**CHAPTER ONE**

**INTRODUCTION**

**1.1 Overview**

Hajj is one of the pillars of Islam, and its act of worship mandated on every physically and financially capable Muslim partake on this sacred journey at least once in their lifetime. In recent times, statistics show that approximately 2.5 million able Muslims participate in this act of worship every year, with numbers estimated to reach about 17 million by 2025 (Binsawad, 2022). This rapid increase creates new problems for providing good ritual instruction, especially when pilgrims come from more than 183 countries and speak many different languages, and they may not be very familiar or have prior understanding/knowledge about the rituals of Hajj.

Modern technological Advancements have emerged as vital tools in the Mitigation these challenges. Shambour et al. (2019) pointed-out that 68.7% of the already existing Hajj-related mobile applications focus solely on ritual guidance, whilst English remains the primary language in 51.7% of these applications. But there are still big gaps in providing full, step-by-step, and interactive learning experiences that are similar to how the Hajj rituals actually happen from the 8th to the 13th days of Dhul-Hijjah.

This project shows how to design and build a complete web-based Hajj Guide System that fixes these problems. The system creates an immersive learning environment that guides users through the entire Hajj process sequentially using contemporary web technologies, such as the Next.js framework. Unlike other systems, this one ensures that users complete daily routines before proceeding to the next phase by enforcing sequential learning.

**1.2 Background and Motivation**

In recent years, there has been a notable acceleration of the digitization of Islamic religious practices, particularly in Nigeria. According to Fahm (2025), digital technologies have a significant impact on Islamic education by expanding access to religious knowledge while also removing linguistic and geographic barriers. In order to demonstrate how technology is increasingly incorporated into traditional religious practices, Ibrahim (2024) also examined how Muslims in Northern Nigeria have used digital infrastructure to create Islamic cyber practices.

The Hajj rituals are extremely complex, which makes it more difficult for pilgrims in the modern era. Many sacred sites, including the Ka'bah, the Safa and Marwa hills, Arafat, Muzdalifah, and Mina, are included in the pilgrimage. There are specific ceremonies that must be performed at specific times in each of these locations. According to Felemban and Rehman (2019), foreign pilgrims frequently struggle to navigate and become separated from their groups due to a lack of knowledge about the locations and the proper way to perform the rituals. For first-time pilgrims who are unfamiliar with the intricate ceremonial tasks, these issues are particularly severe.

Existing technical solutions have substantial limitations in meeting these full requirements. Alshammari et al. (2019) discovered that, while many mobile applications exist, they primarily serve as static reference materials rather than interactive learning platforms. Furthermore, these programs frequently lack logical progression procedures, allowing users to obtain complex ritual information without first learning basic needs. This technique opposes the core Islamic educational idea of sequential learning, which states that information is built logically upon previous understanding.

The Saudi Vision 2030 project highlights the importance of artificial intelligence and digital technology in improving pilgrimage experiences. However, the implementation emphasis has mostly been on crowd control and logistical coordination, rather than educational preparation and ritual knowledge. Mohamed et al. (2019) discovered that efficient crowd management needs pilgrims to have a complete awareness of ritual protocols, time, and spatial requirements before visiting sacred sites.

**1.3 Statement of The Problem**

Nowadays, a lot of Hajj pilgrims struggle to locate the appropriate instruction that will adequately prepare them for the trip. The practical and spiritual needs of pilgrims are frequently not met by digital tools and mobile apps, despite their growing popularity. The fact that most apps display the rituals as distinct subjects that do not follow the correct order is one of the main issues. Because of this, pilgrims find it difficult to comprehend the significance of timing during the Hajj and the relationships between each step (Basalamah & Rehman, 2020). For instance, a pilgrim may still find it difficult to comprehend when and how to perform Tawaf and Sa'i in connection to other rituals, even if they study them independently.

One more barrier is language. Significant Arabic words and phrases are either not translated or are not sufficiently explained, even though many applications use English. Non-native speakers of Arabic find this confusing, especially Nigerian pilgrims, who comprise one of the largest groups each year (Snoussi & Wahabi, 2019). If the rituals are not adequately explained, many people are unable to fully comprehend their significance or how to perform them.

Another problem is learning style. Videos, audio, and interactive features are rarely used in many of the current tools, which are primarily text-based. However, research indicates that visual aids, spoken instructions, and brief comprehension tests improve learning (Qurashi & Sharpley, 2019). Since not all pilgrims learn in the same way, this is crucial.

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Access to technology is also very important. Many older pilgrims or those from rural areas might not have the expensive smartphones, continuous internet, or sophisticated digital skills needed for some of the apps (Isa et al., 2020). For those who might need the tools the most, this reduces their usefulness.

Lastly, there are concerns about religious accuracy and trust. Some applications are developed without sufficient input from Islamic scholars with the necessary qualifications. Errors in instructions or culturally insensitive presentations may thus arise, which undermines confidence and may even compromise the guidance's spiritual significance. Pilgrims require reassurance that the instruments they employ are accurate and compliant with Islamic principles.

**1.4 Aim and Objectives**

The objective of this project is to build a web-based Hajj Guide System that provides pilgrims with interactive, step-by-step, and culturally relevant guidance. It will use modern web technologies to make learning more engaging and accessible, while ensuring accuracy and authenticity through validation by Islamic scholars. The specific objectives of this project are:

1. To develop a sequential learning system that teaches Hajj rituals in the exact order they occur during the pilgrimage, specifically from the 8th to the 13th of Dhul-Hijjah.
2. To integrate interactive multimedia features such as audio, animations, educational content, hadith and historical background and quizzes to enhance learning and track progress
3. To develop useful utility components that improve practical usability during actual pilgrimage performance, such as Tawaf and Jamarat stoning counters, prayer time calculators, etc.
4. To ensure authenticity by involving scholars, supporting multiple languages, and using traditional teaching methods.

**1.5 Significance of The Project**

This project is significant because it fills in important gaps in the current Hajj learning resources and demonstrates how technology can be utilized to enhance religious instruction and practice. The following perspectives illustrate its significance:

* Educational Value: Provides a methodical approach to learning that adheres to conventional Islamic teaching techniques, clarifying and organizing Hajj preparation.
* Technological Contribution: Shows how dependable, user-friendly platforms for Islamic education can be created using contemporary web frameworks like Next.js.
* Cultural Importance: Maintains Islamic heritage by integrating reliable Hadiths, historical information, and academic commentary to guarantee veracity and accuracy.
* Practical Impact: Facilitates pilgrims' mental, physical, and spiritual preparation, resulting in a more seamless Hajj performance and increased spiritual fulfillment.
* Accessibility: Offers a web-based platform that functions on various devices and under various internet conditions, which is particularly helpful in Nigeria's diverse digital landscape.

**1.6 Project Risk Assessment**

Table 1.1: Risk Assessment

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| --- | --- | --- | --- | --- |
| Risk Category | Description | Impact | Likelihood | Mitigation Strategies |
| Technical Risk | Animations and audio have high computational and bandwidth requirements, which can lead to slow connections or poor performance on older devices. | High | Medium | Provide a variety of quality options, use progressive loading, and guarantee graceful degradation. |
| Content Accuracy | Inaccurate or inappropriate Hajj ritual guidance could mislead users and invalidate their pilgrimage | Very High | Low-Medium | Consult Islamic scholars, have experts review the app, and make sure to include disclaimers that the app is meant to supplement, not to replace, human guidance. |
| User Experience Risk | Older pilgrims or users with low digital literacy may struggle with interactive features | Medium | High | |  | | --- | | Provide straightforward layout, different ways to interact, and test users from a range of demographics | |
| Scalability Risk | High user traffic during Hajj seasons may cause system slowdown or downtime. | High | Medium-High | Use scalable hosting, CDNs, and caching systems to ensure reliable performance |
| Cultural Sensitivity Risk | Some scholars/users may view digital platforms as inappropriate for teaching sacred rituals. | High | Medium | Position system as a supplementary aid, not a replacement for scholars; secure endorsements from Islamic authorities. |

**1.7 Scope/Project Organization**

Table 1.2: Project Organization

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| --- | --- |
| Chapters | Descriptions |
| Chapter One: Introduction | |  | | --- | | Introduces the project, outlines the background, statement of the problem, objectives, scope, significance, and research methodology. |  |  | | --- | |  | |
| Chapter Two: Literature Review | |  | | --- | | Reviews related works on digital Islamic learning systems, existing Hajj guide applications, expert systems, and gaps in current solutions. |  |  | | --- | |  | |
| Chapter Three: System Analysis and Design | Describes system requirements (functional and non-functional), analysis of user needs, and the design of the system architecture, database schema, and user interface. |
| Chapter Four: System Implementation and Testing | Explains the actual implementation of the system, detailing frontend and backend modules, integration of multimedia features, and the testing procedures carried out to ensure system functionality. |
| Chapter Five: Evaluation, Discussion, Conclusion, and Recommendations | Explains the actual implementation of the system, detailing frontend and backend modules, integration of multimedia features, and the testing procedures carried out to ensure system functionality. |

**1.8 Definition of Terms**

1. Hajj: The yearly Islamic pilgrimage to Makkah, one of the five pillars of Islam, is required of all Muslims who are financially and physically able to do so.
2. Tawf: As part of the Hajj and Umrah rites, pilgrims perform the ritual of circumambulating (walking around) the Kaaba seven times in a counterclockwise direction.
3. Sa'i: The custom of making seven walks between the hills of Safa and Marwah to remember Hajar's (the Prophet Ibrahim's wife, peace be upon him) quest for water.
4. Pilgrim: A Muslim who travels the Hajj to fulfill a religious duty.
5. Simulation: The training and guiding of real-life Hajj rituals through the use of interactive visuals and digital animations.
6. . Backend: The Hajj Guide System's server-side, which is in charge of handling user accounts, data storage, authentication, and request processing.
7. Frontend: The system's client-side interface, where users can engage with functions like Du'a playback, Tawaf counter, and ritual simulations.
8. Authentication: The process of confirming a user's identity (such as that of a scholar, administrator, or pilgrim) in order to guarantee safe access to the system's functionalities.
9. Multimedia: The Hajj Guide System's incorporation of various digital content formats, including text, pictures, audio (Du'as), and animations
10. Usability: This describes how simple it is for pilgrims and other users to navigate and engage with the Hajj Guide System.

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