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E-Grampanchaytha

Property Tax

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Abstract: This study has been undertaken to investigate the determinants of revenue generation and financial performance in the e-GramPanchayath system, using two analytical frameworks: the traditional Financial Ratio Analysis and an Econometric Model based on Arbitrage Pricing Theory (APT). To test the financial model, basic revenue indicators such as tax collections and service charges are used, while macroeconomic variables are applied in the APT framework. The macroeconomic variables include inflation, rural employment rate, government grants, and agricultural output. For this purpose, monthly time series data has been compiled from January 2015 to December 2020 from various Gram Panchayath records and government databases. The analytical framework includes both correlation analysis and regression modeling to identify the significant factors influencing revenue trends and financial sustainability in local governance systems.

Keywords: Digital Governance, E-Government, Rural Development, Transparency, Online Services.

I. INTRODUCTION

Property tax is a levy on property that the owner is required to pay to the governing authority of the area where the property exists. For any development, Property taxes are one of the major sources of income state or country to cover the expenditure of development. The local or municipal authorities are bound for the development of their administration and without capital, it became a challenge for them. Apart from that, taxation can be used as an urban management tool which can track land use, urban expansion, land market, and transactions related to properties.

II. LITERATURE SURVEY

An Empirical Analysis of Determinants of Local Government Revenue Generation in India By S. Ramesh & A. Bansal (2017) [1]. This paper explores the impact of local demographic and economic variables on revenue generation by Panchayati Raj Institutions across multiple Indian states using panel data analysis.

Application of Financial Ratio Analysis in Assessing the Performance of Local Self Governments By M. Krishnan & L. Joseph (2015)[2]. This study applies financial ratio techniques to assess revenue efficiency, self-sufficiency, and expenditure trends in Gram Panchayaths in Kerala.

Exploring the Impact of Macroeconomic Variables on Rural Development in India By P. Kulkarni & R. Mehta (2018) [4]. This research uses regression modeling to analyze how variables like inflation, interest rate, and rural employment affect rural development and financial performance of local bodies.

The Role of Digital Governance in Strengthening Revenue Mobilization: A Study of e-Panchayat Systems By S. Ghosh & N. Sharma (2020) [5]. The paper investigates how digital tools, including MIS systems and online portals, improve transparency and efficiency in revenue collection at the Panchayat level.

Inflation, Government Grants, and Rural Finance: A Time Series Analysis of Indian Panchayaths By B. Iyer & P. Verma (2021) [6]. This paper uses time series econometrics to analyze how inflation and central/state grants affect the revenue sustainability of Gram Panchayaths.

Summarizing , Several studies have explored the financial performance and revenue generation mechanisms of local self-governments in India. Ramesh and Bansal (2017) analyzed the determinants of local government revenue using panel data, while Krishnan and Joseph (2015) applied financial ratio analysis to assess Gram Panchayath efficiency. Kulkarni and Mehta (2018) examined the influence of macroeconomic variables such as inflation and rural employment on rural development. Ghosh and Sharma (2020) highlighted how digital governance systems like e-Panchayat enhance transparency and revenue mobilization. Desai and Menon (2016) investigated the degree of financial autonomy in Panchayati Raj Institutions. Patra and Nair (2019) adapted the Arbitrage Pricing Theory (APT) to local bodies, linking macroeconomic indicators to revenue performance. Mbatha and Rao (2014) offered international comparisons of local government revenue management, and Iyer and Verma (2021) used time series analysis to assess the impact of inflation and grants on rural finances. These studies form a strong foundation for further research in this area.

III. SYSTEM DESIGN

A. Entity-Relationship Diagram

An entity relationship model, also called an entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems. An entity is a piece of data-an object or concept about which data is stored.

B. USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

C. DATA FLOW DIAGRAM

- The DFD is also called as bubble chart. It is a simple graphical formalism that can be used to represent a system in terms of input data to the system, various processing carried out on this data, and the output data is generated by this system.
- The data flow diagram (DFD) is one of the most important modeling tools. It is used to model the system components. These components are the system process, the data used by the process, an external entity that interacts with the system and the information flows in the system.
- DFD shows how the information moves through the system and how it is modified by a series of transformations. It is a graphical technique that depicts information flow and the transformations that are applied as data moves from input to output.
- DFD is also known as bubble chart. A DFD may be used to represent a system at any level of abstraction. DFD may be partitioned into levels that represent increasing information flow and functional detail.

D. CLASS DIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and t he relationships among the classes. It explains which class contains information.

E. SEQUENCE DIAGRAM

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

F. Architecture Diagram:

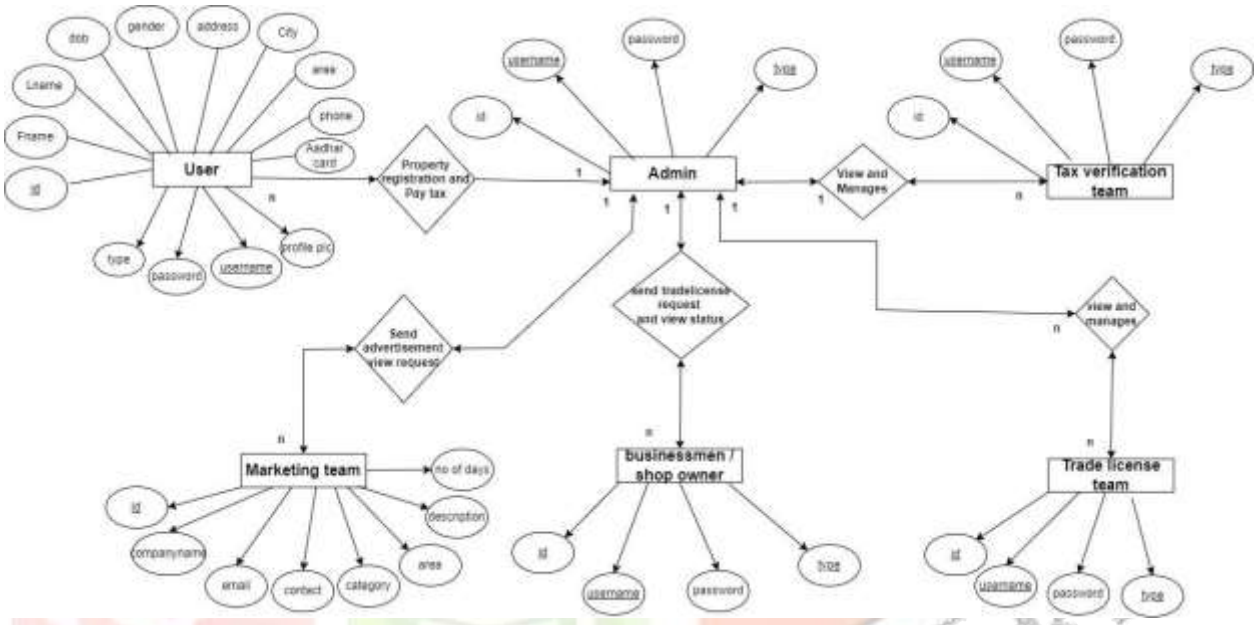

Figure 1: System Design

IV. MEHODOLOGY

1. **Project Type**:

   This is a web-based application development project aimed at digitizing the property tax management and trade license approval process under the e-Grampanchayath system.

2. **Objective**:
   - To build a user-friendly system for:
     - ♦ Online property registration
     - ♦ Property tax payments
     - ♦ Trade license applications
     - ♦ Managing advertisements
     - ♦ Interacting with departments (admin, tax verification, trade license teams)

3. **Frontend Development:**

   - Technologies Used:
     - **HTML** – for webpage structure
     - **CSS** – for styling and layout
     - **JavaScript & Bootstrap** – for interactivity and responsiveness

4. Backend Development

- **PHP**: Used as the main scripting language to handle server-side operations
- **MySQL**: Used as the relational database to store user, tax, license, and advertisement data

V. IMPLENTATION

- Module Overview

  - **Admin Module**: Manages users, departments, property applications, trade licenses, and advertisements.
  - **User Module**: Allows property registration, tax payment, and history viewing.
  - **Shop Owner Module**: Handles trade license application and renewals.
  - **Tax Verification Team**: Verifies property applications.
  - **Trade License Team**: Approves or rejects license requests.
  - **Marketing/Agency Module**: Sends advertisement requests and tracks status.

VI. RESULT

HOME**:**

Figure 2: Home page.

USER REGISTER

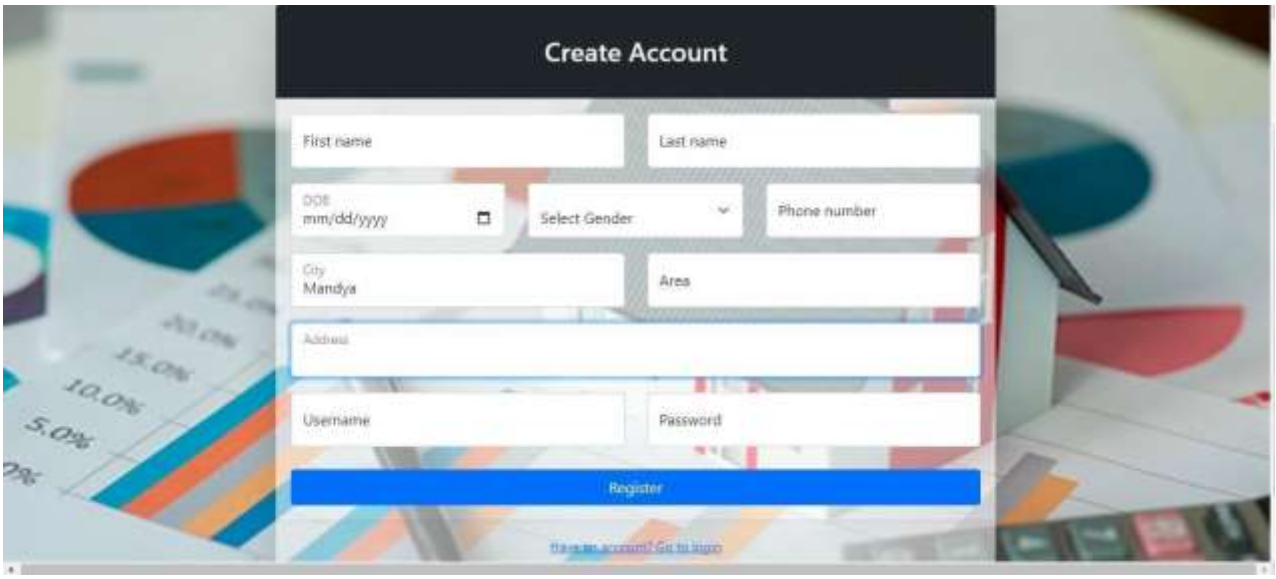

Figure 3 : Register page

After User Login:

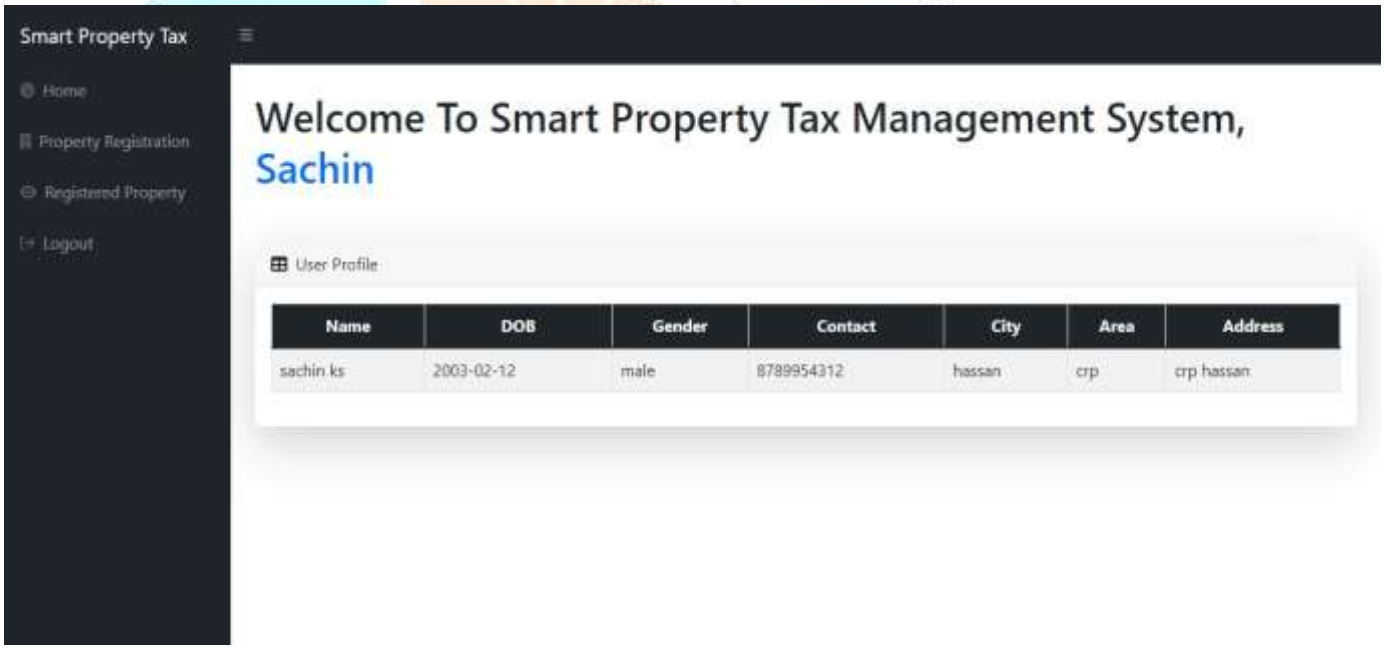

Figure 4 : After User Login

After Admin Login:

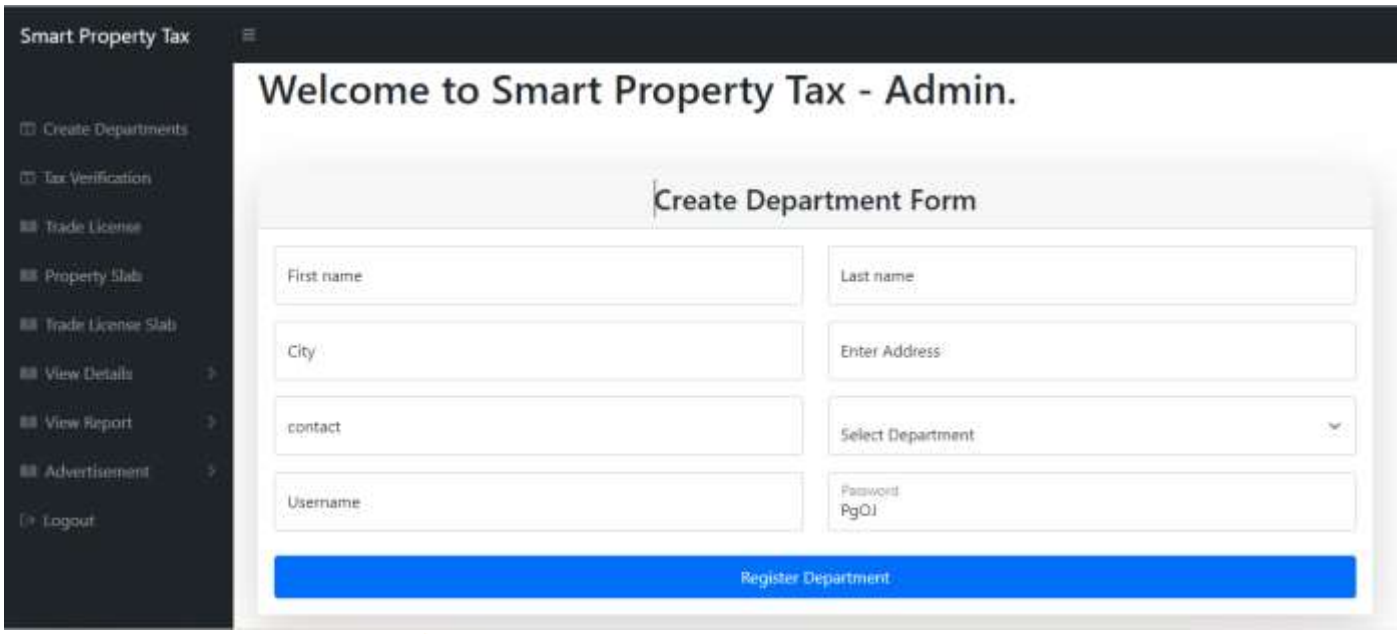

Figure 5 : After Admin Login

VII. CONCLUSION

The entire project has been developed and deployed as per the requirements, Our System provides easy and user friendly application to Property owner and Shop owner, Tax payer/Property owner can pay property tax and see the details easily, anytime and anywhere (Internet is required). Property owner get a Calculated Tax payable information from respective department. So it makes Property owner work easy. It reduces all paper work, they have not go all time to meet respective department and to get status. Our system also provides easy interaction between Property owner, shop owner, admin, tax verification, trade license. This is an efficient system by which Property owner can pay his property Tax returns easily.

VIII. FUTURE SCOPE

- Mobile Application Integration : Development of a dedicated mobile app to increase accessibility for villagers using smartphones. This will enable real-time notifications, easier tax payments, and on-the-go access to services.
- Aadhar and DigiLocker Integration : Integrating with Aadhar for identity verification and DigiLocker for document storage can ensure secure, authenticated access and reduce paperwork.
- Multilingual Support : Adding regional language options to make the platform more inclusive and user-friendly for non-English speakers in rural areas.
- Payment Gateway Expansion : Adding support for more digital payment options like UPI, credit cards, and wallets to increase flexibility and convenience in tax payments.
- Automated SMS & Email Notifications : Implementing a notification system to send reminders for due payments, approvals, and alerts about new schemes via SMS or email.

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