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Civil Registry Using Asp.net

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Abstract

In the era of digital governance, maintaining accurate and secure records of vital events like births, deaths, and marriages is critical. Civil Registration Systems (CRS) are used to maintain permanent, continuous, and compulsory records of such life events. Traditionally, these records were paper-based and susceptible to damage, fraud, and delays. The proposed Civil Registration System (CRS) uses ASP.NET technology integrated with SQL Server to provide a secure, scalable, and efficient web-based application. The system allows administrators to register, update, and search vital records, ensuring real-time access to civil data and generating accurate reports for decision-making.

Keywords: Civil Registration, ASP.NET, SQL Server, E-Governance, Vital Records, Management System

1NTRODUCTION

In the modern era of digital transformation, the delivery of public services has evolved from traditional paper-based systems to robust, automated, and citizen-centric platforms. Among the most fundamental administrative functions of a nation is **civil registration**—the official recording of vital life events such as births, deaths, and marriages. These records not only serve as legal proof for individuals but are also essential for government planning, policy formulation, resource allocation, and demographic analysis.

However, in many developing regions, civil registration systems remain largely manual, fragmented, and inaccessible. This often results in inefficiencies such as delays in certificate issuance, loss of records, forgery, and lack of real-time data for governance. Citizens, particularly in rural or underserved areas, face challenges like multiple visits to government offices, long processing times, and limited access to their personal documents.

To overcome these challenges and bring transparency, speed, and accessibility into the system, **Information and Communication Technology (ICT)** must be leveraged. This research presents a **web-based Civil Registration System** developed using **ASP.NET MVC and SQL Server**—a modern, scalable, and secure platform that empowers government bodies to digitize the entire registration lifecycle.

ASP.NET, developed by Microsoft, is a mature web framework that supports rapid development, built-in security features, Model-View-Controller architecture, and seamless integration with databases. The proposed system uses this framework to provide a centralized and role-based interface for civil registration that can be accessed by citizens, clerks, registrars, and administrators. The system automates workflows such as data entry, document verification, certificate generation, and reporting, thus reducing human errors and ensuring compliance with legal standards.

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DATABASE

The database used is Microsoft SQL Server. It stores and manages all vital records and user authentication details. The system has different tables for:

1. Birth Registration
2. Death Registration
3. Marriage Registration
4. Aadhar card
5. Pan card
6. User Login
7. Certificate Issuance History

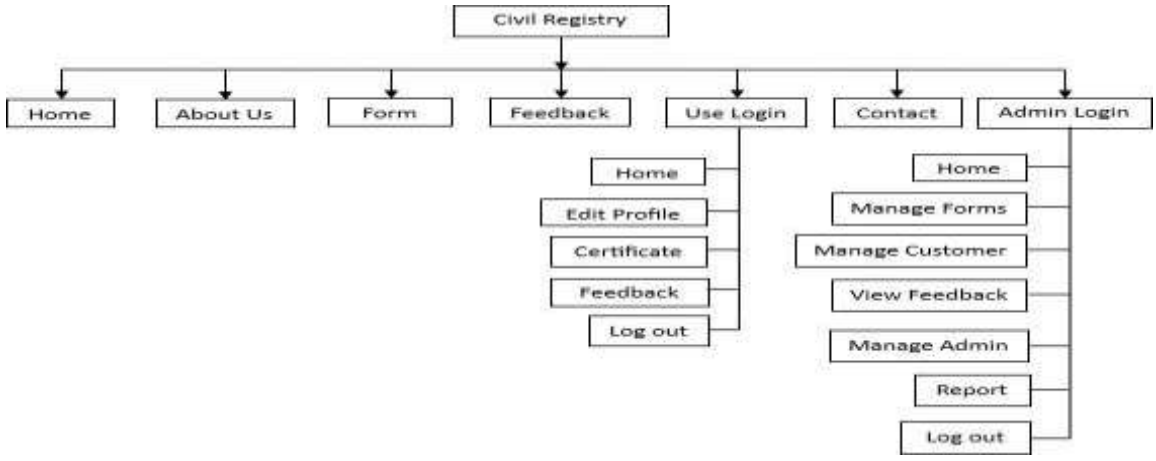

Figure 1: Block Diagram of Civil Registry

Each table is normalized to reduce redundancy and supports CRUD (Create, Read, Update, Delete) operations. SQL queries are used for transaction processing, report generation, and secure data retrieval.

METHODOLOGY

The development methodology for the Civil Registration System (CRS) follows the **Waterfall Model**, a sequential approach to system development. The system is structured into multiple modules, each addressing a core functionality required by administrative and citizen users.

System Architecture Overview

The Civil Registration System is a **web-based application** built using **ASP.NET Framework (C#)** for the front-end and business logic layer, and **Microsoft SQL Server** for the back-end database. The system follows the **three-tier architecture**:

- **Presentation Layer (UI)**: Handles user input and displays information via ASP.NET web forms and Razor pages

- .**Business Logic Layer (BLL)**: Processes requests, applies validations, and coordinates database interactions.
- **Data Access Layer (DAL)**: Communicates directly with SQL Server using ADO.NET to perform CRUD operations.

Modules of the System

A. Admin Module

- Login and session validation using role-based access control.
- Register new birth, death, and marriage records through secure forms.
- Modify or delete incorrect records with audit logs maintained.
- View statistical dashboards for registered events by category, date, or region.
- Issue downloadable certificate PDFs with QR code verification.

B. User/Citizen Module

- Users can **apply for certificates** by filling online forms.
- Upload supporting documents (e.g., ID proof, hospital record, etc.).
- Track application status and download approved certificates.
- Receive email/SMS notifications for status updates.

C. Certificate Generation Module

- Templates are used for generating birth, death, or marriage certificates.
- Certificate number, QR code, seal, and date of issuance are autogenerated.
- Documents are rendered as **PDF using iTextSharp** or similar libraries.

D. Authentication & Security Module

- User authentication implemented using **ASP.NET Identity Framework**.
- Admins and citizens have separate login roles.
- Sessions are encrypted using SSL; all sensitive data is hashed (e.g., passwords).
- CAPTCHA integration for bot protection and brute force prevention.

Workflow

Step-by-Step Flow: Login Phase:

- The user or admin logs into the system using secured credentials.
- On successful login, users are redirected to role-based dashboards.

Data Entry Phase:

- Admins fill structured digital forms for event registration (birth/death/marriage).
- Validations are applied on each field (e.g., date of birth cannot be future-dated).

Document Upload & Verification:

- Supporting documents are uploaded and stored securely.
- Admin reviews and approves the record; if rejected, the reason is recorded.

Certificate Issuance Phase:

- Upon verification, certificates are generated with unique identifiers.
- A downloadable PDF link is activated for the user.

Search & Reports:

- Admins can filter and search using multiple criteria (e.g., date range, name, certificate ID).
- Real-time analytics graphs (optional via Chart.js) show trends in civil registration.

3.4 Tools and Technologies Used

Tool/Technology	Purpose
ASP.NET (C#)	Front-end development, user interface logic SQL Server Relational database management
ADO.NET	Data connectivity and operations
Bootstrap	Responsive UI HTML/CSS/JavaScript Client-side rendering iTextSharp PDF generation for certificates
IIS Server	Hosting and deployment
AJAX	Asynchronous data loading for smoother experience CAPTCHA API Security and spam prevention
LINQ	Data querying and object manipulation

REQUIREMENTS:

- **Software**: Visual Studio, SQL Server Management Studio
- **Language**: ASP.NET (C#), HTML/CSS
- **Platform**: .NET Framework 4.8
- **Database**: Microsoft SQL Server
- **Browser**: Any modern browser (Chrome, Edge, Firefox)

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SYSTEM RESULT

1. Pan card Application:

Pan Card Application Form.

Approve Pan Card:

Admin checks all required documents, if all required documents are correct then admin approve Pan Card application.

CONCLUSION

The proposed Civil Registration System effectively overcomes the limitations of the manual registration process. It ensures the secure storage of civil data, timely certificate issuance, and efficient management of records. By implementing role-based access and dynamic forms, the system promotes transparency and reduces errors. Future developments could include biometric verification, mobile app integration, and blockchain for data integrity.

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