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## A CLOUD BASED PLATFORM FOR NGO'S TO ACCELERATE SDG PROGRESS

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**Abstract:** This project proposes a cloud-based collaboration platform designed to accelerate United Nations Sustainable Development Goals (SDGs) by enabling secure data exchange and global stakeholder cooperation. The system ensures data integrity and provenance via blockchain technology, while integrating natural language processing (NLP) to bridge communication barriers. Advanced big data analytics and AI-driven dashboards provide transparent, actionable insights for monitoring SDG progress and supporting evidence-based policy formulation. By prioritizing security, accessibility, and robust collaboration, this cloud-native solution strengthens partnerships and drives efficient social impact toward global sustainability targets.

**Index Terms** - Cloud Computing, NGO, Sustainable Development Goals (SDGs), Blockchain, Natural Language Processing (NLP), Big Data Analytics.

### I. INTRODUCTION

Cloud computing is a transformative technology that provides on-demand access to computing resources such as servers, databases, networking, software, and storage through the Internet. It eliminates the dependency on local hardware and enables organizations to store, process, and manage data remotely with enhanced flexibility and scalability. Cloud computing ensures cost-effectiveness by following a pay-as-you-use model, which minimizes infrastructure costs and maximizes performance. For a platform like NGO Connect, cloud services facilitate seamless management of user data, donations, event updates, and document storage, ensuring reliability, security, and accessibility across multiple regions.

### II. LITERATURE SURVEY

The project reviews several methodologies. Zhang (2024) studied the translation of spoken English from speech to text using deep learning models integrating CNN. Yu and Wang (2021) proposed a channel-based dynamic key generation approach for physical layer security in OFDM-PON systems using phase-based key extraction. Sun (2024) examined end-to-end speech translation using encoder-decoder neural architectures with attention mechanisms, directly converting speech into translated text. These studies collectively inform the proposed system's approach to secure communication, real-time data handling, multilingual NLP, and cloud-based architecture for NGO collaboration and SDG tracking.

### III. SYSTEM ANALYSIS

#### 3.1 Existing System

CiviCRM is the predominant open-source CRM for non-profit organizations. Its core features manage contacts, relationships, activities, permissions, groups, and tags, while optional components handle

contributions, events, memberships, cases, grants, campaigns, and mass mailings. It integrates with Backdrop CMS, Drupal, Joomla!, and WordPress, and supports REST, PHP, and JavaScript APIs.

### 3.2 Proposed System

The proposed system is a unified digital platform designed to connect NGOs, streamline operations, and promote collaboration, transparency, and measurable social impact. It serves as a centralized ecosystem where NGOs, donors, volunteers, and administrators interact securely through role-based access control and JWT-based authentication.

## IV. SYSTEM REQUIREMENTS

The implementation requires the following hardware and software resources:

### Hardware Requirements

- Processor: Intel Core processor (or equivalent AMD)
- RAM: 4 GB minimum
- Hard Disk: 128 GB storage
- Input/Output: Standard keyboard and colour monitor

### Software Requirements

- Operating System: Windows OS
- Frontend: React.js (JavaScript library for UI)
- Backend: Node.js with Express.js framework
- Database: MongoDB (NoSQL document store)
- Payment Gateway: Razorpay / Stripe
- Cloud Deployment: AWS / Firebase / Render

## V. MODULE DESCRIPTION

The project is divided into several key modules: (1) User Management Module: Handles secure registration. (2) NGO & Beneficiary Management Module: Manages NGO registration with OCR-based document verification. (3) Donor Management Module: Maintains donor profiles, tracks donation history and frequency. (4) Donation Management Module: Acts as the financial core, recording monetary and in-kind donations via Razorpay. (5) Volunteer Management Module: Manages the full volunteer lifecycle.

## VI. SYSTEM IMPLEMENTATION

Implementation is built on a multi-layered architecture. The presentation layer uses React.js, HTML, CSS, and JavaScript for an interactive, mobile-friendly interface. The application layer runs on Node.js and Express.js for API routing, authentication, and business logic. MongoDB stores user profiles, NGO details, donation records, event data, and communication logs.

## VII. CONCLUSION AND FUTURE ENHANCEMENT

### 7.1 Conclusion

The proposed cloud-based NGO platform provides a scalable, transparent, and secure solution for accelerating SDG progress. By combining React.js, Node.js, MongoDB, OCR-based verification, a secure payment gateway, and real-time analytics, the system addresses the key limitations of existing tools such as CiviCRM. It achieves unified NGO management, transparent donation tracking, and multilingual collaboration in a single ecosystem.

### 7.2 Future Enhancements

Future work will focus on integrating AI-driven smart recommendations for donors and volunteers based on behavioral analytics, and predictive models to forecast donation trends. Mobile applications for Android and iOS will extend accessibility.

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