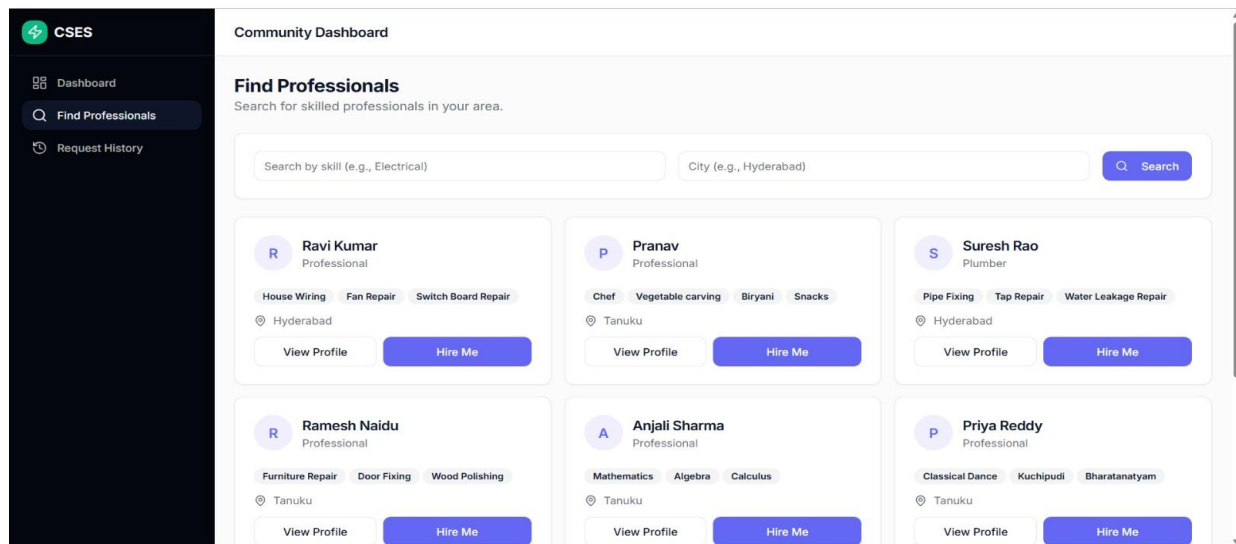
My Profile
Update your skills, experience, and bio to attract more clients.
[Edit Profile](#)

Incoming Requests
View and respond to service requests from community members.
[View Requests](#)

[Logout](#)

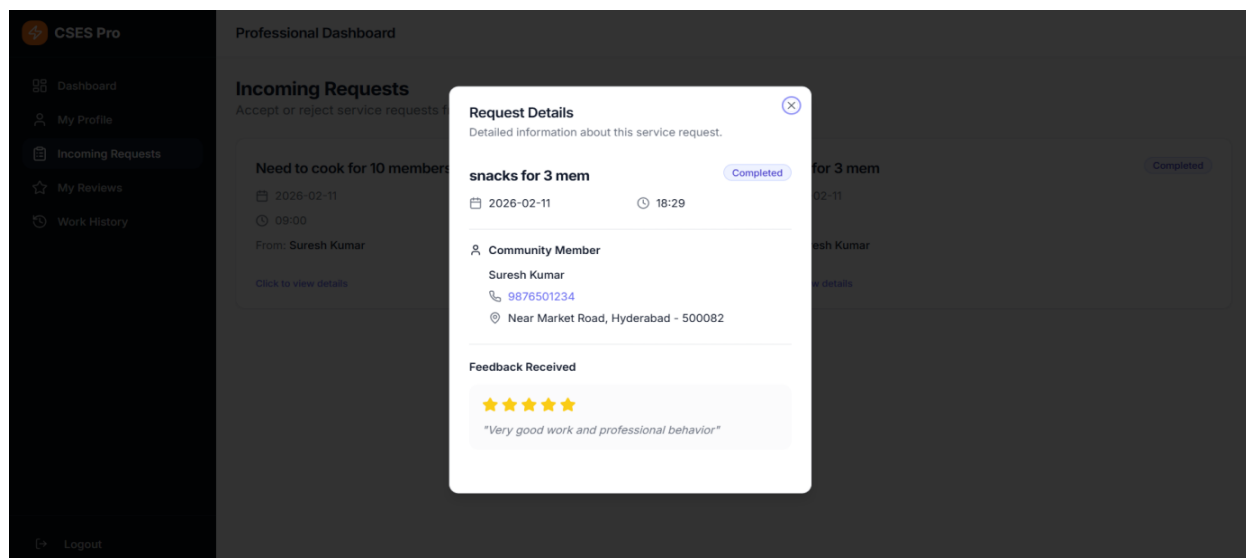
Skilled members use the space to describe what they offer. Keeping this flexible mattered. Not every skill fits neatly into a drop down menu, and forcing people into rigid categories felt like the wrong move.

Request Page



This is where the real interaction happens. Users send requests, track updates. Even small delays here, a status that does not update, a message that goes missing, can throw off the whole experience.

Feedback Page



After a service wraps up, feedback gets collected. A small feature, perhaps. But it turns out to matter quite a bit. Without it, there is no real way to know who to trust. And in a community setting, trust is really the whole point.

V. CONCLUSION & FUTURE SCOPE

The Community Skill Exchange System tries to solve a problem that is deeply practical, the kind of thing you only notice when it becomes a headache. By focusing

on local interaction, it offers a structured way for people to share skills and access services without the noise of larger platforms. It does not try to compete with the big players. It stays within its lane, and that might actually be its strength.

Future improvements could go in a few directions. Mobile support would make sense, smarter recommendations too. But even as it stands, the system suggests something worth considering: small, focused solutions can be meaningful.

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