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PARIVARTHAN – A TECH PLATFORM FOR SOCIAL UPLIFTMENT

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ABSTARCT

Parivartan is a technology-based platform designed to address poverty and homelessness by creating a digital bridge between vulnerable individuals and support systems such as NGOs, government agencies, and citizens. The platform enables real-time reporting of needy individuals' locations, ensuring timely delivery of food, shelter, medical care, and skill training. By integrating artificial intelligence.

Unlike traditional charity models, Parivartan emphasizes structured social reintegration, offering dignity, opportunity, and empowerment to marginalized communities.

The system leverages image processing algorithms, deep learning models, and large datasets to identify individuals and environments, while ensuring data privacy and security. Through citizen participation and NGO coordination, Parivartan envisions a compassionate, connected society where no one is left behind. This initiative demonstrates how technology can be harnessed to transform social welfare, shifting the focus from temporary aid to long-term.

nations where large populations are vulnerable to hunger, lack of shelter, and exploitation. Despite the presence of government programs and non-governmental organizations (NGOs), there is often a disconnect between those in need and the support systems available to them. Citizens may encounter beggars or homeless individuals in their daily lives but lack a simple, effective mechanism to report their condition or connect them with aid. Similarly, NGOs and government agencies face difficulties in identifying and reaching all individuals who require urgent assistance. Technology offers a powerful means to bridge this gap. With the rise of mobile applications, artificial intelligence, and geo-mapping tools, it is now possible to design platforms that connect citizens, NGOs, and authorities in real time. Such platforms can ensure immediate relief while also tracking long-term progress, thereby transforming temporary charity .

INTRODUCTION

Homelessness and poverty remain pressing social challenges in many parts of the world, particularly in developing

LITERATURE SURVEY

Chen, Y. et al. (2023) presented a Federated Learning Framework for Homelessness Support Systems that enables multiple agencies to collaboratively train AI models without sharing sensitive data, thereby improving coordination in housing and social care while maintaining privacy.

Mohammed & Rahman (2021) proposed a mobile-based leave system with SMS notifications but did not support real-time push notifications or advanced role-based dashboards.

Kumar, R. Singh, P. (2021) developed AI-enabled Support Platform that integrates patient data with predictive analytics to provide timely medical interventions, highlighting the role of technology in social welfare.

Patel, S. et al. (2020) proposed a Geo-Mapping Application for Disaster Relief that allows citizens to report affected areas in real time.

Johnson, M. & Lee, H. (2019) introduced an Image Processing Framework for Social Services that uses convolutional neural networks (CNNs) to identify vulnerable individuals in public spaces.

PROBLEM FORMULATION

Homelessness and poverty remain pressing social challenges, with citizens often witnessing cases but lacking a structured mechanism to report them. NGOs and government authorities struggle with fragmented information, delayed responses, and limited transparency in interventions. Current systems are either manual or siloed, leading to inefficiencies in case management, duplication of efforts, and poor accountability.

PROBLEM DEFINITION

Homelessness and poverty continue to be critical social issues, with citizens often encountering individuals in need but lacking a structured mechanism to report such cases. Existing systems are fragmented, manual, or inaccessible, resulting in delays in intervention, duplication of efforts, and poor accountability. NGOs face challenges in managing multiple reports efficiently, while government authorities struggle to monitor interventions and ensure transparency.

OBJECT OF PROJECT

- **Identification and Support:** To create a digital platform that helps identify poor or homeless and individual to connect with systems. Citizen beggars or needy individuals in their area through a simple mobile
- **NGO and Government Integration:** To establish a unified system that connects NGOs
- **Provision of Essential Services:** To facilitate delivery of basic services such as food, shelter, medical aid
- **Technology Utilization:** To leverage artificial intelligence, image processing
- **Progress Monitoring:** To ensure long-term rehabilitation by tracking the progress of individuals after receiving initial support.
- **Reduction of Street Begging:** To minimize dependence

on begging

SCOPE OF PROJECT

The scope of the Parivartan Tech Platform extends across multiple dimensions of social welfare, focusing on both immediate relief and long-term rehabilitation of homeless and impoverished individuals

EXISTING SYSTEM

Most existing systems are fragmented, **citizen Reporting:** To enable citizens to report the location o with NGOs and government agencies working independently without a unified digital platform.

Citizens often lack a simple mechanism to report the presence of homeless or needy individuals, resulting in delayed or missed interventions..

Current solutions focus largely on short-term relief such as food distribution or temporary shelter

Prone to errors, misplacement of documents, and lack of proper record maintenance.

AI and geo-mapping technologies are rarely

Integrated

PROPOSED SYSTEM

The Parivartan platform introduces a unified digital ecosystem that connects citizens, NGOs, and government agencies on a single interface. Citizens can report the location of homeless or needy individuals through a mobile or web application, enabling real-time alerts. . NGOs and authorities receive instant notifications and can respond with food, shelter, medical care, or skill training. upload support.

Key Features of the Proposed System

Citizen-Centric Reporting:

Citizens can easily submit reports with location, description, and photo evidence through a web interface

AI-Based Validation:

Image processing and AI detection modules verify authenticity of reports and help prioritize urgent cases.

Role-Based Dashboards:

Separate dashboards for Citizens, NGOs, and Admins ensure tailored functionality and secure access.

NGO Case Management:

NGOs receive notifications, assign volunteers, update case status, and record service delivery.

Government Oversight:

Administrators monitor interventions, assign NGOs to unallocated cases, and generate analytics for policy decisions.

SYSTEM DESIGN

The Parivartan Tech Platform is designed as a **multi-tier architecture** integrating citizens, NGOs, and government authorities through a centralized system. The design ensures scalability, security, and role-based access while maintaining smooth workflows.

Key Components:

User Interfaces (Front-End Layer): Role-based portals for **Citizens, NGOs, and Admins**. Built with React.js for

responsive design and interactive dashboards
 Application (Back-End Layer): Developed using Django Framework with RESTful APIs.
 Database Layer: Centralized relational database (PostgreSQL/MySQL).

Architecture:

Layered Design: The system follows a **multi-tier architecture** with separate frontend, backend, and database layers to ensure modularity and scalability.

Role-Based Portals: Distinct interfaces for **Citizens, NGOs, and Admins** provide tailored functionality and secure access.

Information Delivery: The robot provides voice responses or displays information.

Frontend Layer:: Developed using **React.js** for responsive and interactive user experiences..

Backend Layer: User details and information are managed through the web interface.

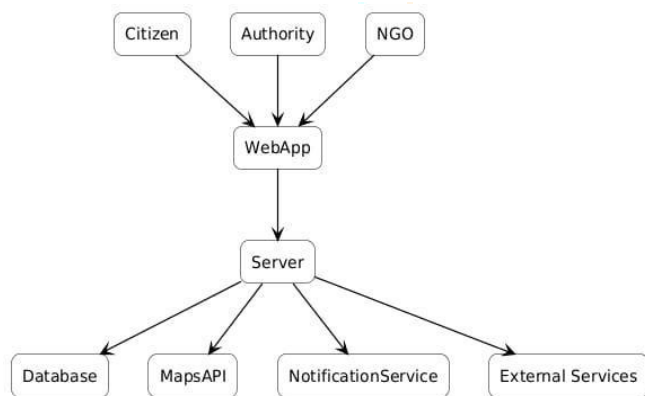


FIG.1. ARCHITECTURE DIAGRAM

Workflow

1. A citizen opens the web or mobile application, logs in, and submits a report about a homeless or needy individual.
2. The server receives the report and triggers AI-based image processing and geo-mapping services.
3. NGOs access their dashboard to view pending reports
4. Authorities (admins) monitor NGO responses through their dashboard.
5. Citizens can check the status of their reports in real time.
6. The system tracks rehabilitation journeys, skill training, and reintegration outcomes.

METHODOLOGY

The methodology adopted for the Parivartan Tech Platform is based on a structured, multi-layered approach that integrates citizen participation, NGO coordination, and administrative oversight through technology. The process begins with the development of a **citizen reporting interface**, accessible via mobile and web applications, where individuals can submit reports containing descriptions, photographs, and GPS-based location data. These inputs are validated through compulsory fields and stored securely in a centralized database.

The next stage involves **AI-driven validation and geo-mapping**, where uploaded images are processed using convolutional neural networks to ensure authenticity, while GPS data is mapped to visualize reported cases. Once

validated, the system automatically triggers notifications to nearby NGOs through a dedicated dashboard. NGOs can then review pending cases, assign volunteers, and provide immediate assistance such as food, shelter, or medical care.

At the administrative level, **role-based dashboards** allow authorities to monitor NGO interventions, assign organizations to unallocated cases, and oversee rehabilitation progress. The methodology also incorporates **progress tracking modules**, ensuring that individuals are monitored

UML DIAGRAMS

UML (Unified Modeling Language) diagrams provide a clear visual representation of the structure, behavior, and **interactions** within the Smart Campus Robot system. These diagrams help in understanding how different users interact with the robot and how internal modules such as navigation, chatbot, attendance monitoring, and database management work together to deliver intelligent campus services.

TYPES OF UML DIAGRAM

UML diagrams commonly created in visual modelling tools include:

A.CLASS DIAGRAM

The class diagram represents the **static structure** of the system. It defines the main classes, their attributes, operations (methods), and relationships.

Classes and Descriptions

User

Represents any individual interacting with the system. Each user has a unique ID, name, and role (Citizen, Volunteer, NGO, or Government). This class acts as the parent entity for role-specific subclasses.

Citizen

A specialized user who reports cases of homelessness or poverty. Citizens submit details such as location, description, and optional images, which are stored in the system for NGO or government intervention.

Volunteer

Represents individuals associated with NGOs who provide direct assistance. Volunteers are assigned to cases and update intervention status in the system.

NGO

Organizations that respond to citizen reports. Each NGO has a unique ID and organization name. NGOs manage volunteers, review cases, and provide services such as food, shelter, or medical care. detection, user interaction, and information.

System

The central platform that connects all entities. It manages authentication, case storage, notifications, and integration with external services such as maps and analytics.

Case

Represents a reported incident of homelessness or poverty. Each case has a unique ID, location, and status (Pending, In Progress, Resolved). Cases are linked to citizens, NGOs, and government authorities.

Association (→)

- Represents a basic link between two classes.
- Example: Citizen class is associated with Report class (Citizen submits Report).
- Multiplicity (1.., 0..1)*
- Defines how many instances of one class relate to another.
- Example: One Citizen can submit many Reports (1..*).

Aggregation (◇)

- Represents a "whole-part" relationship where the part can exist independently.
- Example: Admin aggregates NGO (Admin oversees multiple NGOs, but NGOs exist independently).

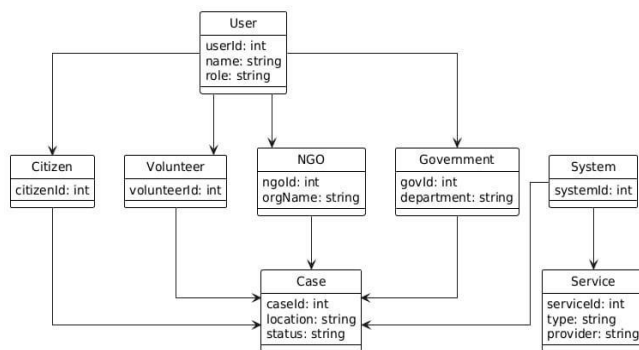


FIG. 2. CLASS

DIAGRAM B. ACTIVITY DIAGRAM

The activity diagram represents the overall workflow of the Smart Campus Robot system. It illustrates the **sequence of activities** and decision points involved in robot operation, from system startup and navigation to service execution, battery monitoring, and system shutdown.

Main Activities

Start/End Nodes: Represent the beginning and end of the workflow.

Activities (Rounded Rectangles): Each step in the process (e.g., "Citizen reports case").

Transitions (Arrows): Show the flow from one activity to the next.

Decision Nodes (Diamonds): Represent branching logic (e.g., "Is report valid?").

Swimlanes: Divide responsibilities among actors (Citizen, NGO, Admin, System).

Flow of Diagram

- Citizen identifies issue →
- Citizen submits report (location, photo) →
- System logs case & performs AI validation →
 - If valid → Notify NGO
 - If invalid → Send feedback to Citizen/Volunteer
- NGO reviews case →
- Volunteer assigned to case →
- NGO updates status (In Progress) →
- Service delivered & case resolved →
- NGO updates Government Dashboard →
- System sends acknowledgment to Citizen/Volunteer →
- End of workflow

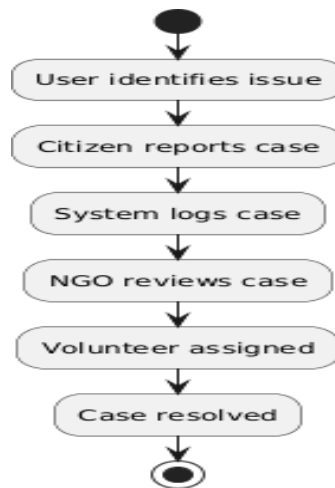


FIG. 3. ACTIVITY DIAGRAM

IMPLEMENTATION

Frontend Development:

Built using **React.js** for dynamic rendering, responsive layouts, and cross-platform compatibility.

Citizen portal allows users to submit reports with text, photo uploads, and GPS location.

NGO and Admin dashboards provide role-based views with case lists, progress charts, and map visualizations.

Integrated **data visualization tools** (pie charts, progress bars) for monitoring interventions

Backend Development:

Developed with **Django Framework**, ensuring modularity and scalability.

Implements **RESTful APIs** for communication between frontend and backend.

Centralized **relational database** (PostgreSQL/MySQL) stores user profiles, reports, case histories, and service records.

RESULT

Role-Based Access: The implementation successfully provides distinct login options for **Citizens, NGOs, and Admins**, ensuring that each user accesses only the features relevant to their role.

Citizens can submit reports and track progress.

NGOs can manage assigned cases and update intervention status.

Admins can oversee reports and assign NGOs to cases.

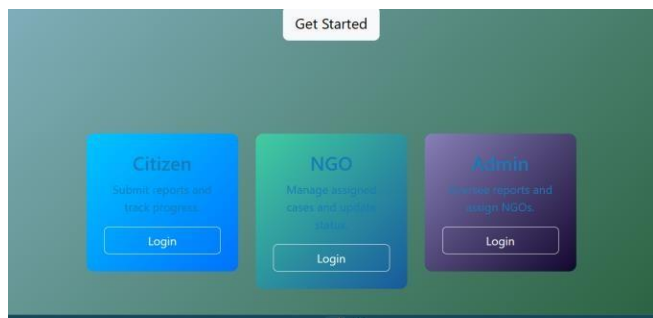


FIG 6 : DASHBOARD

FIG 5: CITIZEN LOGIN PAGE

FIG 6: NGO Dashboard

FIG 7: ADMIN Dashboard

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