Final Year Project Proposal

# Hostel Allotment System



Submitted By

**M Zafeer Kamran Abid 17-SE-81**

**Tariq Khan 17-SE-105**

**Haroon Malik 17-SE-37**

Supervisor

Engr. Mubashir Ayub

Lecturer

DEPARTMENT OF SOFTWARE ENGINEERING

FACULTY OF TELECOMMUNICATION AND INFORMATION

ENGINEERING

UNIVERSITY OF ENGINEERING AND TECHNOLOGY

TAXILA

November 2017

Contents

[Chapter 1 3](#_Toc497987920)

[Introduction 3](#_Toc497987921)

[1.1. Project Goal 3](#_Toc497987922)

[1.2 Aims and Objectives 3](#_Toc497987923)

[1.3 Deliverables 3](#_Toc497987924)

Chapter 2 4

[Literature Review](#_Toc497987925) [4](#_Toc497987920)

[2.1 Literature Surve5](#_Toc497987926) [4](#_Toc497987920)

[2.2 Market Survey 5](#_Toc497987936)

[Chapter 3 6](#_Toc497987941)

[Proposed Solution 6](#_Toc497987942)

[3.1 Methodology 6](#_Toc497987943)

[3.2 Project Timeline 9](#_Toc497987948)

[3.3 Experimental / Simulation Setup 10](#_Toc497987949)

[3.4 Details of Work Packages Completed/ Milestones Achieved 10](#_Toc497987950)

[3.5 Evaluation Parameters 10](#_Toc497987951)

[**Chapter 4** 11](#_Toc497987952)

[**Work Plan** 11](#_Toc497987953)

[**4.1. Utilization (End Users/ Beneficiaries)** 11](#_Toc497987955)

**4.2. Detailed Work Plan**  12

[**4.3. Budget Requirements** 12](#_Toc497987956)

[**4.4. Market Forecasting** 12](#_Toc497987957)

[**Chapter 5 13**](#_Toc497987958)

[**Conclusion 13**](#_Toc497987959)

[Reference **13**](#_Toc497987959)

# Chapter 1

# Introduction

In this chapter we are going to discuss about the Project goal, aims and objective and deliverable

## Project Goal [3]

Project goal is to allot room to deserving applicant with little effort and convert manual system of hostel allotment into automatic system.

## Aims and Objectives [2]

Fallowing are aims and objectives for our project.

* Reduce the time required for hostel allotment procedure in any universities or education institutes.
* Make hostel allotment system online and automatic where application information in save as data and rooms are allotted in automatically on processing that data.
* Allot room purely on base of data that given, instead of any person’s links and avoid discrimination.
* Data provide is verified and match with the database of universities and education institutes.

## Deliverables [1]

Fallowing are deliverables of our project.

* A web base application build using React.js as JavaScript framework. Application provides all the features that are needed for hostel allotment manually. The user interface is simple and user friendly.
* User manuals that provide all the details about the projects involving what things are included in the product.
* SRS document that contains models, diagrams and designs that explain scenarios the about project.

# Chapter 2

[**Literature Review**](#_Toc497987925)[1]

In this chapter, we discuss about literature analysis of project which we done for section of proposed topic. This should include the academic review from journals, papers, books and market driven reviews from technical blogs and real market outreach. This also include the critical study of existed system and recommended system. It also includes the market analysis of our system.

## 2.1 Literature Survey [4]

In a current world, students are studying for from home and mostly universities and education institutes gave facilities to such students. All government institutes take applicant details like present address, permanent address and domicile city to hostel allotment. All student who are resident more than one hour distance is offered hostel. In a hostel student of same session but having different department live together. So hostel allotment is necessary part of education system now adays.

## Existing Systems [1]

Many institutes are allotting hostel to applicants manually where applicant have to write gave his / her personal information on a printed form for hostel allotment. Applicant has no proper guidance for filling the form. In case of any mistake, he / she has to buy new form and fill again all correctly. He / she has to maintain all the attach documents required for hostel allotment and in case of any missing document he / she in responsible for cancelling of application.

In manual system each document are verified by any management team and one person check thousand of students information. There is chance of human error and it required lot of time to complete this process.

## Drawbacks of existing system [5]

Fallowing are fatal drawbacks of existing system

1. Lot of time is required for to check and verify each applicant information.
2. Lot of human effort is required
3. Difficult to maintain data of applicants.
4. Data can be temper and it is difficult to keep the record the of that.
5. Update or replacing data is difficult.
6. Monitoring applicant’s information is difficult.
7. Sharing data is difficult
8. No way to avoid data redundancy.
9. The is risk of security as there is no data encryption.
10. Difficult to understand information about applicant as data is handwritten and lot of human error are there.

**Proposed System [2]**

This is automatic and only few man power is required. Many people avoid to go outside of home and want to do everything using their smartphone or computer. Our system provides this facility no to go anywhere and get room by filling online form. Proper guidance is there for each field that how to fill that. In case of any wrong filling the system will warn that by generating error and form will not be submitted until the correct information is not entered. This no human error can occur. This is faster than manual hostel allotment system. Information all applicants is quick by notification and everyone remain updated about the application status. In case of error issue applicant can resolve that with any difficulty.

This application is web base application which use HTML, CSS and React.js (which is JavaScript framework) as frontend web designing and development. We used Context API of React.js. We used Node.js for back end web development. For data management including data insert, update and delete we use mangodb as database.

**2.2 Market Survey** [3]

There are many other similar automatic hostel allotment systems are available now adays. They provide some way to register online and upload their person documents. Following is the list of those products.

* **College Hostel Management Software by Initio** contain six modules in the project. These modules are 1)Library Module, 1)Library Module, 2)Transport Module, 3)Hostel Module, 4)Inventory / store Module, 5)Enquiry Module and 6)Visitor Tracking Module. This give details of hostel, its rooms and applicants that are applying for that.
* **Microbes Hostel System** is another application used for hostel allotment in which applicant are accommodated to rooms which they deserve. In this system everything is synchronized and changing in any component updated to whole system.
* **Loventis Booking System** is Property Management System (PMS).
* **Indocon micro engineers limited** developed the hostel allotment system that offers the customize technology and integrate web booking.

# Chapter 3

# Proposed Solution

The proposed solution for our project is as follows:

**Methodology [7]**

Steps of development as well as development tools that will be used in project:

Development Steps

* We are going to develop a web application in which we have portals.
* We will be going to use React.JS
* We are going to use Node.JS for interactive pages.
* We are going to use MongoDB for Database.
* Other than these tools we will be going to use Graphic tools which will depend upon the feasibility and possibility.
* Most probably we will use Figma on this project for designing purpose.
* In this portal we will be using graphic tools as well as these languages to build our application. Our whole application will be on single computer in initial stages.
* Other than this, we will be going to use networking tools if necessary.

**Development tools**

**Below is the tools that would be used to build the proposed system.**

**React**

React.js is a JavaScript open-source library which is used primarily for single-page applications to create user interfaces. It's used by online and smartphone applications to manage the display layer. React also helps one to build UI modules that are reusable. Jordan Walke, a software developer working for Facebook, first developed React. React was first launched on the news feed of Facebook in 2011 and on Instagram.com in 2012.

React helps developers, without reloading the website, to create massive web apps that can alter details. Redact’s primary goal is to be fast, scalable, and simple. This only operates on user interfaces inside the program. In the MVC template, this refers to the view. It can be used with a combination of other frameworks or JavaScript libraries, such as MVC's Angular JS.

Also, React JS is simply called React or React.js.

**Features:** [7]

**JSX**

In React, it uses JSX instead of using a standard JavaScript template. JSX is a basic JavaScript that allows quoting HTML and uses subcomponents to render these HTML tag syntaxes. The HTML syntax is processed into React Framework JavaScript calls. We can write in old, pure JavaScript, too.

**React Native**

React has native libraries released in 2015 by Facebook, to include native applications such as IOS, Android, and UPD with the react architecture.

React-native is a JavaScript-only mobile app building platform. It uses the same architecture as React, enabling you to use a rich mobile library/declarative component of the mobile UI. It utilizes the same simple building blocks of the UI as standard iOS and Android applications. Allowing/adopting elements written in Objective-C, Java, or Swift is the best aspect of using react-native..

**Single-Way data flow**

In Respond, a collection of immutable values in its HTML tags are transferred as properties to the component renderer. The part does not change any properties directly, but with the aid of which we can do modifications, it can transfer a call back function. The "properties flow down; actions flow up" is known as this full method.

**Virtual Document Object Model**

React builds a buffer for the in-memory data structure that computes the modifications made and then updates the browser. This includes a special function that encourages the developer to code as if with each change the entire page is rendered, while the react library only makes components that actually change.

**Node.JS**

Currently, Node.js is not a library or framework, but a runtime environment, based on the V8 JavaScript engine of Chrome.

The code was first unveiled at the annual European JSConf back in 2009 by Ryan Dahl and was quickly recognized as "the most exciting single piece of software in the current universe of JavaScript."

Node.js was funded by Joyent, a cloud storage and hosting solutions company, as an open-source initiative. The firm has invested in a variety of other innovations, such as the Ruby on Rails platform, which has supported Twitter and LinkedIn with hosting services. The latter also is one of the first organizations to use Node.js for its backend of smartphone applications. A variety of industry giants, such as Uber, eBay, Walmart, and Netflix, to name a handful, later embraced the technology.

It wasn't until recently, though, that broad recognition of server-side JavaScript with Node.js began. As per Google Trends, interest in this technology peaked in 2017, and remains strong.

**Features:**

Both Node.js library APIs are asynchronous, i.e., non-blocking, asynchronous and event-driven. It simply means that a server built on Node.js never waits for an API to return results. After calling it, the server switches to the next API and a Node.js Events feedback system lets the server get a response from the previous API request.

Node.js library is very fast in code execution as it is installed on Google Chrome's V8 JavaScript Engine.

Single Threaded yet Extremely Elastic, Node.js uses an event-looping single threaded architecture. In comparison to conventional servers that generate small threads to manage requests, the event mechanism allows the server to react in a non-blocking way and renders the server highly scalable. Node.js uses a single threaded program and a significantly greater number of requests can be serviced by the same program than conventional servers like Apache HTTP Server.

No Buffering, applications from Node.js never buffer any data. In chunks, these applications simply output the results.

License − Node.js is published under a license from MIT.

**MongoDB [6]**

**What is MongoDB?**

MongoDB is a NoSQL document-oriented database used for data collection in high volumes. MongoDB makes use of lists and records instead of using tables and rows, as in conventional relational databases. Documents consist of key-value pairs in MongoDB that are the fundamental data unit. The collections contain records and feature sets that are similar to relational database tables. A database that came into light in the mid-2000s is MongoDB.

**Features:**

1. There are collections of each database, which in turn contain records. With a varying number of fields, each text may be different. Each document's size and content can be different from each other.
2. The paper structure is more in line with how developers in their respective programming languages build their classes and objects. Developers would also say that their groups are not rows and columns, but that key-value pairs have a simple structure.
3. The rows (or documents referred to in MongoDB) do not need to have a schema specified in advance. Instead, it is possible to build fields on the fly.
4. Within MongoDB, the data model available enables you to more effectively represent hierarchical relationships, store arrays, and other more complex structures.
5. Scalability-It is very flexible for MongoDB environments. Companies around the world have identified clusters with some of them operating 100+ nodes inside the database with around millions of records.

**Project Timeline**

**Timeline

Description automatically generated with medium confidence**

**Experimental / Simulation Setup**

This App will hold the data of students which helpful for students and faculty etc.

**Details of Work Packages Completed/ Milestones Achieved**

**Requirement specification:** This stage requires the selection, review, examination, viability, and evaluation of specifications.

**Designing and development:** This covers the following operating packages: mobile interface design, application development and integration.

**Testing and deployment:** Testing approaches such as alpha, beta and device testing and deployment of applications. The completion of this stage will take 99 days.

**Documentation:** The user guide and thesis are included and will be done in 30 days.

# Chapter 4

# Work Plan [8]

We will follow the following work plan for our project.

**Utilization (End Users/ Beneficiaries)**

End users (Senior Warden, RTs, dues & scholarships section) can be individual as well as any organization or institute that can afford and get benefit from the proposed system. This system will provide students room allotment and dues & fee information.

**Detailed Work Plan**

169 days is the basis of the timeline we have proposed to finish the whole undertaking. For Specifications Definition, including requirements selection, feasibility review, requirements analysis, requirements evaluation, proposal report and SRS, 50 days will be served. In addition, 80 days will be served, including website design, website creation, for designing and creating. Then, testing and rollout, which will include alpha testing, beta testing, device testing and system implementation, will take 39 days. In the project documentation, consisting of a user guide and thesis, the 30 days will be modified.

**Budget Requirements**

This project needs a minimum of 1,92,000 details are as  following:

|  |  |
| --- | --- |
| **System Requirements** | **Budget** |
| Domain | 75,000 |
| Host | 75,000 |
| Deployment of system | 42,000 |

**Market Forecasting**

If we market the app to 10 organisations a year, each for 300,000 RS, then at the end of the year, gross sales will be:

300,000 x 10 = 3,000,000

# Chapter 5

# Conclusion [2]

This application is design and developed using JavaScript framework React.js as front-end and Node.js as back-end website development. For maintain data its user mangodb as database.

Now adays education is becoming necessity for every person. Many education institutes are offering hostels students to those students who cannot come to institutes daily for study due far away distance. So, hostel allotment there is need of building a system that can handle student’s data, process it fast and accommodate room to deserving student. Room is allotted to those students that had paid the universities dues and mess bills. Better rooms are allotted to high merit students. Room allotment is transparent.

# REFERENCES

[1] http://www.kassoftindia.com/Product/GeniusAcademic/hostelmgt.htm [accessed September 24, 2012]

[2] Hampton, David R. 1977. Contemporary Management, McGraw-Hill Series in Management.

[3] http://www.educationmanagementsoftware.com [accessed June 15, 2011]

[4] <http://nptel.iitm.ac.in/courses/Webcourse>contents/IIScBANG/System%20Analysis%20and%20Design/pdf/Lecture\_Notes/LNm5.pdf [accessed June 20, 2012]

[5] http://www.bbnisys.com/images/eschool.pdf [accessed October 10, 2012].

[6] College Hostel Management Software by Initio (2010).

[7] Loventis Booking System by Loventis Systems (2005).

[8] Indocon Hostel Management Software by Indocon Micro Engineers Limited.