



Child-Centric and Welfare Digital Governance System for Orphan Homes

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Abstract—

The Child-Centric and Welfare Digital Governance System for Orphan Homes is a smart digital platform designed to improve the management, safety, welfare, and development of children living in orphanages. Traditional orphan home management methods mainly depend on paper-based records, manual monitoring, and disconnected communication systems, which may lead to data loss, delayed decision-making, lack of transparency, and inefficient child welfare tracking. This project introduces a centralized digital governance system that focuses on child welfare, security, healthcare monitoring, educational progress tracking, donation management, and administrative transparency. The proposed system provides secure child data management, attendance monitoring, medical history tracking, educational performance analysis, staff management, donor records, and government welfare monitoring through a user-friendly digital interface. The system ensures proper child care through timely updates, automated reports, alerts, and secure cloud-based storage. The platform also supports transparency between orphan homes, donors, government authorities, and caretakers. The project aims to improve operational efficiency, child protection, accountability, and welfare management using modern digital technologies. The system can help orphan homes maintain accurate records, reduce paperwork, increase transparency, and ensure better living conditions and development opportunities for children.

Keywords: Digital Governance, Orphan Home Management, Child Welfare, Child Protection, Cloud Database, Welfare Monitoring, Smart Administration.



I. INTRODUCTION

Children living in orphan homes require proper care, emotional support, healthcare, education, safety, and equal opportunities for development. Many orphan homes still use manual record-keeping systems for managing child information, medical records, donations, attendance, educational progress, and welfare activities. Manual systems often create problems such as data duplication, missing records, delayed reporting, lack of transparency, and difficulty in monitoring child welfare.

Digital governance systems can improve the management of orphan homes by providing centralized, secure, and efficient record management. A child-centric digital governance system mainly focuses on the overall development and protection of children while simplifying administrative operations. The system allows administrators to maintain detailed child profiles, track health conditions, monitor education performance, manage donations, and generate reports automatically. The proposed project introduces an integrated digital governance platform specially designed for orphan homes. The system provides transparency, accountability, security, and efficient welfare management through advanced digital technologies.

II. PROBLEM STATEMENT

Most orphan homes depend on traditional manual management systems that are inefficient and time-consuming. Important child records may be lost or misplaced, healthcare monitoring may become difficult, and communication between administrators, staff, and donors may not be transparent. There is a need for a centralized digital system that ensures child welfare, data security, transparency, and efficient administration.



Figure 1: Child Centric and Welfare Digital System

III. OBJECTIVES OF THE PROJECT

- To develop a child-centric digital governance system for orphan homes.
- To maintain secure child records digitally.
- To monitor child health, education, and welfare activities.

IV.ROLE OF NETWORK SECURITY IN DIGITAL GOVERNANCE

Network security plays a vital role in digital governance systems by protecting sensitive information from unauthorized access, cyberattacks, and data breaches. In a Child-Centric and Welfare Digital Governance System for Orphan Homes, network security ensures the confidentiality, integrity, and availability of child records, healthcare information, educational data, and donation details.

- Data Protection – Secures child and organizational data from unauthorized access.
- User Authentication – Ensures that only authorized administrators and staff can access the system.
- Privacy and Confidentiality – Protects sensitive information such as health records and personal details of children.
- Secure Communication – Enables safe data transfer between users, databases, and government authorities.
- Prevention of Cyber Attacks – Protects the system from hacking, malware, phishing, and other cyber threats.

V. LITERATURE SURVEY

Several orphan homes and child welfare institutions still depend on manual record maintenance systems for managing child information, healthcare reports, educational activities, attendance records, and donation management. These traditional systems are time-consuming and difficult to maintain. Manual management methods may result in poor data security, delayed report generation, data duplication, and inefficient monitoring of child welfare activities.

Research studies on digital governance systems indicate that centralized digital platforms can significantly improve institutional management efficiency, transparency, accountability, and secure data handling. Digital welfare management systems provide better communication between



administrators, donors, caretakers, and government authorities.

1. Manual systems are used in many orphan homes for maintaining records.
2. Digital governance systems help improve management efficiency and transparency.
3. Child welfare monitoring systems support healthcare and education tracking.
4. Healthcare and education management improve child development and safety.
5. Donation management systems improve financial transparency and donor trust.

VI. METHODOLOGY

The methodology describes the systematic approach followed to develop the Child-Centric and Welfare Digital Governance System for Orphan Homes. The proposed system is designed to provide secure, efficient, and transparent management of child welfare activities through digital technology.

Requirement Analysis

In this phase, the requirements of orphan homes are collected and analyzed. Information related to child records, healthcare monitoring, educational tracking, attendance management, donation management, and report generation is identified.

System Design

Based on the collected requirements, the system architecture, database structure, user interface, and functional modules are designed. The system is planned to provide centralized management and secure data storage.

Database Development

A database is created to store child information, healthcare records, educational details, attendance records, staff information, and donation data. The database ensures secure and organized data management.

Module Development

The system is developed using different modules:

1. Child Management Module Maintains child profiles, attendance, and welfare information.
2. Healthcare Monitoring Module Stores medical records, vaccination details, and health reports.

3. Education Management Module Tracks academic performance, attendance, and skill development.

4. Donation Management Module Maintains donor information and donation records.

5. Report Generation Module Generates welfare, healthcare, attendance, and donation reports.

System Implementation

The designed modules are integrated and implemented using suitable technologies such as HTML, CSS, JavaScript, Python/PHP/Java, and MySQL. The system is deployed for user access and operation.

Testing and Validation

The developed system is tested to verify its functionality, security, reliability, and performance. Different testing methods are used to ensure that all modules work correctly and meet user requirements.

Result Evaluation

The performance of the system is evaluated based on efficiency, transparency, security, and ease of use. The results indicate that the proposed system improves orphan home management and child welfare monitoring.

VII. SYSTEM ANALYSIS

EXISTING SYSTEM

In the existing system, child records, attendance details, healthcare information, and donation records are maintained manually using paper files and registers. This process requires significant time and effort for data entry and record maintenance.

Healthcare Monitoring

Health-related information such as medical history, vaccination records, and treatment details are stored manually. Monitoring the health status of children becomes difficult due to the absence of a centralized system.



Educational Tracking

Educational records, academic performance, and attendance details are maintained separately. This makes it difficult to monitor the overall educational progress of children effectively.

Donation Management

Donor information and donation records are usually maintained in registers or spreadsheets. The lack of an automated system reduces transparency and makes financial tracking difficult.

PROPOSED SYSTEM

The proposed Child-Centric and Welfare Digital Governance System for Orphan Homes is a centralized digital platform designed to improve child welfare management, healthcare monitoring, educational tracking, donation management, and administrative activities. The system utilizes modern digital technologies to provide secure, transparent, and efficient management of orphan home operations.

The proposed system focuses on the overall development, protection, and well-being of children by maintaining accurate records and enabling real-time monitoring of welfare activities. It reduces manual paperwork, improves data security, and enhances communication among administrators, caretakers, donors, and government authorities.

Child Management System

The system maintains complete digital records of children, including personal information, admission details, attendance records, and welfare activities. This helps administrators monitor child development effectively.

Healthcare Monitoring System

The healthcare module stores medical records, vaccination details, treatment history, and health reports. It enables continuous health monitoring and supports timely medical intervention when required.

Education Tracking System

The education module tracks academic performance, school attendance, examination results, and skill development activities. This helps ensure the educational growth of every child.

Donation Management System

The system maintains donor information, donation records, fund utilization details, and receipt generation. This improves transparency and accountability in financial management.

Staff Management System

The staff module manages employee records, attendance details, work assignments, and administrative responsibilities. It helps improve operational efficiency within the orphan home.

ANALYSIS OF THE PROBLEM

The management of orphan homes involves handling a large amount of information related to children, healthcare, education, attendance, donations, and administrative activities. In many orphan homes, these records are maintained manually using paper files, registers, and spreadsheets. This traditional approach creates several challenges in maintaining accurate, secure, and up-to-date information. As the number of children and records increases, managing information manually becomes more complex and time-consuming.

- Manual record maintenance
- Risk of data loss and duplication
- Poor data security and privacy
- Lack of centralized information management
- Delayed report generation
- Increased administrative workload
- Limited transparency in donation management
- Difficulty in monitoring child welfare activities

Due to these limitations, administrators often face difficulties in tracking children's healthcare status, educational progress, attendance records, and welfare activities. The absence of a centralized digital platform also affects communication



between administrators, caretakers, donors, and government authorities. Furthermore, manual processes consume significant time and effort, reducing overall operational efficiency and increasing the possibility of human errors.

Therefore, there is a need for a secure, reliable, and technology-driven digital governance system that can streamline orphan home management, improve transparency, enhance child welfare monitoring, and provide efficient access to information. The proposed system addresses these challenges by offering centralized data management, automated reporting, secure record storage, and real-time monitoring capabilities.

In addition, the growing need for transparency, accountability, and efficient service delivery in welfare institutions has highlighted the limitations of traditional management practices. Orphan homes are responsible for ensuring the overall well-being of children, including their physical health, educational development, emotional support, and social welfare. Managing these responsibilities through manual systems often leads to operational inefficiencies and difficulties in monitoring individual child progress.

The lack of a unified Information management system makes it challenging for administrators to access accurate data when required. As a result, decision-making processes may be delayed, affecting the quality of services provided to children. Furthermore, maintaining separate records for healthcare, education, attendance, and donations increases complexity and creates inconsistencies in information management.

Another significant challenge is the absence of real-time monitoring and reporting mechanisms. Without automated systems, identifying children who require immediate attention, healthcare support, or educational assistance becomes difficult. This may impact the effectiveness of welfare programs and delay necessary interventions.

- Difficulty in managing large volumes of child data.
- Absence of automated data processing.
- Limited access to information for authorized users.
- Inadequate child health monitoring.

- Difficulty in tracking vaccination schedules.
- Lack of proper educational performance analysis.
- Inefficient attendance management.
- Poor coordination between staff and administrators.
- Difficulty in maintaining historical records.

Moreover, government authorities, donors, and welfare organizations increasingly expect transparent and accountable management practices. Manual systems often fail to provide timely reports and accurate financial tracking, which can reduce stakeholder confidence and limit opportunities for support and funding.

Therefore, adopting a modern digital governance framework is essential for improving operational performance, ensuring data security, enhancing child welfare services, strengthening institutional transparency

VIII. SYSTEM ARCHITECTURE

Presentation Layer

The presentation layer provides an interface through which users interact with the system. It enables administrators, staff members, and authorized users to access various services.

- User Login and Authentication
- Child Information Management
- Healthcare Monitoring Access
- Report Viewing and Generation

S. No.	Performance Aspect	Current Situation (Existing System)	Observed Performance	Impact
1.	Data Management	Records are maintained manually in files and registers.	Slow data retrieval, high chance of errors and data duplication.	Inefficient information management.
2.	Security	No proper security mechanism for data protection.	High risk of data loss, unauthorized access and record damage.	Compromised data privacy and security.
3.	Report Generation	Reports are prepared manually.	Time-consuming process, delayed reports.	Delayed decision-making and planning.
4.	Operational Efficiency	Most tasks are done manually.	High workload, more time consumption, low productivity.	Reduced efficiency of administration.
5.	Transparency	Donation and fund records are not tracked properly.	Lack of transparency and accountability.	Reduced trust of donors and stakeholders.
6.	Monitoring & Tracking	Child welfare, health and education tracking is done manually.	Inconsistent monitoring, incomplete information.	Affects child welfare and overall development.

Figure 2: Performance Analysis of the problem



Application Layer

The application layer processes user requests and performs the core business operations of the system. It acts as a bridge between the user interface and the database.

- Child Welfare Management
- Education Tracking
- Donation Processing
- Staff Administration

Database Layer

The database layer stores and manages all information related to children, staff, healthcare, education, and donations in a secure manner.

The database layer serves as the central repository for storing child records, healthcare information, educational details, attendance data, donation records, and staff information. It ensures secure and organized data management.

- Child Records Storage
- Healthcare Data Management
- Donation Information Storage
- Report Database Management

Security Layer

The security layer protects sensitive information and ensures that only authorized users can access the system.

The security layer protects sensitive information through authentication, authorization, encryption, and access control mechanisms. It ensures confidentiality, integrity, and privacy of child-related data.

- User Authentication
- Password Encryption
- Access Control Management
- Data Backup and Recovery

Communication Layer

The Communication Layer facilitates information exchange among administrators, staff members, donors, and government authorities. It helps maintain transparency and effective coordination.

- Notifications and Alerts

- Information Sharing
- Report Communication
- Welfare Updates

Reporting Layer

The Reporting Layer generates various reports that support decision-making and performance evaluation. It provides accurate and timely information about different organizational activities.

- Child Welfare Reports
- Healthcare Reports
- Donation Reports
- Attendance Reports

System Integration Layer

The System Integration Layer connects all modules and ensures smooth communication between different components of the platform. It helps maintain operational efficiency and centralized management.

- Module Integration
- Data Synchronization
- Workflow Management
- Centralized Monitoring

Child Management Layer

The Child Management Layer is one of the most important components of the proposed system. It is responsible for maintaining comprehensive information about children residing in the orphan home. This layer helps administrators monitor child welfare, attendance, personal details, and developmental activities. It ensures that all child-related information is stored in a centralized and secure manner. The layer improves record accessibility and reduces manual documentation. It also supports better decision-making regarding child welfare and protection.

- Child Registration
- Profile Management
- Attendance Tracking
- Welfare Activity Monitoring
- Child Development Records



Healthcare Management Layer

The Healthcare Management Layer focuses on monitoring and managing the health status of children. It maintains medical histories, treatment details, vaccination records, and health reports. The system enables timely healthcare interventions and continuous health monitoring. It helps caregivers track medical conditions and schedule health checkups. This layer contributes to improving child safety and overall well-being. It also ensures proper maintenance of healthcare information.



Figure 3: Digital System

Education Management Layer

The Education Management Layer supports the academic growth and educational development of children. It records school attendance, examination results, academic performance, and learning activities. The layer helps administrators evaluate educational progress effectively. It provides a structured approach to monitoring student achievements and learning outcomes. Educational information can be accessed quickly whenever required. This module plays a vital role in ensuring quality education for children.

- Academic Performance Tracking
- School Attendance Monitoring
- Examination Management
- Skill Development Tracking
- Educational Progress Reports

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