

# Housing Society Management

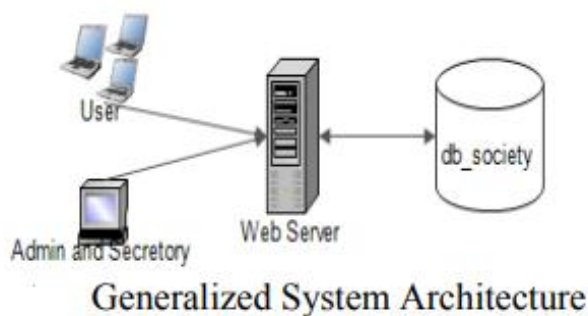
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**Abstract:** Housing society management plays a significant role in our residential life. Our day to day needs such as water supply, electricity, security, maintenance comes under housing society management. This system exists for the purpose to help and ease our life but have many traditional methods and lot of paper work. Our proposed system is an android application which will computerize all day to day operations in the society. 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.

**Keywords:** Housing society management, Android application, Automated system.

## I. INTRODUCTION

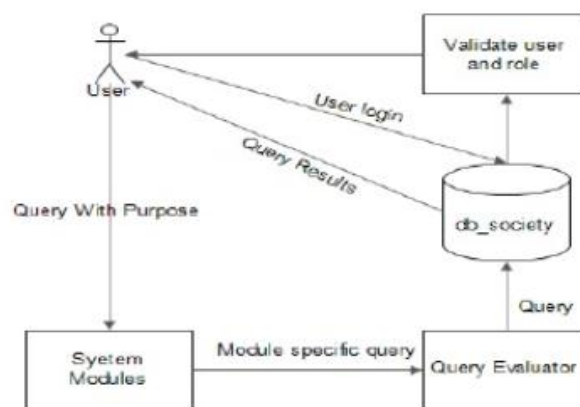
This system is developed to manage day-to-day activities of any co-operative housing society. Generally, in society all the work is manually. As all work is done on paper so it is very difficult to manage and keep track of all the work expenses in the society. This society management system will computerize all day to day operation in the society. There is no automated system for doing all the things that generally happen in society, so that members can come to know what is happening in society. This system is also raise invoices against all flats or select flats based on area or based on a fixed amount. Members can view their maintenance bill whenever an invoice is raised against their flat. This system of maintaining a society is made in such a way, so that the most common problem faced in residential societies are solved. Admin can also keep track of expenses using this system and reports which include provider bill.



**Figure.1,** Generalized Architecture of the application.

Figure 1 shows the general system architecture of the application wherein the the user and the admin interact with the web server which fetches the data from the database. In these days, Android is getting popularity among people by providing smarter way of communication. Considering Indian economy, Android serves as an affordable technology for every other citizen to buy. Powerful and distributive working of mobile devices has an evolutionary effect on mobile computing. In this context android application provides an effective means of communication in a smarter way. Owing to the features of android such as open source, Customizable user interface this project uses "Push notification Technology" through an android application. This project can play a vital role in providing solution for tasks of residential societies that are "critical to handle manually", by reducing efforts and advancements in

a reliable communication. This application entirely works as a notifier that notifies about meetings, notices to the residents and about the complaints to the admin. Thus this application can provide a smarter and efficient way of communication between society residents and higher authorities. It's having a generalized system architecture where the admin has all the authorities such as to push notices, meetings etc. which will be stored in the database through which the user can absorb this details.



**Figure.2,** System behavior of application.

Figure 2 shows the expected behavior of the application developed.

## II. LITERATURE REVIEW

**Robart A. Sowah and Seth Y. fiawoo.,** has discussed The components of designed and developed system include (1) a web application through which workers would input data at their various workplaces (2) a database hosted on a central server that would store information entered by workers (3) an application programming interface (API) that would take requests from the Android application, query the database and serve the results back to the Android application and (4) an android application that processes and displays results to users. The android application is developed using Eclipse in conjunction with android SDK tools. The application retrieves data from a database per user request and displays the retrieved information on an android device. Users of this application would be able to analyse data quicker hence make quick decisions as they would not be drowned in a flood of detailed information.

There is also an added benefit of having access to company data on the go.

**Jarle Hansen, Tor Gronli**, have focused on principle of cloud computing and distributed computing. There are many handful technologies, which push data or content on mobile devices/tablets. The need of technologies studied are Google Cloud Messaging (GCM), C2DM (Cloud to Device Messaging) and Xtify is for authenticating a user, as well as handling all aspects of messages and delivery to the target application on the target device. The basic notification application is implemented using Google Cloud messaging

**YavuzSelimYilmaz**, provides a facility using GCM (Google Cloud Messaging) to send data from server to Android mobile device of user, and also receives messages from other devices within a network according to Android developer website, "a service that helps developers sends data from servers to their Android applications on Android devices." Hence, the overall purpose and scope of this project is reachable by Push notification technology (GCM).

### III. PROBLEM STATEMENT

The functions of a housing society are an inevitable part of our lives. There are chores here which unknowingly take up a considerable amount of our lives. Managing committee often gets tired of maintaining multiple email groups; excel sheets containing members' contact information, vehicle details of owners and at the same time addressing the grievances of the housing society residents. Worse is the case where technology remains unused. Also, residents get restless that issues are not getting resolved despite reminders and no one knows the status of the complaint raised. Such issues and many more are common in most housing societies. With no appropriate tools, managing a residential complex takes too much of time, effort and money with a lot of inefficiency. As times have changed, most of us have strived to combine technology with our daily chores irrespective of the field. Thus, changing the way of maintaining the society information will also prove to be beneficial, improve efficiency and save us time.

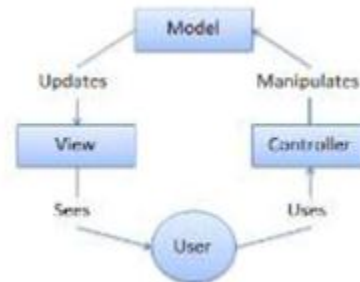
### IV. PROPOSED METHODOLOGY

To address the shortcomings of present existing systems this project serve a solution for the smart way of communication through an android application. This application itself takes care of automated man to man communication. The features this application possess and the facilities which are provided are as follows:

1. Different functions within society such as Complaints Meetings, Notice, Suggestions, Rules, Miscellaneous Contacts will available within a single sight so that user can navigate easily among those.
2. Application can provide multiple calendar events for particular events if required so that admin does not required taking follow up of reach ability of information.
3. Complaints by user are can be attended by admin as reached to him through mail thus authenticity of complaint is maintained and thus complaint posting can be uninterrupted.
4. Society members can chat.

5. Society members can view miscellaneous and domestic help contacts.
6. They can avail and view parking slots.
7. Maintenance bill is generated automatically based on the type of flat.

In short this application can provide an easy solution for management and maintain the daily functions within society in more disciplined way.

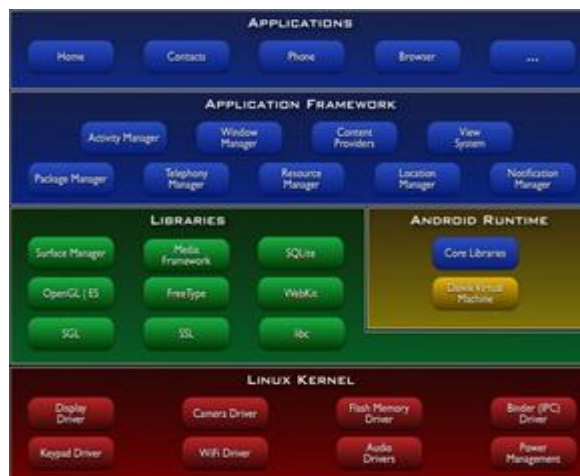


**Figure.3**, MVC Architecture

**Figure 3** shows the MVC architecture. MVC stands for Model, View and Controller. MVC separates application into three components - Model, View and Controller.

### A. Overview of Android

The mobile application is developed in Android. Android is a mobile Operating System which is based on Linux Kernel that is developed by Google. In android, user interface is user friendly. Android is designed mainly for touch screen mobiles such as smart phones and tablets. The main goal of the Android project is to create a successful real-world product that improves the mobile experience for end users. Android is a software platform developed by Google. It allows developers to write and manage code in a Java language, that uses Java libraries which are developed by Google. Java is platform-independent language as it can run on any operating system. Also java is portable and robust in nature. In this paper we are using mobile application in android and desktop application in Java.

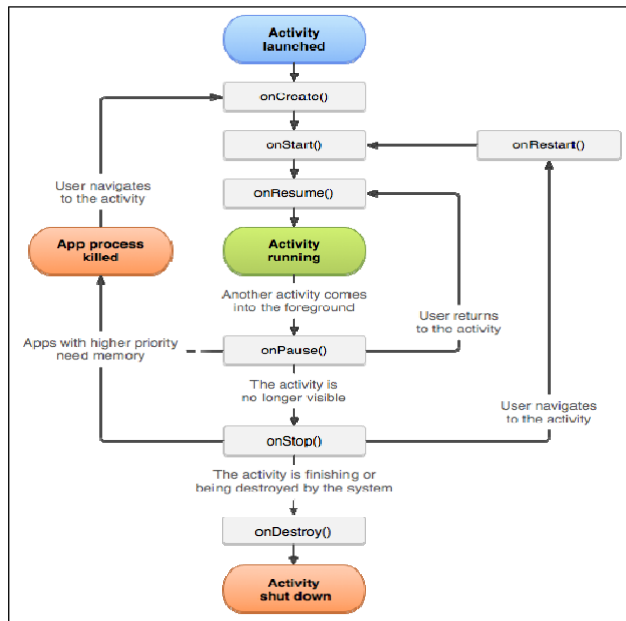


**Figure.4**, Overview of Android Architecture.

**Figure 4** show the Android architecture. Each layer in the architecture provides different services to the layer above it.

**B. Android Activities**

An activity is an application component that provides a screen (view) with which a user interacts and does some work, like sending an email, taking a photo, etc. Each activity is given a window where the user interface is drawn. Activity therefore, forms the building block of the user interface. In the Model View Controller (MVC) Architecture, the Activity forms the Controller and handles all the events related to the view. An application usually consists of multiple activities that are bound together. Each activity communicates with other activities to send and/or retrieve data.

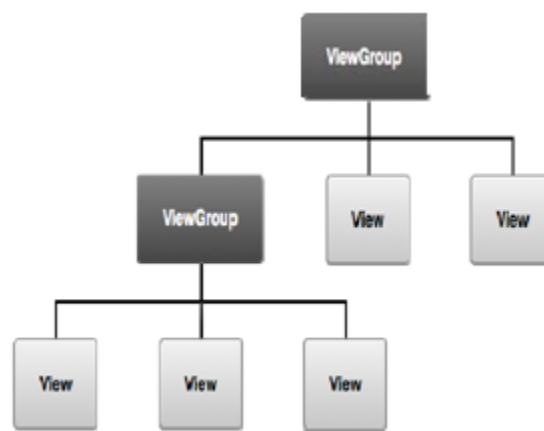


**Figure.5, Activity Lifecycle in Android.**

**Figure 5** shows the activity lifecycle of android. An activity is the single screen in android. It is like window or frame of Java.

**C. User Interface**

An activity creates a window in which all the UI elements are put. This is done using the setContentView() method. All the UI elements are built using the ViewGroup and the View objects. A collection of these objects form the common input controls, like the buttons, check boxes, or text fields. **View** is the class responsible for drawing and event handling on the screen. It forms the basic building block for UI components. **ViewGroup** is a class that holds other View(s) or ViewGroup(s) and defines their layouts.

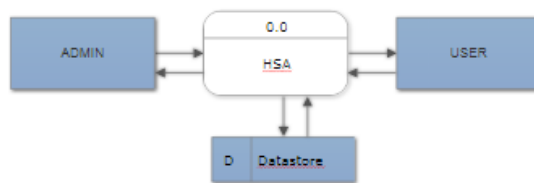


**Figure.6, View hierarchy.**

**Figure 6** shows a view hierarchy that defines the relationships of views in a window to each other. You can think of a view hierarchy as an inverted tree structure with the window being the top node of the tree.

The UI for each component in the application is defined using this hierarchy. Each ViewGroup is an invisible container that organizes child views and is responsible for the size and location of every View in the application. Each child view holds input controls or other widgets (text views, edit texts, etc.) that are used for drawing some part of UI.

**D. Data Flow and Use Case Diagrams**

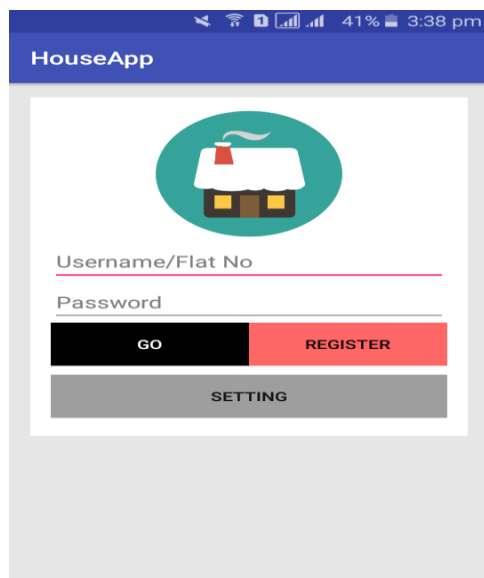


**Figure.7, DFD Level 0**

The above figure shows the overall data flow of the application i.e the admin can manipulate the data and the user can view the data of the application, given the data is being displayed in the application through the application database.

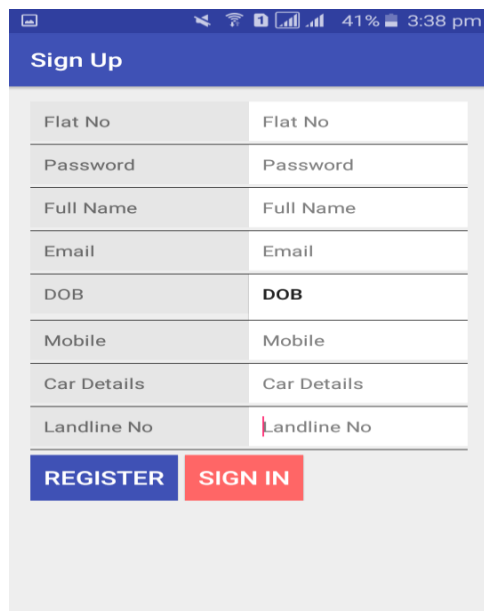
**V. IMPLEMENTATION AND RESULTS**

The prototype application is implemented using Xampp web server, phpMyAdmin administration tool for application database and Android studio for application and it UI. The prototype allows the admin to upload the data on the web server as well as the application itself and modify/delete the data as per need. Also the admin and add users by checking their credentials. On successful registration by the user, he/she can log into the application and view the modules as required, post suggestion/complaints to be viewed by the admin as well as use the chat-room feature to talk with the other residents (users) of the application. The SHA algorithm used helps ensure security of the passwords entered by the users during registration. Also the application requires the users using the application to be connected to the same network as the database, which in turn ensure security when it comes to data theft.



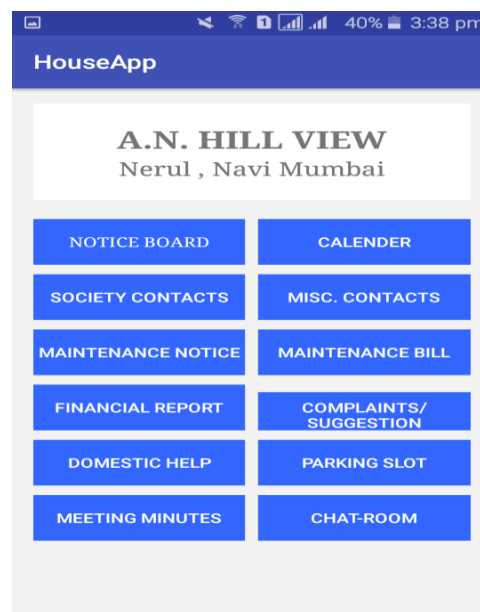
**Figure.8,** Application Home Page

In the module shown in Figure 8, the user must first get connected to the same network as the database using the “Setting” button (this setting needs to be configured only once when the application is being used for the first time by the user.) and then enter Username and Password. After this the user will be authenticated and will be able to view the contents of the application.



**Figure.9,** Application User Registration Page.

In the module shown in Figure 9, the user must enter all the necessary credentials required for the initial registration. Post successful registration the user data is stored into the application database and then he/she can easily log into the application.



**Figure.10,** Main Application Home Page.

The module shown in Figure 10 is the page that the user will see upon a successful log in. All the application features are present on this page of the application. The user can view and interact with the contents of the other tabs present on this page.

## VI. CONCLUSION

Thus, our application tries to comfort its users with easily understandable as well as essential functionalities. Here, both managing committee and residents have the same application installed with the maintenance generation and financial report generation features disabled at the resident side. This is achieved by maintaining separate login type for both types of users. Both types of users have similar rights over remaining features like viewing and posting notices on the notice board, adding and getting notified by calendar events and accessing society member contacts and the miscellaneous contacts. Our application is implemented to help manage the affairs of a housing society by requiring the committee member to enter and save minimal amount of information. It will allow the members of the housing society to access information about a society, its residents and the managing committee on the go. Thus, this application provides a virtual tour of the society. Concept of data mining and artificial intelligence would be worked upon as a future work for our project.

## REFERENCES

- [1]. BinPengJinmingYue,ChenTianzhou, "TheAndroidApplicationDevelopmentCollegeChallenge "IEEE,2012,pp-1677-1681
- [2]. [http://www.tutorialspoint.com/struts\\_2/basic\\_mvc\\_architecture.htm](http://www.tutorialspoint.com/struts_2/basic_mvc_architecture.htm)
- [3]. [http://www.tutorialspoint.com/sdlc/sdlc\\_waterfall\\_model.htm](http://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm)
- [4]. Jarle Hansen, Tor-Morten Grønli, GheorghitaGhinea," Cloud to Device Push

Messaging on Android: a Case Study", ICAINA, 2012, pp-1298-1303

- [5]. Omkar Singh<sup>1</sup>, Aditee Lakhan<sup>2</sup>, Jyoti Gupta<sup>3</sup>, "Implementation of an Android Application for Management of a Housing Society", IJECS, 2015, vol4, pp-12383-12389
- [6]. Saurabh Malgaonkar, Vivek Maurya, Mukul Kulkarni, Gurtej Singh Majithia, "Multipurpose Android Based Mobile Notifier", ICAECC, 2014, pp-1-4
- [7]. Seth Y. Fiawoo and Robert A. Sowah, "Design and Development of an Android Application to Process and Summarize Corporate Data", IEEE, 2012, pp-1-6
- [8]. SHAO Guo-hong, "Application Development Research Based on Android Platform", ICICTA, 2014, pp-579-582
- [9] Yavuz Selim Yilmaz, Bahadir Ismail Aydin, Murat Demirbas, "Google Cloud Messaging (GCM): An Evaluation" IEEE, 2014, pp-2807-2812.