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Sahay Sathi: An Intelligent NGO-Volunteer Communication and Matching Platform

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Abstract: ***Efficient coordination between Non-Governmental Organizations (NGOs) and volunteers remains a significant challenge due to mismatches in skills, interests, availability, and geographical constraints. Traditional systems generally depend on manual processes in which volunteers must browse multiple websites, search for suitable opportunities, and apply separately for each event. Similarly, NGOs are required to review applications manually, identify suitable candidates, and manage volunteer participation through fragmented communication methods. These limitations often result in delayed coordination, inefficient matching, lower volunteer engagement, and increased administrative effort.***

This paper presents SahaySathi, an intelligent NGO–Volunteer communication and matching platform designed to simplify and improve the interaction between NGOs and volunteers. The proposed system uses a multi-parameter matching approach that considers volunteer skills, preferences, availability, and location proximity to recommend relevant events. In addition, the platform provides centralized communication, volunteer profile management, event publishing, application handling, and QR-based attendance tracking.

The proposed solution aims to improve the quality of volunteer-event matching, reduce manual effort for NGOs, and help volunteers discover meaningful opportunities more efficiently. The system also establishes a strong foundation for future enhancements such as AI/ML-based matching, automatic approvals, certificate generation, and data-driven decision support. Overall, SahaySathi demonstrates how intelligent digital platforms can strengthen social impact ecosystems by creating a more structured, accessible, and efficient NGO–Volunteer coordination process.

Keywords: NGO Platform, Multi-Parameter Matching, Recommendation System, QR-based attendance, Centralized platform

I. INTRODUCTION

Non-Governmental Organizations (NGOs) play an essential role in addressing various social, environmental, educational,and humanitarian issues. Many NGOs depend heavily on volunteers to organize events, execute activities, spread awareness, and support community outreach programs. Volunteers contribute not only their time but also their skills, experience, and commitment toward social change. However, despite their importance, managing volunteers effectively remains a chal-lenging task for many organizations. In most existing systems, NGO–Volunteer coordination is carried out through manual or semi-digital approaches. Volunteers are often required to visit multiple NGO websites or social media platforms to discover opportunities. They may need to fill out separate forms for each event, and in many cases, the available information is not personalized according to their interests or capabilities. On the other hand, NGOs face difficulty in reviewing large numbers of applications and determining whether the applicants are actually suitable for the event requirements. This process becomes more complicated when factors such as skill compatibility, location, event schedule, and volunteer availability must all be considered together. To address these challenges, this paper proposes SahaySathi, an intelligent NGO–Volunteer communication platform designed to improve coordination, accessibility, and matching efficiency. The proposed system provides a centralized environment where volunteers can maintain profiles, search for events based on multiple preferences, apply easily, and mark attendance using QR codes. NGOs can publish events, define volunteer requirements, review applications, and manage engagement more effectively. By integrating multiparameter matching and digital coordination mechanisms, the system seeks to create a more seamless and practical solutionfor NGO–Volunteer collaboration.

II. PROBLEM STATEMENT

Current NGO–Volunteer coordination methods suffer from several limitations that reduce efficiency and user satisfaction. One of the most common problems is the lack of propermatching between volunteers and events. Volunteers may apply for opportunities that do not align with their skills,interests, or schedules, which leads to poor selection outcomesand dissatisfaction for both NGOs and participants.Another important issue is the absence of personalization.

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Most platforms only provide generic event listings and do notrecommend opportunities according to the volunteer's profile.This makes it difficult for users to quickly discover events that truly match their capabilities or preferred causes. In addition,many existing systems do not prioritize nearby opportunities, which creates geographical barriers and discourages participation.From the NGO perspective, the application review process isoften manual and time-consuming. Organizations may need to analyze multiple volunteer profiles individually, compare them with event requirements, and communicate updates through external channels such as calls, emails, or messaging applications. This fragmented workflow increases effort and creates delays in decision-making. Therefore, there is a need for a centralized and intelligent platform that can simplify volunteer discovery, improve event matching, reduce manual effort, and provide structured communication between NGOs and volunteers.

III. OBJECTIVE OF THE PROPOSED SYSTEM

The primary objectives of the proposed system are asfollows:

- To develop a centralized platform for NGO–Volunteer interaction.
- To improve volunteer-event matching using multiple parameters such as skills, interests, availability, and loca-tion.
- To reduce manual effort for NGOs in managing applications and volunteers.
- To provide volunteers with an easier and more personalized way to discover relevant opportunities.
- To incorporate QR-based attendance tracking for accurate participation records.
- To create a scalable foundation for future intelligent features such as machine learning based matching andautomatic approvals.

IV. RELATED WORK

Existing systems in the NGO and volunteering domain mainly focus on simple digital functionalities such as registration, event listing, and basic application management. These systems help move away from purely offline processes, but they still do not address the broader problem of effective coordination between NGOs and volunteers.

Many current platforms present volunteering opportunities in a static form. Volunteers must search manually, compare multiple options, and decide whether an event suits them. Since such systems often do not analyze volunteer profiles deeply, they fail to offer intelligent recommendations. This leads to a trial-and-error approach in which users spend more time searching rather than participating.

In addition, volunteer management on the NGO side often remains semi-manual. Organizations may receive applications through forms, emails, or portal submissions, but they still need to evaluate each profile individually. The absence of structured prioritization creates delays and may reduce the quality of the final selection. Communication is also commonly spread across different channels, resulting in mismanagement and poor tracking of volunteer engagement.

Recommendation systems in other application domains, such as e-commerce, education, and social media, have shown that personalized suggestions improve user satisfaction and decision-making. Applying similar principles in NGO platforms can enhance participation and reduce mismatches. However, such ideas are still underutilized in the volunteer management domain, especially in systems that combine event publishing, volunteer filtering, and attendance tracking within a single platform.

The proposed SahaySathi system builds on this gap by offering a centralized, structured, and more intelligent coordination framework. Instead of relying only on event listings, it focuses on improving interaction quality between both sides through digital profile analysis, preference-based filtering, and streamlined volunteer management.

V. PROPOSED SYSTEM

SahaySathi is designed as an integrated SahaySathi is designed as an integrated platform that supports the complete NGO–Volunteer interaction lifecycle, from registration to participation tracking.

1) Ngo Module:

- The NGO module enables organizations to register, publish events, and manage volunteer applicationsefficiently.

2) Volunteer Module:

- The volunteer module allows users to register on the platform and create their personal profiles including skills, interests, availability, and location.

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3) Profile Matching Module:

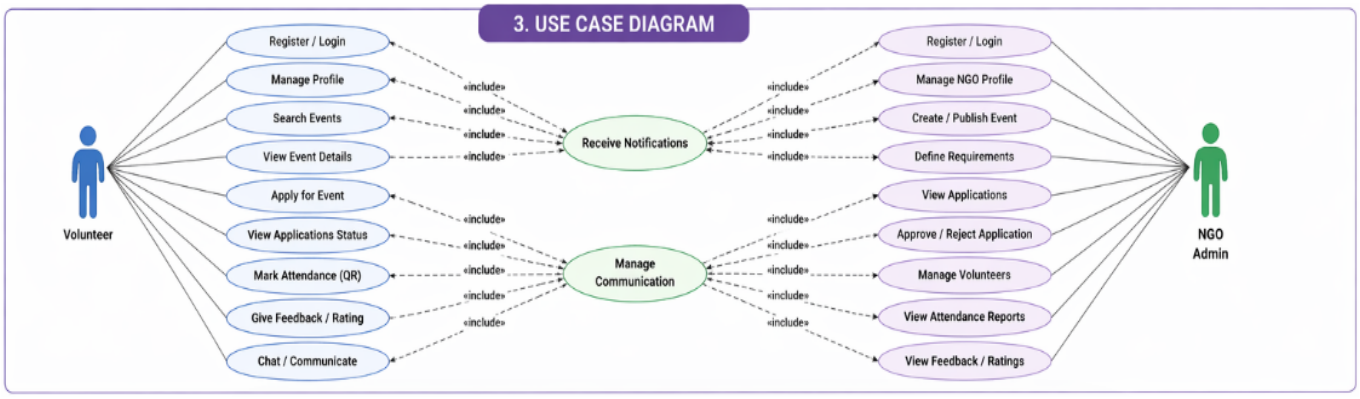
- The matching module compares volunteer profiles with event requirements using multiple parameters such as skills, availability, and location.

4) Attendance & Engagement Module:

- QR-based attendance tracking is used to maintain accurate participation records.

VI. SYSTEM DIAGRAM

The diagram below describes the general overview of the propsed system:



[Fig. 1. SahaySathi - Use Case Diagram]

VII. METHODOLOGY

1) Step-1: Data Collection

The platform first collects data from both volunteers andNGOs. For volunteers, profile information includes skills,interests, preferred domains, availability, and location. ForNGOs, event information includes event title, description,required skills, event date, and venue details.

2) Step-2: Profile Processing

After registration, the collected profile data is processed and stored in the database. This ensures that both volunteer and event details are available in a structured format. Proper organization of data is essential for reliable filtering andrecommendation

3) Step-3: Matching & Recommendation

When a volunteer searches for opportunities, the system compares the volunteer profile with available events. Matching is based on multiple criteria rather than only a single keyword or category. This increases the probability that the volunteer sees events that are actually relevant.

4) Step-4: Application Management

Volunteers apply for selected opportunities through the platform. NGOs can then review the applications in a centralized environment, compare profiles, and decide whether to approve or reject candidates.

5) Step-5: Attendance & Post-Event Tracking

Once the event is conducted, attendance is recorded through a QR-based process. This helps maintain accurate records and can later support reporting, engagement analysis, and certificate generation.

VIII. IMPLEMENTATION PERSPECTIVE

The proposed platform can be implemented as a web-based or mobile-supported system with separate interfaces for volunteers and NGO administrators. A backend server manages authentication, profile storage, event creation, application logic, and attendance data. The database stores all core entities such as users, events, applications, and attendance records.

At the application layer, volunteers interact with modules for profile management, search, and applications, while NGOs interact with event creation and volunteer review modules.

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The matching engine processes available data to improve the relevance of recommended opportunities. Since the design is modular, future features such as AI/ML-based auto-matching or advanced analytics can be integrated without major architectural changes

IX. RESULTS & DISCUSSIONS

The proposed SahaySathi platform offers several improvements over traditional NGO–Volunteer coordination methods. Although the current work is focused on system design and functional evaluation, the observations indicate that the platform improves the overall usability and efficiency of the coordination process. One of the key improvements is the reduction in mismatch between volunteers and events. Since the system considers multiple profile parameters, the recommended opportunities are more relevant than manually searched listings. This helps volunteers find appropriate events more quickly and increases the possibility of meaningful engagement.

On the NGO side, the platform reduces administrative workload by centralizing application management. Insteadof receiving scattered responses across different channels, organizations can review profiles within a single system. This leads to faster decision-making and more structured volunteer selection.

The inclusion of location-based filtering improves accessibility by making nearby events easier to discover. Similarly, the QR-based attendance mechanism adds accountability and simplifies participation tracking. These features together contribute to a smoother and more organized user experience.

1) Key Observations

- Multi-parameter matching improves relevance
- Centralized management reduces effort
- Location-based filtering increases participation
- QR attendance improves tracking

X. COMPARATIVE ANALYSIS

Parameter	Existing System	Proposed SahaySathi System
Event Discovery	Volunteers search manually across different websites or sources	Centralized event search with preference-based filtering
Matching Quality	Mostly manual and generic	Multi-parameter profile-based matching
Personalization	Very limited or absent	Personalized recommendations based on user profile
Communication	Fragmented across external channels	Structured within a unified platform
Application Handling	Manual review and scattered responses	Centralized application management
Attendance Tracking	Often manual or not available	QR-based digital attendance system
Scalability for Future Features	Limited	High, due to modular design

[TABLE-I: Comparison Between Existing System and Proposed System]

XI. CONCLUSIONS

This paper presented SahaySathi, an intelligent NGO–Volunteer communication and matching platform designed to improve coordination efficiency, reduce manual effort, andstrengthen engagement between volunteers and organizations.The proposed system addresses common limitations of exist-ing approaches by introducing centralized interaction, multi-parameter matching, location-based event discovery, structured application management, and QR-based attendance tracking. The study shows that a well-designed digital platform can significantly enhance the process of volunteer-event co-ordination. By improving accessibility, personalization, and management, SahaySathi provides a practical and scalable solution for the social impact domain. The system also creates a strong basis for future intelligent features such as AI-driven recommendations, certificate generation, and analytics-based

XII. ACKNOWLEDGMENT

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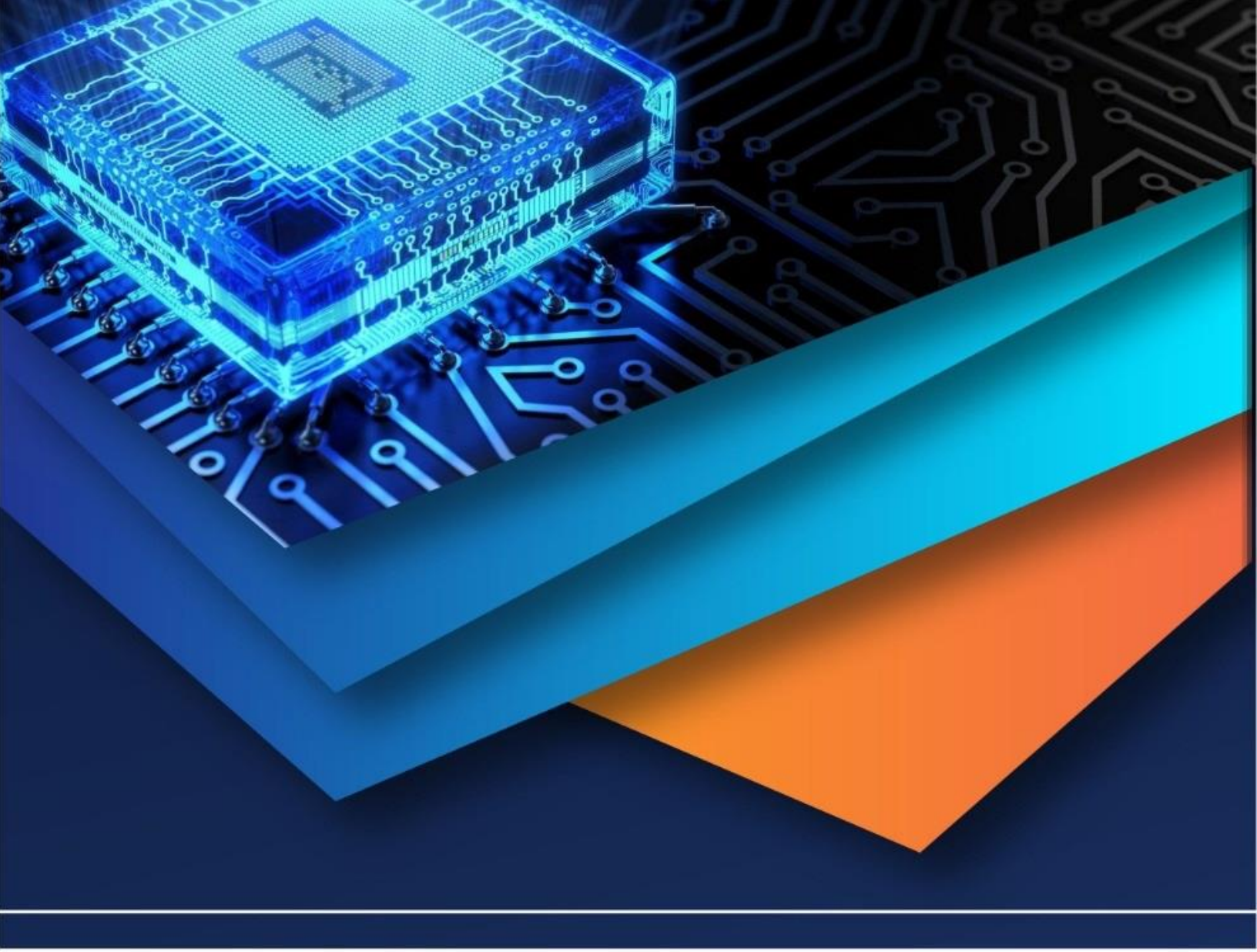

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