iJETRM

International Journal of Engineering Technology Research & Management

A NOVEL APPROACH FOR RENTAL PROPERTY MANAGEMENT PROCESSING

Praveen Raju M*[1], Pandiyan P*[2], Vignesh Ramamoorthy H[3]
[*1,2] UG Scholars, Department of Information Technology, Sri Krishna Arts and Science College, Coimbatore
[3]Department of Information Technology and Cognitive Systems,
Sri Krishna Arts and Science College, Coimbatore
[*1]praveenrajuabc@gmail.com
hvigneshram@gmail.com

ABSTRACT

We are stuck with technology when what we really want is just stuff that works. With the current paradigm shift in technological field, there is an urgent need to embrace and appreciate the power of technology. Housing sector remains vigilant to face the challenges of change by employing a new strategy that facilitates easy management of rental houses. Hence there is need to develop a rental property management system that can simplify work for the rental managers so that all their work can be efficient andeffective. This work is an Android application to simplify work for the owners and tenants so their work can be efficient and effective.The Rental Property Management System is developed by using Android as front end and SQLite as backend.The main function is provide utility to search the home/office any paying guest and apartment without any intermediate person and he/she can directly contact with the owner. The Rental Property Management System is based on the owner and the customers. The owner can update the apartment, office details, and paying guest details. The customer can see about the room space, room rent and the address details also. The Rental Property Management System is best way to search the house, apartment, office, paying guest.The Rental property management system that can solve all the problems experienced with the current manual system. The system was developed in such manner that it provides maximum user-friendly interface.

Keywords:
Android application, Tenants, Landlord, Property

INTRODUCTION

Rental property management has become important factor in modern society hence the need to have a Rental property management system. This chapter will provide a brief understanding about background of study, definition of the project problem statement, its objectives, scopes, project justification, risks, project deliverables and project budget andschedule. The focus of this research project is basically managing housing for low income, medium and high incomes households or what is commonly known as affordable housing. “Affordable‟ is a term used to describe individuals‟ capability to pay for certain products or services because their income is enough to do so. Although the term „affordable housing‟ is often applied to rental housing; that is within the financial means of those in the lower income ranges of a geographical area, the concept is applicable to both middle- and high-incomeindividuals. Most families choose to rent houses based on their income and family situations; unfortunately, there may not be enough good quality rental housing for these families. Housing is a major problem in Kenya especially in Nairobi city. Millions of people are living in sprawling slams and in other informal settlement around Nairobi (UN-Habitat, 2008). This explains why many people have shifted their focus to developing rental houses in Nairobi and other parts of the country. The demand for rental houses is extremely high and more rental houses need to be put in place. Developing rental houses comes with many advantages especially to the Landlords who are able to increase their profits through rent paid by the tenants. Increased number of tenants and Landlords makes management difficult especially for the property owners who are losing huge sum of money through tenants who evade rent. The above statement gives a clear declaration as to why rental property management system need to be developed. Over the

iJETRM

years, landlords/property managers have had a problem in maintaining and managing their customers and their own records. Management has become difficult because of issues that includes:

- Datagrowth Data increase day to day. Storing and maintaining all data manually is very difficult
- Lack of computerizedsystem. Currently most landlords/property managers use the manual system in recording and maintaining their property and customersdata.
- Data security is notassured. In a manual way, data is recorded on books/papers, which may easily be damaged leading to loss of data.
- There is no database to storeinformation. Potential of data loss or damage is very high because data is stored on tangible files.
- Lack of these crucial requirements makes management of the tenants and houses very difficult as some tenants may end up not payingrent.

SYSTEM ANALYSIS ANDREQUIREMENT MODELLING

The system objectives outlined during the feasibility study served as the basis from which the work of system design was initiated. Much of the activities involved at this stage were of technical nature requiring a certain degree of experience in designing systems sound knowledge of computer related technology and through understanding of computers available in the market and the various facilities provided by the vendors. Nevertheless, a system could not be designed in isolation without the active involvement of the user. The user had a vital role to play at this stage too.
Data collected during feasibility study was utilized systematically during the system design. Designing a system is a creative process which calls for logical as well as lateral thinking Logical approach involves systematic moves towards the end product keeping in mind the capabilities of the personnel and the equipment at each design making step.

ExistingSystem

Currently the most property managers manage property and Rental details on papers. Once customers find a vacant house, they can request manager of the houses indicating the size of the house they would like rented to them. The property manager can email them back giving them all the details about the house they are requesting. The details include room, house office, paying guest also. Tenant management system used to avoid the time consuming on the process.

Disadvantage of Existing System

- There is no mobile application for this project.
- This system does not have SMS and mail sending option.
- Manual System takes more time.

Problems of ExistingSystem

With the current system recording the details of various activities of user is completely manual and entails a lot of paper work. Each house has a file that contains the house: number, size, rent per month, expected deposit, occupant and status.
Rent payment table contains tenants: first name, last name, Phone number, date of payment, amount and balance ifany.
The existing system only provides text based interface which is not as user friendly as Graphical user interface. Since the system is implemented manually, the response is veryslow.The transactions are not secure as papers may get lost or damaged. Hence, there is need of reformation of the system with more advantages and flexibility. The system eliminates most of the limitations of the existing system.

METHODOLOGY AND DESIGN

The term methodology means the technique and procedure adopted by conducting a research study. It outlines how data will be collected and the tools for collecting data, system methodology, the proposed system input and output, users and systems development tools.

iJETRM

System development methodology is a technique thatis used to show how the proposed system will be developed.

Android Frameworks

The android framework is the set of API's that allow developers to quickly and easily write apps for android phones. It consists of tools for designing UIs like buttons, text fields, image panes, and system tools like intents (for starting other apps/activities or opening files), phone controls, media players, etc.

The Android software stack includes: -

- Linux Kernel: Android OS is built upon Linux Kernel for Hardware support and it helps Android Runtime in low level memory management, etc. Linux kernel is well known kernel which allows various manufacturers to build hardware drivers for Android Devices easily.
- Hardware Abstraction Layer(HAL): It helps High Level Java API's to access the Hardware Capabilities. The HAL consists of multiple library modules, each of which implements an interface for a specific type of hardware component.
- Android Runtime: Prior to Android 5.0, Android apps used Dalvik Virtual Machine to run application instances. Now, after the release of Android 5.0, each Android App runs on its own process and with its own instance of Android Runtime. It is specifically designed to run multiple virtual machines on memory constrained devices.
- Native C/C++ Libraries: Many core Android system components and services, such as ART and HAL, are built from native code that require native libraries written in C and C++.
- Java API Framework: The entire feature-set of the Android OS is available to you through APIs written in the Java language. You can build apps easily with least boilerplate code using these API's. It contains many core components that are required to build an Android App such as Activity Manager, Content Provider, Notification Manager, etc.
- System Apps: This is the topmost layer of Android Software Stack. It includes the pre-built set of system software that are included with Android Package such as Dialer, Contacts, Calculator, etc.

SQLite

Android applications can have application databases powered by SQLite

– Lightweight and file---based, ideal for mobile devices
– Databases are private for the applica4on that creates them
– Databases should not be used to store files

• SQLite is a light weight database
– Atomic, Stable, Independent, Enduring, Only Several kilobytes
– Only partly support some SQL commands such as ALTER, TABLE.
• SQLite is included as part of Android's software stack

Steps for using SQLite databases:

1. Create a database
2. Open the database
3. Create a table
4. Create and insert interface for datasets
5. Create a query interface for datasets
6. Close the database

Abstract class for implementing a best practice pattern for creating, opening and upgrading databases

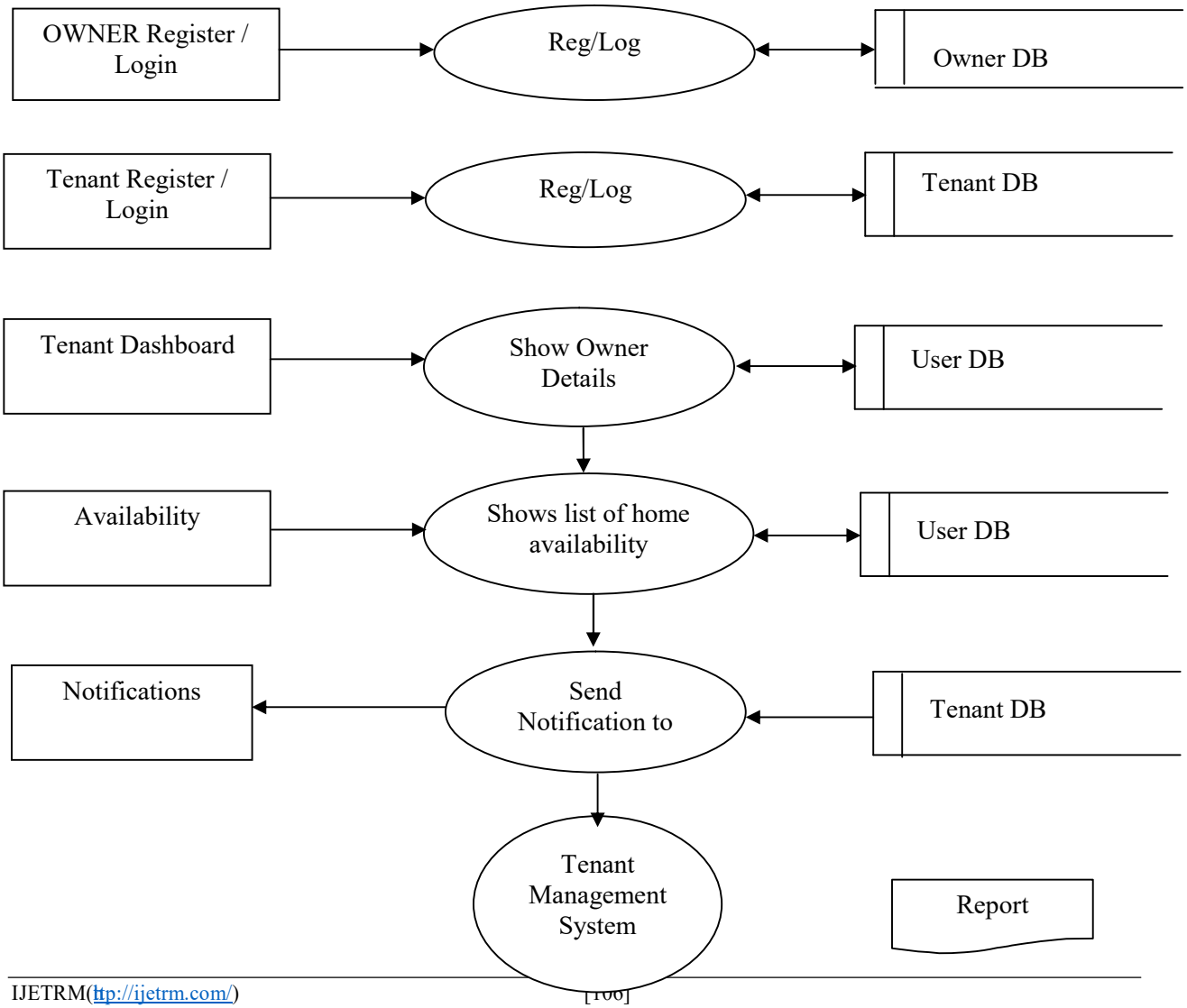
• To create a SQLite database, the recommended approach is to create a subclass of SQLiteOpenHelper class
• Then override its onCreate() method
– Then execute a SQLite command to create tables in the database

iJETRM

- Use the onUpgrade() method to handle upgrade of the database
  - A simple way would be to drop an existing table and replace with a new defeni4on
  - Better to migrate existing data into a new table
- Then use an instance of the helper class to manage opening or upgrading the database
  - If the database doesn't exist, the helper will create one by calling its onCreate() handler
  - If the database version has changed, it will upgrade by calling the onUpgrade() handler.
- Database queries are returned as Cursor objects
  - Pointers to the resulting sets within the underlying data
- Cursor class provides several methods

Dataflow Diagram

Dataflow diagram is a representation in which overall description of a system can be shown in the form of a diagram. The description of the system will start from the source of the content and with its destination. The diagram can be divided many different stages and each stage must give information about the system.



iJETRM

System Design

Design phase is the period of time in the software life cycle during which the designs foe architecture, software components, interfaces and data are created, documented and verified to satisfy requirements.Details on computer programming language and environments, application packages, layering, memory size, platform, algorithms, data structure, interfaces and many others. The design may include the usage of existing components.

Input Design

Input design is the process of converting an external user oriented description of input system into a machine oriented format. The source document is prepared for the input of data in order to make the entry accurate and impact the source document was prepared. The data element where sent out in a system in which the data entry operator would easily follow.

Objectives of Input Design
In accurate, input data is the most common cause of errors in data processing. Errors found at the data entry can be controlled by the proper input design. The input was designed with the following objectives

- To produce a cost effective method.
- To get the highest level of accuracy.
- To ensure that the input is acceptable and understandable by the people who are using it.
- With the above objectives the major activities that were done during the input design is,
- The data are collected from its source.
- Data are converted to the mobile acceptable form.
- The converted data was verified.

Output Design

Output design is a process that involves designing necessary output that have to be given to various users according to their requirements, Efficient, intelligible output design will improve the system relationship with the user and help indecision making. Since the reports are directly required by the management for taking decision and to draw conclusion, they must be designed with almost care to the user. The options for the output and report are given in the system menu.
When designing output, system analyst must accomplish the following

- Determine the information to present.
- Arrange the present of information acceptable format.
- Determine how to distribute the output.

Software Specification

- Operating System- Windows 7
- IDE-Android studio
- SDK-Android SDK 4.4
- Plug-in-ADT Bundle
- Language-Java, XML
- MOBILEOperating System-Android 4.2(Jelly Bean).
- Database-SQLITE

Testing
System testing is a stage of implementation which is aimed at ensuring that the system works accurately and efficiently. The primary goal of the test process is to make sure that the application performs as discussed in the requirement and specifications.

iJETRM

Testing begins at the module level and works towards the integration of the entire computer based system.
Testing methodologies

- Unit Testing
- Integration Testing
- System Testing

Unit Testing

Unit testing focused the verification effort on the smallest unit of the software design module. This is known as module testing. The systems are better separately. The testing was concerned out during the programming stage itself. In this testing step each module was found to be working satisfactory with to the expected output module.

Test Case	TestCase Description	Expected Result	Observed Result	Result Pass/Fail
Enter into the Application	Check whether it enters or not	It should Enter	It enters Successfully	Pass

Integration Testing

Data can be lost across an interface, one module can have an adverse effect on another, sub function when combined, may not produce the desired major function. Integration testing is a systematic technique for constructing the program. Structure, which at it same time conducting tests to uncover errors associated with in the interface. The objective is to take unit tested module s and to build a program structure. All the modules are combined and tested a whole.In integration testing correction is difficult because the isolated of causes is complicated by the vast expanse of the entire program. Thus, is the integration-testing step, all the errors uncovered for the next testing steps.

Test Case	TestCase Description	Expected Result	Observed Result	Result Pass/Fail
Enter into a module	Check whether it works correct and generates output or not	It should generate a correct output	Output generated successfully	Pass

System Testing

Testing is vital role for the success of this system. System testing makes a logical assumption that if all the parts of the system are correct, the goal will be successfully achieved. System testing is the stage of implementation that is aimed at assuring that the system works accurately and efficiently.

Test Case	TestCase Description	Expected Result	Observed Result	Result Pass/Fail
Testing all the modules in the system.	It tests all the modules in the system whether it is executing in the system or not.	By testing all the modules it is accepted by the system and should execute the result.	It tests all the modules and the system accept all the modules and it produces an expected result	Pass

iJETRM

SYSTEM IMPLEMENTATION

System Implementation is the stage of the project when the theoretical design is turned into practical system. After proper testing and validation, system implementation should be done. System implementation includes all those activities that take a place to convert an old system to the new system. The new system may be totally new.

Implementation Procedure:

- User training
- Operational documentation

User Interface

The user interface for each module is presented below. Android's kernel is based on the Linux kernel and has further architecture changes by Google outside the typical Linux kernel development cycle. Android does not have a native X Window System nor does it support the full set of standard GNU libraries, and this makes it difficult to port existing Linux applications or libraries to Android.While most Android applications are written in Java, there is no Java Virtual Machine in the platform and Java byte code is not executed. Java classes are compiled into Dalvik executable and run on a specialized virtual machine designed specifically for Android and optimized for battery-powered mobile devices with limited memory and CPU. J2ME support can be provided via third-party applications. Android supports the following audio/video/still media formats: H.263, H.264 (in 3GP or MP4 container), MPEG-4 SP, AMR, AMR-WB in 3GP container , AAC, HE-AAC (in MP4 or 3GP container), MP3, MIDI, FLAC, WAV, JPEG, PNG, GIF, BMP.

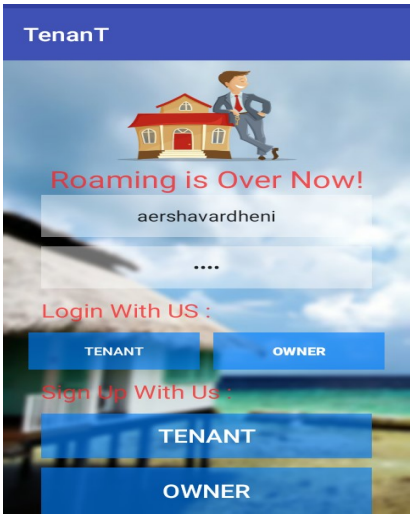


Figure1: Home page

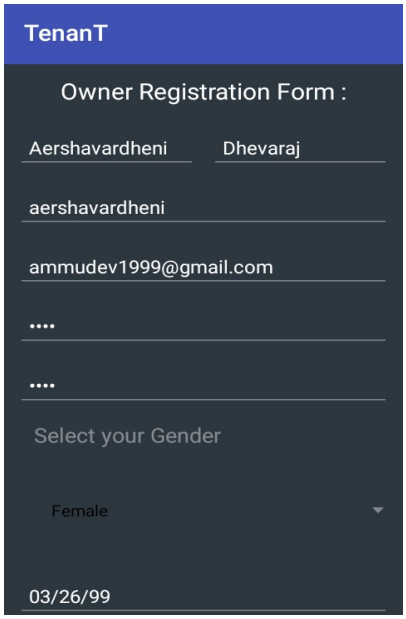


Figure2: Owner registration form

iJETRM

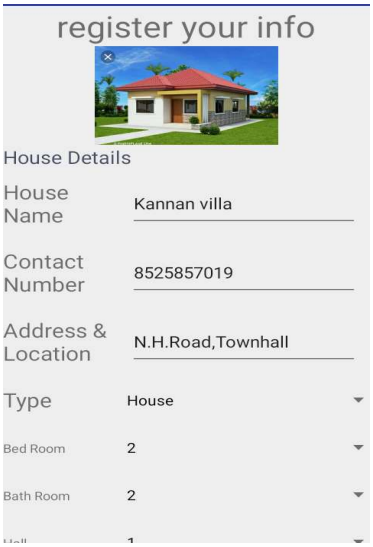


Figure3: Owner Home Details

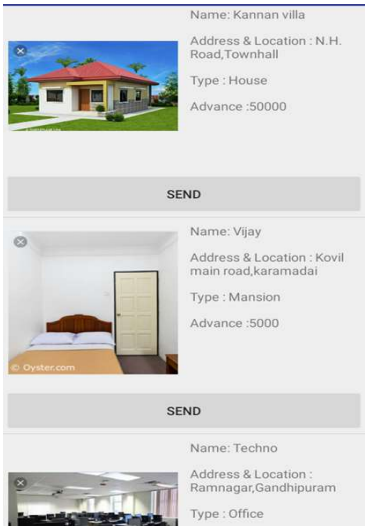


Figure5: Home Details

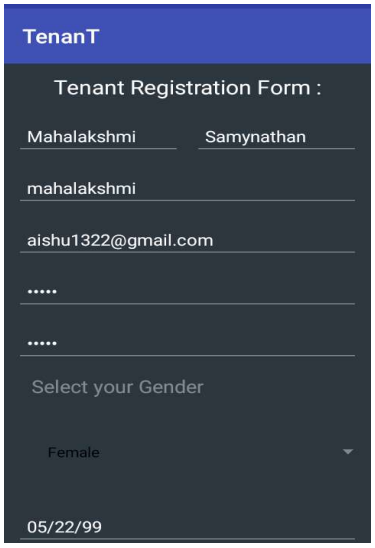


Figure4: Tenant Registration

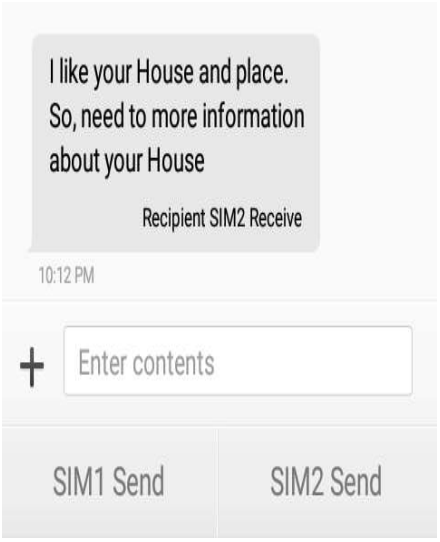


Figure 6:Owner Confirmation

Application components are the essential building blocks of an Android application.

- Activity - An activity is a class that represents a single screen. It is like a Frame inAWT.
- View - A view is the UI element such as button, label, text field etc. Anything that you see is aview.
- Intents - Intent is used to invokecomponents
- Service - Service is a background process that can run for a longtime
- Contentproviders - Content Providers are used to share data between theapplications.
- Android Manifest - It contains information's about activities, content providers, permissions etc.It is like the web.xml file in JavaEE.

iJETRM

CONCLUSION

This project as described in detail, the application developed for the safety of drivers with (ADAS) Advanced Driver Assistance System. I tried to solve all the major problems in the existing system. The application enables the organization to carry out all the report effectively after the implementation. When all the suggestions forwarded in the software proposal have been successfully completed. This is used to directly apply to search the room to the owner. A tenant can easily search the room availability of their computable place. This developed software will be a great relief for the concern to develop tenant management system, it helps to provide the information about room, office, home details To solve all major problems in the existing system. In this application, to avoid the intermediate person to know about the room, office, home details for rent. This application enables the organization to care out all the report efficiently after the implementation. Then all the suggestion forwarded in the software proposal have been successfully completed.

REFERENCES

[1] Wei-Meng Lee, “Beginning Android 4 Application Development”, Wiley India Pvt., Ltd., 2012
[2] J.F. DiMarzio, “Android: A Programmers Guide”, First Edition, Tata McGraw-Hill, 2010.
[3] Jason Morris, “Android User Interface Development”, Packt Publishing, 2011.
[4] Jay A kreibich,“Using SQLite”, O’ Reily Media,2010.
[5] Chris Newman ,“SQLite” Sams,1005.
[6] https://en.wikipedia.org/wiki/Android_(operating_system)
[7] https://en.wikipedia.org/wiki/Android https://stackoverflow.com/
[8] https://www.youtube.com/channel/UCFVyw38UB1uIfTCjc-fAPpA https://developers.google.com/android/
[9] https://www.android.com/vd
[10] https://sqlite.org