Final Year Design Project System Requirements Specification

E-Masjid System

Software Design Specification Document

by

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E-Masjid System

Executive Summary

We have made this design document which provide the technical design for our project E-Masjid system. It is a web based platform which help mosque to manage their daily operation digitally. This system is design in a way to solve the basic problems of manual record keeping and lack of transparency by giving features for donation tracking, prayer time management, event organization and online nikah booking service.

We are using modern web technologies including React.js for the user interface, Node.js for the server, and MongoDB for data storage. The design includes secure payment processing with Stripe, proper user authentication, and responsive design for mobile compatibility. This document serves as a complete guide for our development team to build the system correctly and efficiently.

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System Design

Product Perspective

Our E-Masjid System is a complete web based platform that will be accessible through any modern web browser. The system is designed to serve mosque administration who manages operations and community members who use these services.

Dependencies

1. Stable internet connection for all users
2. Stripe service availability for payment processing
3. Modern web browsers supporting React.js features
4. MongoDB database server for data storage

Interaction with Other Systems

1. **Stripe Payment Gateway:** It is used for making online donations securely
2. **Email Service:** It is used for sending password reset links
3. **Internet Connection:** It is required for all users to access the system

Design Constraints

1. **Performance Requirements:** Prayer times page loads within 3 seconds, handles 100+ users during Friday prayers
2. **Usability Requirements:** Simple interface with large buttons, works on mobile and computer, elderly friendly design
3. **Security Requirements:** Encrypted passwords, secure payments through Stripe, admin access protection
4. **Technical Constraints:** MERN stack technology, responsive design, automatic weekly backups

1. Design Considerations

Assumptions

Following are the assumptions:

1. Mosque administrators have basic computer knowledge
2. Users have internet access and email accounts
3. The mosque has at least one computer for admin use

4. Religious scholars can use basic web applications
5. Community members can use web browsers on phones or computers

Dependencies

Following are the dependencies:

1. Stable internet connection for all users
2. Stripe payment service available at any time
3. Web browsers supporting modern JavaScript
4. MongoDB database running properly

Limitations

Following are the limitations:

1. Cannot work without internet connection
2. No SMS notifications for announcements
3. No mobile app version
4. Payment system requires card payments only
5. Cannot handle offline data entry

Risks

Following are the risks:

1. Payment security issues
2. System downtime during prayer times
3. Elderly users finding the system difficult
4. Data loss from system crashes

2. Requirements Traceability Matrix

Table 1 Requirements Traceability Matrix

Requirement ID	Requirement Description	Design Specification
FR-1	The system will allow users to register and login with email and password, with different access levels for admin and community members	Component "User Authentication System"

FR-2	The system will show donation records, expense details, and financial reports so people can see both income and spending	Component "Financial Reporting Module"
FR-3	The mosque admin will be able to record cash donations with donor name, amount, date, and donation type	Component "Donation Management System"
FR-4	The admin will be able to add, update, or remove events and announcements such as islamic classes, community programs, and eid prayers. Users can view them on the main page	Component "Event & Announcement Manager"
FR-5	Community members will be able to book nikah registrar for nikah ceremonies by selecting date and providing contact details	Component "Nikah Booking System"
FR-6	The admin will be able to set and update daily prayer times including special timings for Jummah and Ramadan	Component "Prayer Times Manager"
FR-7	Community members will be able to make donations online through the website by entering amount and personal details and process real payments using Stripe and see payment confirmation with receipt	Component "Online Payment Processor"
FR-8	If users forget their password, they can reset it using their email address	Component "Password Recovery System"
FR-9	Users can see if their Nikah service request is pending, accepted, or rejected	Component "Booking Status Tracker"
FR-10	Admin can add where mosque money is spend like for repairs, electricity etc	Component "Expense Management System"
FR-11	Admin can create special accounts for religious scholars who perform Nikah	Component "User Account Manager"

3. Design Models

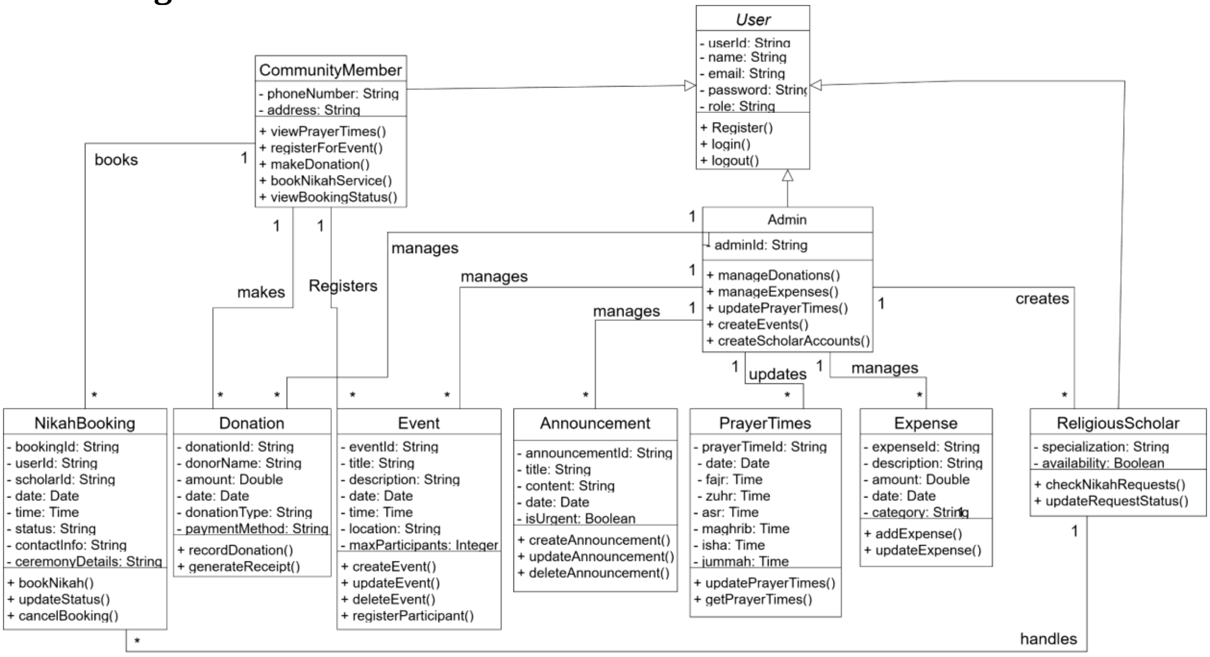
This section describes the various design models used to represent the E-Masjid System architecture. We use UML diagrams to visualize the system structure, data relationships, and component interactions to ensure clear understanding.

3.1 Architectural Design

Our E-Masjid System follows the MVC architecture pattern. This separates the system into three main parts.

- **Model:** Handles data and business logic
- **View:** User interface that users see
- **Controller:** Processes user requests and connect Model and View

Class Diagram



System Architecture Components

Frontend Layer:

- User Interface Components
- Mobile-responsive design
- Client-side validation
- Real-time updates

Backend Layer:

- API routes and controllers
- Business logic processing
- Authentication and authorization
- Payment processing

Data Layer:

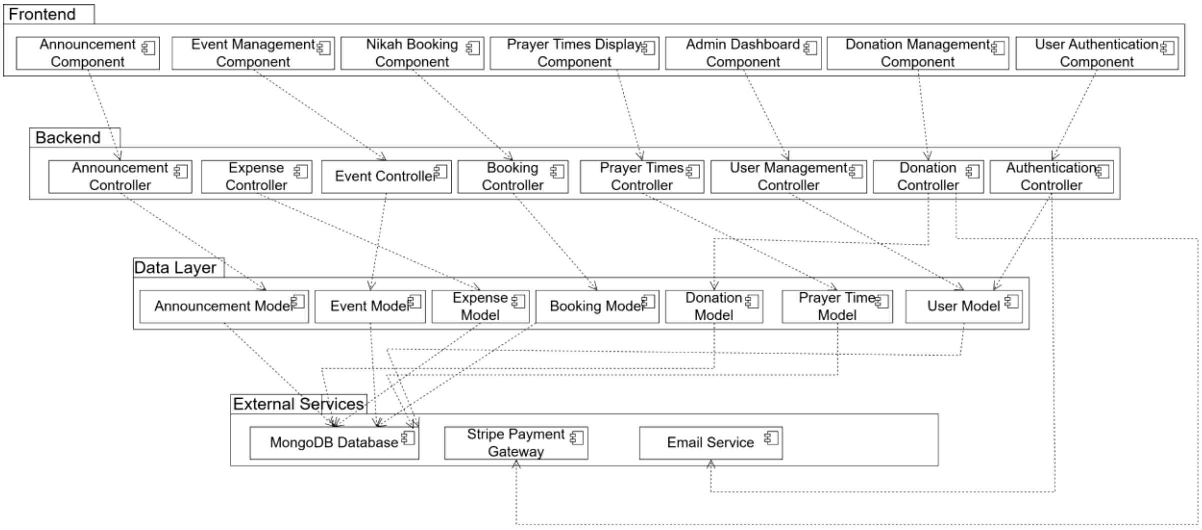
- User data and profiles
- Donation and expense records
- Prayer time schedules
- Event and announcement data

- Nikah booking requests

External Services:

- Stripe Payment Gateway
- Email Service for password resets

Component diagram



3.2 Data Design

The E-Masjid System transform real world mosque operations into structured data using MongoDB collections. Each main entity from the class diagram corresponds to a database collection with specific field to store and manage information efficiently.

Database Collections Structure:

1. **Users Collection**
   - Stores all user information including admin, community members, and religious scholars
   - Uses role based access control
   - Fields: userId, name, email, password, role, phone, address, specialization
2. **Donations Collection**
   - Records all donation transactions
   - Links to donor information for transparency
   - Fields: donationId, donorId, amount, date, type , paymentMethod, receiptNumber
3. **Expenses Collection**

- Tracks mosque expenditure for financial transparency
- Categorized expenses for better reporting
- Fields: expenseId, description, amount, date, category

4. **Events Collection**
   - Manages mosque events and programs
   - Supports online registration
   - Fields: eventId, title, description, date, time, location, maxParticipants, registeredUsers[ ]
5. **Announcements Collection**
   - Stores important mosque announcements
   - Supports urgent flag for important updates
   - Fields: announcementId, title, content, date, isUrgent, publishedBy
6. **Prayer Times Collection**
   - Stores daily prayer schedules
   - Special entries for Jummah and Ramadan
   - Fields: prayerTimeId, date, fajr, zuhr, asr, maghrib, isha, jummah, isSpecial
7. **Nikah Bookings Collection**
   - Manages marriage service requests
   - Tracks booking status
   - Fields: bookingId, userId, scholarId, date, time, status, contactInfo, ceremonyDetails

Data Relationships:

- One-to-many: One user can make multiple donations
- One-to-many: One admin can create multiple events
- Many-to-many: Many users can register for many events
- One-to-one: Each day has one prayer time schedule

3.2.1 Data Dictionary

Terminology	Description
Users Collection	Stores all system user accounts
userId	String, Primary key for user identification
name	String, Full name of the user
email	String, User email address
password	String, Encrypted password for security
role	String, User role (admin/community/scholar)
phone	String, Contact phone number.
address	String, User residential address
specialization	String, For scholars area of expertise
Donations Collection	Records all financial donations
donationId	String, Unique donation identifier
donorId	String, Reference to user who donated
amount	Number, Donation amount in rupees
date	Date, When donation was made
type	String, Donation type (Zakat/Sadaqah/Mosque Fund)
paymentMethod	String, Cash or Card payment
receiptNumber	String, Unique receipt number for donation confirmation
Expenses Collection	Tracks mosque spending
expenseId	String, Unique expense identifier
description	String, What the money was spent on
amount	Number, Expense amount in rupees
date	Date, When expense occurred

category	String, Expense category
Events Collection	Manages mosque events
eventId	String, Unique event identifier
title	String, Event name/title
description	String, Detailed event information
date	Date, Event date
time	Time, Event time
location	String, Where event will be held
maxParticipants	Number, Maximum allowed attendees
registeredUsers	Array, List of user IDs who registered
Announcements Collection	Stores mosque announcements
announcementId	String, Unique announcement identifier
title	String, Announcement headline
content	String, Full announcement text
date	Date, When announcement was posted
isUrgent	Boolean, Marks urgent announcements
publishedBy	String, Admin who posted the announcement
PrayerTimes Collection	Stores prayer schedules
prayerTimeId	String, Unique prayer time identifier
date	Date, Date for prayer times
fajr	Time, Fajr prayer time
zuhr	Time, Zuhr prayer time
asr	Time, Asr prayer time

maghrib	Time, Maghrib prayer time
isha	Time, Isha prayer time
jummah	Time, Jummah prayer time
NikahBookings Collection	Manages marriage service requests
bookingId	String, Unique booking identifier
userId	String, Reference to user who booked
scholarId	String, Reference to assigned scholar
date	Date, Requested ceremony date
time	Time, Requested ceremony time
status	String, Current status (Pending/Accepted/Rejected)
contactInfo	String, User contact details for ceremony
ceremonyDetails	String, Additional ceremony information

3.3 User Interface Design

Describe overview of the functionality of the system from the user's perspective. Explain how the user will be able to use your system to complete all the expected features and the feedback information that will be displayed for the user. [1]

3.3.1 Screen Images

Display few screenshots showing the interface from the user's perspective. These can be hand-drawn, or you can use Prototyping tool like Canva/ Figma. Just make them as accurate as possible. [2]

3.3.2 Screen Objects and Actions

A discussion of screen objects and actions associated with those object for two use cases.

[1] [User interface design will be presented in the Deliverable 4 - Prototype]

[2] Please don't forget to add the caption of each figure (Use References -> Insert Caption option in MS Word)

3.4 Behavioural Model

Interaction Diagrams: Includes diagrams (Sequence or Collaboration diagram) that illustrate interactions among components.[3]

State Diagrams: Shows state transitions within the software, especially useful for systems with complex workflows or lifecycle states.[4]

4. Design Decisions

Highlight the design choices while designing your system (e.g. choosing the Object oriented design pattern, choosing between the algorithmic approaches, normalization level of the database etc). Clearly specify which approach you have used and why you have made a specific design choice.

5. Summary

Summary of the key design ideas discussed, design refinement and decisions taken in the chapter. It may also reiterate chapter's importance in addressing the projects objectives

[3] . Make sure that objects & methods mentioned in the interaction diagram are consistent with the class diagram

[4] Make sure that each diagram has assigned a proper caption, so that table of figures can be created.

References

List any documents or other resources to which this SRS refers, if any. These might include user interface style guides, standards, system requirements specifications, interface specifications, or the SRS for a related product. The following are a few examples of different resources.

Book
Author(s). Book title. Location: Publishing company, year, pp.
Example:
W.K. Chen. Linear Networks and Systems. Belmont, CA: Wadsworth, 1993, pp. 123-35.

Article in a Journal
Author(s). “Article title”. Journal title, vol., pp, date.
Example:
G. Pevere. “Infrared Nation.” The International Journal of Infrared Design, vol. 33, pp. 56-99, Jan. 1979.

Articles from Conference Proceedings (published)
Author(s). “Article title.” Conference proceedings, year, pp.
Example:
D.B. Payne and H.G. Gunhold. “Digital sundials and broadband technology,” in Proc. IOOC-ECOC, 1986, pp. 557-998.

World Wide Web
Author(s)*. “Title.” Internet: complete URL, date updated* [date accessed].
M. Duncan. “Engineering Concepts on Ice. Internet: www.iceengg.edu/staff.html, Oct. 25, 2000 [Nov. 29, 2003].