



TRANSFORMATIVE MANAGEMENT SYSTEMS FOR GATED COMMUNITIES

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Abstract:

“TMS for Gated Communities” is a mobile application designed for ‘Housing colonies’ or ‘Gated communities’ or ‘Flats’ to make their colony idle by automating their day-to-day activities. The main advantage of using this application is common notifications and news service will reduce the difficulty of letting every member to be bothered about the important notifications. It is Faster and reliable. Using this application the resident can register in this system. They can view all news, notifications, and facilities and can book for a service they required through the application, reduces the work of making calls for service requests. Gated communities have evolved as a popular residential option across the world, providing homeowners with a safe and private living environment. As the quantity and complexity of these communities expand, successfully managing their operations and services has become a more difficult undertaking. Traditional management practices frequently struggle to keep up with inhabitants' different requirements and expectations, necessitating the need for new and transformational solutions. This abstract delves into the notion of Transformative Management Systems (TMS) for gated communities, which use modern technology and dynamic techniques to transform community administration and resident happiness. TMS incorporates a wide range of intelligent tools, such as artificial intelligence, data analytics, and smart infrastructure, to create a unified ecosystem.

Keywords: Housing colonies Flats, Automating day-to-day activities, Common notifications, News service, Faster and reliable.

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1. Introduction:

TMS for Gated Communities is a mobile application designed for 'Housing colonies' or 'Gated communities' or 'Flats' to make their colony idle by automating their day-to-day activities. The main advantage of using this application is common notifications and news service will reduce the difficulty of letting every member to be bothered about the important notifications. It is Faster and reliable. Using this application, the resident can register in this system. They can view all news, notifications, and facilities and can book for a service they required through the application, reduces the work of making calls for service requests.

Problem Statement

In today's busy schedule it's hard to get some time, to go out and get the work done by ourselves due to the busy life style. Hard to keep track of services which resident asked for. Repeatedly notifying each tenants separately regarding any notifications or due bills. An innovative initiative called the Traffic Management System (TMS) for Gated Communities seeks to improve the security, safety, and general effectiveness of traffic flow within gated residential communities. In order to control vehicular flow, guarantee pedestrian safety, and improve traffic management procedures, the project aims to apply intelligent and automated solutions. An innovative initiative called the Traffic Management System (TMS) for Gated Communities seeks to improve the security, safety, and general effectiveness of traffic flow within gated residential communities. In order to control vehicular flow, guarantee pedestrian safety, and improve traffic management procedures, the project aims to apply intelligent and automated solutions.

Proposed Solution

Providing services at finger tips to the residents will be helpful. No repeated phone calls from residents to caretaker or vendors to fix the problems as the service request will be raised and caretaker will be the in charge of it. If caretaker need to inform or notify any information to the whole building or the apartment, it can be done by pushing the notification to all from the caretaker module instead of calling each of them separately. This notification will be visible to resident on their home page or separate notification tab.

2. Literature Survey

Design of a Smart Gated Community System for Enhanced Security and Management Veena S. Kumar, et al published a paper titled "Design of

a Smart Gated Community System for Enhanced Security and Management" at the 2018 IEEE 3rd International Conference on Recent Trends in Electronics, Information Communication Technology. This study presents a novel design for an intelligent system tailored to gated communities, with the objective of improving security and management. The proposed design entails the seamless integration of access control systems, surveillance cameras, and automated management solutions, effectively addressing the unique requirements of gated communities. By combining these elements, the system aims to enhance security measures and streamline community management processes for the benefit of residents and administrators.

Smart Apartments: An technology for Automated Energies in the Internet of Things Residential Buildings Mr. Cristiano Tapparelo published a paper titled "Smart Apartments".

Controlling in Residential Buildings" in 2017 International Conference on by IEEE Communications. In this research, we propose an innovative smart apartment system that leverages the power of smarter handling of energy is made possible by the internet of things (IoT) within residential buildings.

The study delves into the seamless integration of diverse sensors, actuators, and cutting-edge energy management techniques, all aimed at optimizing energy consumption in a highly efficient manner. By harnessing these technologies, the system strives to enhance energy efficiency and sustainability within residential settings, contributing to a greener and more cost-effective future.

A Systematic Literature Review on Challenges in Android App Development Mr. Mika V. Ma'ntyla' published a paper Titled: "A Systematic Literature Review on Challenges in Android App Development" In this research, we conduct a comprehensive literature review to examine the challenges encountered during the evolution of Android applications. Our study employs a systematic approach to identify and categorize these challenges, aiming to shed light on their nature and offer valuable insights on how to effectively tackle them.

By critically analysing the existing research, we contribute to a deeper comprehension of the hurdles faced by developers in the Android app development domain and provide practical recommendations to address these challenges successfully.

3. Methodology

It consists of 4 main modules namely Residents module, Estate Manager module, Vendor module and Gate Security module where i have used Authentication for users login and registration and after login few buttons to redirect it to specific module and recycle view to view the complaints in the form of lists. Which on click will give more information about the tickets and on which the users may take the action accordingly.

Residents Module:

Here the individuals are those who utilise the app by registering using an application and raise complaints and track them, pay bills and receive notifications the feature Service Request using which residents can raise a complaint in the form of ticket regarding any issues which need to be fixed in their house or in need of any residential services. Those tickets will be assigned to care-taker who will forward it to the respective vendor according to the resident's needs. Later vendor receives the requests forwarded by the care taker and accept it and starts to work on it once the work is done it will be assigned back to residents so the resident can verify and close the request if he is satisfied or can reopen the request. Service requests can also be tracked which lets the resident's and caretaker know where their request is pending.

Estate Manager Module:

The Estate Manager is required to register and log in to the application using their personal details. They have the authority to approve the registrations of residents and vendors. Furthermore, the Estate Manager will receive all the complaints raised by residents, and these complaints will be forwarded to the respective vendors. It has become the obligation that the Estate Manager to follow up on the complaint tickets and ensure the timely resolution of the reported issues. Additionally, the Estate

Manager's responsibilities extend beyond registration and complaint management. They serve as a key figure in maintaining the overall functionality and well-being of the residential community. This includes overseeing and managing various essential aspects such as property maintenance, security measures, and facility management.

Vendor Module:

Vendors need to register/login using their business details. Vendor will receive the complaints in the form of tickets and he will acknowledge it and visit the customer to fix the issue. Vendor begins by logging in, after successful authentication the vendor lands on the home page from where they can view the list of service requests and on clicking one of them it can be acknowledged and update the status of the tickets activity.

Gate Security Module:

Security needs to register/login using their personal details. Security will receive the visitors list added by the user so that they can let them in without any hustle and this is used by residents and security guards it can be used to add the visitors who are visiting the resident and those visitors list will go to the guards who will check the list, verify the visitor and sends them in which reduces the work of repeatedly calling the residents.

The same initial filtering process was adopted for material found through further searches using the BIDS and Ingenta databases, or through following up references to other studies cited in the short-listed materials. Finally, five experts in the field were contacted for their recommendations as to the most important empirical research, published or unpublished. This resulted in some further studies being added to the shortlist. The following table sets out the sources of the literature considered for inclusion in the systematic review

Table 1: Literature considered in the review process

Source	References
Websites	21
Journal articles, English language	89
Journal articles, foreign languages	11
Books	16
Book reviews	23
Journalism	5
Theses	1
Working Papers	3
Conference papers	3
Survey database	2
Film	1
Total	175

It proved impossible to obtain 4 items; it was not felt that any of these represented a major omission from

the relevant literature. There was surprisingly little empirical material, considering the academic and

policy interest which gated communities have aroused since their introduction. American legal literature, in which discussion and conclusions were based on analysis of legislation and reported caselaw, was included although it is not strictly

empirical. Several of these studies were excluded because, although they were of high relevance and quality, they had been superseded by later works.

System Architecture

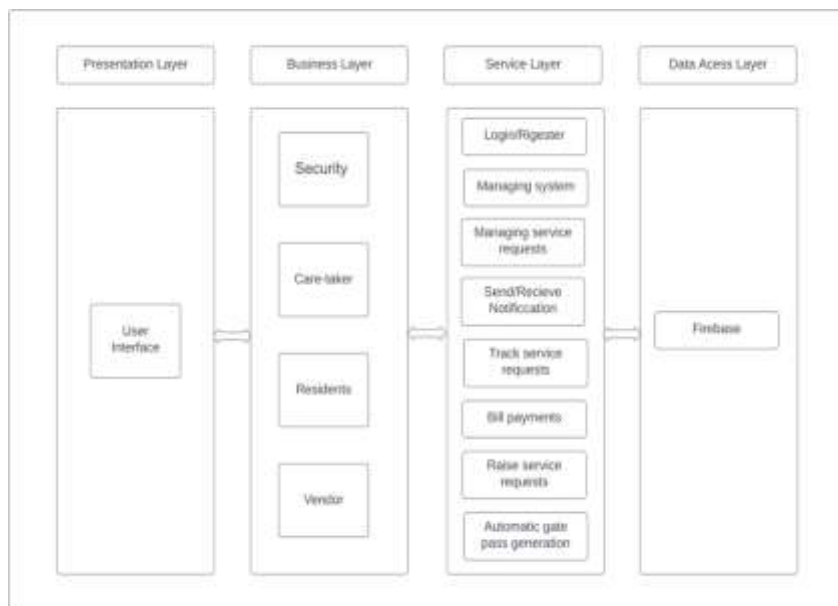


Fig. 1. Architecture Diagram for Communities

The architecture diagram Figure: 1 consists of mainly 4 layers. They are Presentation Layer, Business Layer, Service Layer, and Data Access Layer. Presentation Layer consists of User Interface. Business Layer consists of the users of the application. They are Admin/Manager, Residents, Vendor and Security. Service Layer consists of main functionalities such as Add residents, raise complaints, track SR and pay bills and Generate gate pass and etc. Data Access Layer consists of the data bases which stores data of the user and complaints.

TMS for gated communities, the Android application provides a feature which connects Residents to different vendors through Estate managers in a single platform and residents can raise complaints book for a service or add visitors through the app. The system also includes all the different vendors to whom notification will be sent whenever the residents book for the service which will be generated in the form of ticket with the status bar and which will be changed of every step of progress.

4. Result



Fig: 2. User home page

In figure 2 Residents can sign to access the software program by providing the credentials which are

already registered by themselves before logging in. After logging in the Residents can see few options

such as raise service request, bill payments, notifications and add visitors.

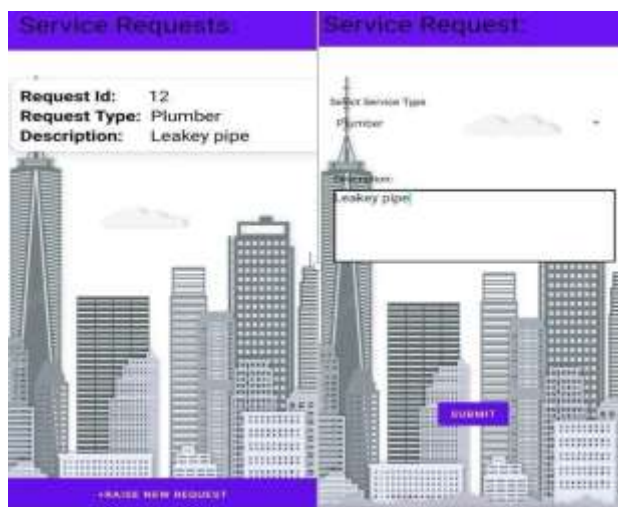


Fig. 3. Service Request tab and raising new request

On the Service Request page, figure 3 Customers can see and select the already raised ticket with their ticket id which makes it unique and with its description, if the resident wants to raisenew

complaint he can click on the bottom button where he needs to fill the asked details to raise the complaint.

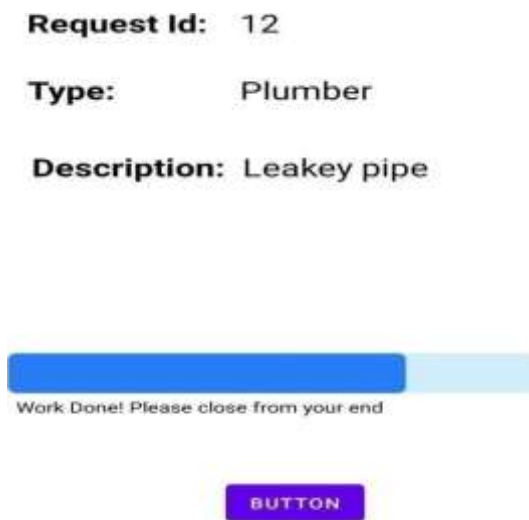
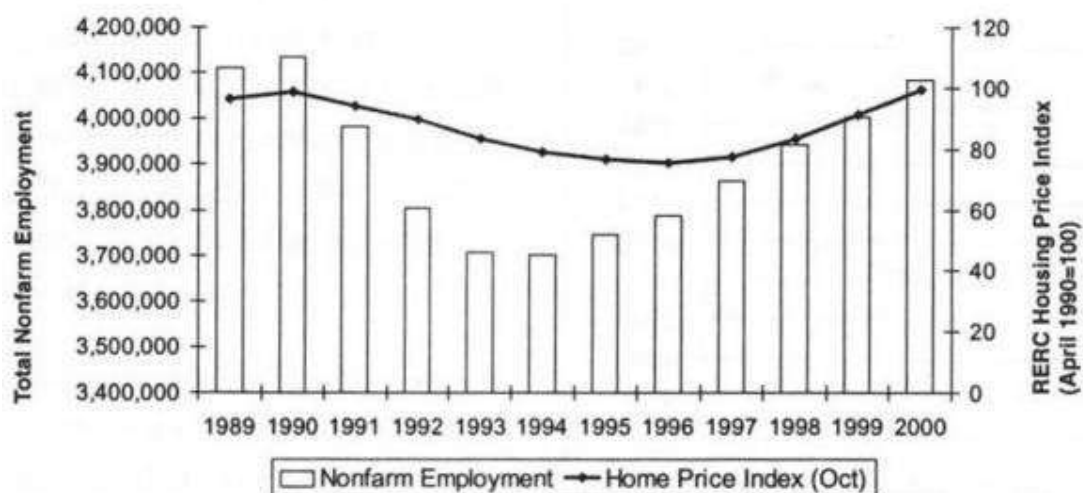


Fig. 6. Service request status

On figure 6 this page, Raiment's may view the status of their each raised complaints showing where it is pending, soon after the complaint raised the status of the ticket will show 25% and after the ticket will be acknowledged from the

vendor the status will be changed to 50% and 75% after the complaint if fulfilled and finally the residents himself can close the tickedif he satisfied to 100% as shown in the figure.



Source: Authors from California Employment Development Department and Real Estate Research Council of Southern California data.

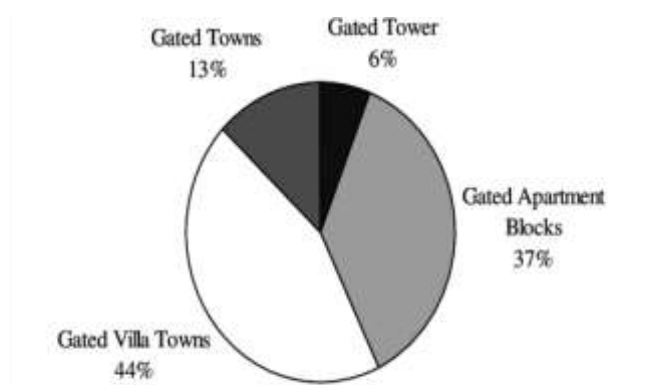


Figure 7 The shares of gated developments by their types

Developers of gated communities do not have the same opinion about their success. They found themselves successful according to reliability, achieving targets and quality standard

After residents clicking on bills tab from the home page it will be redirected to the above page and there the residents can view everything their pending bills which were uploaded by Estate Manager, upon clicking on that exact bill residents can view additional information regarding bill and click on pay button which will redirect residents to Google Pay to provide the payment.

The dedicated application for gate security where the list of visitors will be displayed added by the residents and upon clicking on the visitors list the gate security and verify the visitor, approve and allow them inside.

5. Conclusion

The application provides services at finger tips to

the residents It reduces the stress of repeated phone calls from residents to track the issue because the app provides the feature to track the service requests the Application helps Estate Manager to send notification to the whole building or the apartment and Estate manager can keep the track of all the service requests raised by the residents and follow-up them This notification will be visible to resident on their home page or separate notification tab.

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