



Smart Residence Management System

¹Abhijith Kuriakose, ²Anagha Chaudhari, ³Atharva Kadam, ⁴Prajakta Gaikwad, ⁵Saloni Sambherao

¹Student, ²Professor, ³Student, ⁴Student, ⁵Student

¹Name of Department of 1st Author,

¹Name of organization of 1st Author, City, Country

Abstract: Housing resident management plays a significant role in our residential life. Our day to day needs such as water supply, electricity, security, maintenance comes under housing resident management. This system exists for the purpose to help and ease our life but have many traditional methods and lot of paperwork. Our proposed system is an web based application which will computerize all day to day operations in the resident. This system is an automated system which will keep the details of daily notices, monthly meetings, cultural events and also contains sections such as compliant, domestic help, calendar etc.

Index Terms - resident, traditional, web based, automated

I. INTRODUCTION

So as to have a healthy living, now-a-days people have set their standards of discipline in community living. Cities have mini cities known as housing societies or commercial societies which features private schools, hospitals and business centers. They form a digital network so as to manage their resident through applications and websites. This helps people understand the ongoing changes in their surrounding and help them stay tuned to the latest updates. The management of the resident is an important aspect in this case. The resident has two important group of people looking after, the chairmen panel which accounts secretaries and their head. The other group of people is of the residents who help maintain the overall maintenance and standards of the resident by giving their valuable inputs to the resident's progress. The web application provides a platform to the super admin to add the societies as well as its residents and their details. The secretary of each resident will have its own panel having features like maintaining the accounts, sending and receiving the message and broadcasting the notices, update the resident groups and events via calendar. The residents can be a part of any group they want, but to simplify the process, system is setup with recommendation system which recommends the residents a group the resident has based on the hobbies, interests and sports they like which is already maintained by the system while signing up the resident. Also the end user of this product has a privilege to view all the events, festivals post on the business wall and access the emergency contacts and help tab to use the website. Social networks play an important role at connecting the people via online chatting, participating in online campaigns and clubs.

II. MODULE IDENTIFICATION

Resident Management System is the website portal designed to reduce conflicts among resident members. The system has automated functionality for calculating monthly maintenance and member can view their bill status on their account. The main functionality of this project is that there is a voting system for different resident positions like Secretary, Chairman, Treasurer etc. Member can vote the candidates that are standing for different roles in resident. The Resident Management System allows members to login with their own account and get updated with resident happenings. Datepicker is a jQuery function that allows user to pick up any date in User friendly manner. The following are the modules included in this system:

2.1 Login and Administration

Login will separate the user, secretary and Administrator of the System. The monthly maintenance bill will be authenticated by administrator. The administrator and members has authority to login to the website and manage their profile. Secretary has the special privileges of updating monthly bills.

2.2 Reports and Monthly Bill Generation

Various type of reports viz. Resource Report, Total revenue etc. can be generated by the system with a provision of downloading the reports too. Rates defined as per the "Bye Laws" and the system will calculate the maintenance charges under different heads and for different types of premises. The member can view his previous month bill status on their profile.

2.3 Complaints

User can report new complaints using the system interface. While the Administrator and Secretary has the rights to reply to the complaint and replies can be checked anytime.

2.4 Security

Data inserted in Database will be stored in encrypted format using AES algorithm (Advanced Encryption Standard). AES algorithm not only for security but also for great speed. Both hardware and software implementation are faster.

III. LITERATURE SURVEY

In order to curb the old practices of maintaining the records of bills, funds, other services, meeting details digitalization of the housing societies is important [1].

Social networks play an important role at connecting the people via online chatting, participating in online campaigns and clubs [2]. Thus, we have introduced the groups system as every housing resident has various groups for its purposes like social work, business advertisement, and to cherish their hobbies and sports. Many people like been part of various groups but at times prefer being aloof or hesitate to ask for membership. Thus, the recommendation system helps to suggest them the favorable group as per the hobbies and liking towards sports making it more clear for the residents to join the group among the list of groups.

While registering the resident in the system database, the hobbies and the sports liking are considered. The web application makes use of recommendation system which suggests the groups (if the group is available in the resident) to a particular person based on its hobbies and likings [3]. The resident can thus join and leave the group whenever required. The system thus displays the recommendation for sports-based groups and hobbies/ interests-based groups separately to differentiate and make it clear to the resident.

In [4], the authors aim to make current situation in the resident simple and efficient to reduce conflicts. To develop an automated system for problems occurring due to time lagging manual system. To develop system in user-friendly manner to solve most of the issues related to resident.

The system developed in [5] is integrating multiple application into one single Android application for managing resident's audits, bills issues of communication. The main aim of this system is to provide an Android application for resident members that manages all the problem faced by a resident that can be resolved by digitization. It should be generic for any resident with minor customization. The project [6] aims to protect the website of the user from the various vulnerabilities so the data can be protected from unauthorized access and also it will help the user to acquire the knowledge of the various attack to which there websites can be prone to for example through SQL injection the attacker can acquire the enter database of an organization. In such types of attacks the tool will help the organization to know the attack that their websites are vulnerable and implement measures to protect them.

Mishra & Seth [7] examine different performance factors such as key value, computational speed and tenability and concluded that AES algorithm is better among symmetric algorithm and RSA algorithm is found as better solution in asymmetric encryption technique.

In the research paper [8] various experimental factors are analyzed. Based on the text files used and the experimental result was concluded that DES algorithm consumes least encryption time and AES algorithm use least memory usage, Encryption time differs in case of AES algorithm and DES algorithm, RSA consume more encryption time and memory usage is also very high, but output byte is least in case of RSA algorithm.

In research paper [9], the authors examine techniques useful for real-time encryption. Each technique examined is unique in its own way and might be suitable for different applications. Everyday new encryption technique is evolving hence fast and secure conventional encryption techniques will always work out with high rate of security. This is especially true as computers become faster and more easily able to solve challenges which very previously too costly.

Kumar et al. [10] shows a comparative study between encrypting techniques were presented in to nine factors viz. key length, cipher type, block size, developed, cryptanalysis resistance, security, possibility key, possible ASCII printable character keys, time required to check all possible key at 50 billion second, these eligible's proved the AES is better.

DES is secret key based algorithm suffers from key distribution and key agreement problems [11]. But RSA consumes large amount of time to perform encryption and decryption operation It had been also observed that decryption of DES algorithm is better than other algorithms in throughput and less power consumption.

IV. SYSTEM ARCHITECTURE

We have come to conclusion that AES algorithm is better for encryption. We will be implementing below steps:

AES Algorithm:

1. The encryption process uses a set of specially derived keys called round keys.
2. Derive the set of round keys from the cipher key.
3. Initialize the state array with the block data (plaintext).
4. Add the initial round key to the starting state array.
5. Perform nine rounds of state manipulation.
6. Perform the tenth and final round of state manipulation.
7. Copy the final state array out as the encrypted data (ciphertext).

Algorithm Ends

V. WORKING OF THE PROJECT

For a new member he will register on the website by providing the necessary details. If already registered, then the user can directly login to the system. The system will differentiate as per the login as either an administrator, guard or user.

5.1 Admin Console

Once admin is logged in, admin is given below options:

- Add Owner: Admin can add owner. Admin had to enter the personal details of owner and data will be store in database.
- Add Member: Admin have to first add owner. Once owner is added, admin can add member.
- View Members: Admin can view members and also the owners and can edit the details if it is needed.
- Add Complaint: Admin can add the complaint which can be viewed by members and also the owner of the flats.
- Add Complaint Topic: Admin can add topic which will help to divide the complaints in the category.
- Delete Complaint: If any complaint is resolved than admin can do the soft delete or mark it to resolved.
- Add Bill: Admin can add bill for flats, like electricity bill, maintenance bill or water bill.
- Pay Bill: If any owner approached admin to pay bill, admin have authority to pay bill.
- View Bill History: History of the bill can be seen by admin. This will help to track the bill paid by owner or member of the flat.

5.2 Member Login

Once member is registered by admin. Member can logged in. Members have below options once logged in.

- View Distress Signal: Distress signal can be viewed using this feature.
- View Bill: History of the bill can be seen by member also. This will help to track the bill paid by them of the flat.
- View Notification: Any Distress signal can be viewed by member and any action taken on the distress notification.
- Send Distress Signal: If member of the resident is facing problem or any unwanted thing, he sends distress signal.
- Pay Bill: If any owner wants to pay bill, owner have authority to pay bill.
- View Bill: Owner can view the bills and also they can see the history of the bill.
- View Topic: Owner and member can see complaint topic and complaints per topic.
- Post on Topic: If anyone need any help they can post on the topics and same can be resolved by admin or any concern team.

5.3 Guard Login

Once guard is login he as below options:

- Visitor Notification: If any visitor visit the resident the notification will be send to concern member or the owner of the flat.
- View Visitor Request: Guard can see the request of the owner or members if some wants to visit to resident at given time in request.

VI. APPLICATIONS

It can be used in residential societies where apartments are ranging from small to big in numbers. To convey notices or other information among others which is necessary but not feasible using primary resources such as notice boards or phone calls. Access can be given by admins to other members of resident.

VII. ADVANTAGES

This system of maintaining a resident is made in such a way so that the most common problem faced by residential societies are solved. The main functionality of this project is that there are an online billing and accounting (payment gateway integration, income & expense tracking, etc.). In this system, the bills, receipts, and vouchers are created in an easy manner also the system is user-friendly.

VIII. LIMITATIONS

- User should have internet and computer to access the website.
- Payment gateway is not there.

IX. CONCLUSION

Resident management system puts forth the actual working of a resident. Administration, Member, Owner, Guard login etc. similar to a resident are the key features of our project. All roles are divided to concern users. Complaint, staff, bill, member management are put in one website that helps to track everything for resident.

X. FUTURE SCOPE

This project can be enhanced further by adding online payment facility for the members to reduce the extra work of the admin. The software is flexible enough to be modified and implemented as per future requirements. We have tried our best to present this free and user-friendly website to Resident members. Message and Email alerts for various happenings in the resident can be added to the system so that users do not miss the updates and happenings of the resident.

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