**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**

Contemporary Hajj pilgrims encounter major obstacles in obtaining complete, sequential, and culturally relevant ritual advice that sufficiently prepares them for the spiritual and practical demands of the pilgrimage. Existing digital solutions have several significant flaws that inhibit effective learning and preparation.

Firstly, existing programs lack a chronological pattern that corresponds to the actual Hajj progression. Basalamah and Rehman (2020) discovered that 73% of existing Hajj applications deliver rituals as standalone modules, with no requirement for correct sequencing or precondition fulfillment. This fragmented approach precludes users from obtaining a comprehensive knowledge of the pilgrimage's linked nature, as well as failing to prepare them for the time restrictions they would face during performance.

Secondly, non-Arabic speaking pilgrims' ability to understand rituals is greatly impacted by language barriers. Even though English is the most commonly supported language in Hajj applications, Snoussi & Wahabi (2019) found that Arabic terms and concepts are often not translated or are not adequately explained, leading to confusion and misinterpretation of ritual requirements. This language barrier is particularly problematic for Nigerian pilgrims, who comprise one of the largest groups of foreign pilgrims annually.

Thirdly, current solutions show inadequate mechanisms for engagement and interaction. Diverse learning preferences and styles are not accommodated by static digital content or traditional guidebooks. According to Qurashi & Sharpley (2019), interactive learning experiences that include visual demonstrations, audio guidance, and assessment components have significantly higher retention rates than passive consumption of ritual information.  
Accessibility to technology is also a recurring problem. Many of the current applications are unsuitable for users with limited technological resources or inconsistent network access because they require high-end devices and continuous internet connectivity. Effective Islamic educational technologies must take into account different levels of digital literacy and technological infrastructure, especially among older pilgrims who make up a sizable portion of the Hajj population, according to Isa et al. (2020).

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Lastly, many current solutions are tainted by issues of religious authenticity and cultural sensitivity. Applications that are created without sufficient consultation with knowledgeable Islamic scholars frequently include errors or depict rituals in ways that are not appropriate for their culture. In addition to undermining user confidence, this lack of religious validation may jeopardize the learning experience's spiritual significance.

**1.4 AIM AND OBJECTIVES**

The project's objective is to develop and implement a comprehensive web-based Hajj Guide System that provides Muslim pilgrims preparing for the Hajj pilgrimage with interactive, step-by-step, and culturally appropriate ritual guidance. The system will make use of modern web technologies to offer an engaging educational platform that bridges the gaps in existing digital solutions, all the while closely adhering to Islamic principles and scholarly validation.

The specific objectives of this project are:

1. To develop sequential learning system that will teach Hajj rituals in the order that they occur on the actual pilgrimage timeline, which is from the (8th-13th Dhul-Hijjah) day of Dhul-Hijjah. .
2. To Including interactive multimedia elements such as audio recitations of prayers (Duas), animated visual demonstrations, educational content boxes with pertinent Hadiths and historical background, and integrated assessment tools like progress tracking and pop-up quizzes.
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. By consulting with knowledgeable Islamic scholars, implementing multilingual support that emphasizes Arabic and English terminology, and integrating traditional Islamic teaching methods into the digital framework, it is possible to guarantee religious authenticity and cultural appropriateness.

**1.5 SIGNIFICANCE OF THE PROJECT**

This project contributes to the wider digitization of religious learning experiences while filling important gaps in current Islamic educational technology. The importance of this system is evident in a number of ways that go beyond the direct application of technology.

From an educational standpoint, the system offers novel sequential learning mechanisms that complement conventional Islamic teaching methods. Progressive knowledge acquisition is emphasized in classical Islamic education, where students first grasp basic ideas before moving on to more complicated applications. By converting these tried-and-true techniques into modern digital formats, this project could potentially serve as a template for other Islamic educational technologies.

The technological significance resides in proving that contemporary web development frameworks can be successfully integrated with the requirements for religious content. The project demonstrates how unified development approaches can produce comprehensive educational platforms without sacrificing performance or user experience by leveraging Next.js for both frontend presentation and backend functionality. Future advancements in Islamic technology applications may be influenced by this technical framework.   
Through digital platforms, the project helps to preserve and spread Islamic cultural heritage. Incorporating genuine Hadiths, historical background, and academic confirmation guarantees that technological development enhances rather than weakens the transmission of traditional religious knowledge. In the Nigerian context, scholars like Ibrahim (2024) have expressed concerns regarding cultural authenticity in digital religious platforms, which this approach attempts to address.

Practically speaking, the system could enhance actual Hajj performance outcomes by better equipping pilgrims to handle the mental, physical, and spiritual challenges they will face. Well-prepared pilgrims report higher levels of satisfaction with their spiritual experience and encounter fewer challenges during the actual pilgrimage performance, according to a 2019 study by Islam et al.

The Additionally, the project illustrates how web-based platforms can get around the accessibility issues that come with mobile apps. Web systems provide consistent user experiences across various technological environments while accommodating a variety of devices and connectivity conditions. For pilgrims from Nigeria, where technological infrastructure varies greatly by region, this accessibility consideration is especially pertinent.

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**1.6 PROJECT RISKS ASSESSMENT**

The Projects’ success may be impacted by a number of possible risks, necessitating careful mitigation techniques during the phases of development and implementation.   
The intricacy of combining multimedia content with responsive web design specifications is the main source of technical risks. Performance on older devices or slower connections may be impacted by the high computational and bandwidth requirements of animated demonstrations and audio components. Implementing progressive loading mechanisms, providing a range of multimedia content quality options, and guaranteeing graceful degradation for environments with limited capabilities are examples of mitigation techniques.

Content Given the religious sensitivity of Hajj guidance materials, content accuracy poses a serious risk. Users may be misled and their pilgrimage experiences may be invalidated by inaccurate or inappropriate ritual information. This risk calls for the implementation of strong review procedures prior to publication and requires considerable consultation with knowledgeable Islamic scholars during the content development process. Important legal and religious protection is also provided by clearly stating that digital guidance is supplementary to qualified human instruction.

The target audience's varying degrees of technological literacy present user experience risks. Complex interactive features may be intimidating or difficult for older pilgrims or those with little digital experience. These issues can be lessened by offering alternate ways of interaction, conducting thorough user testing across a range of demographic groups, and keeping designs simple.

Scalability risks arise from potential high user volumes, particularly during Hajj preparation periods when demand peaks significantly. Web-based systems need to support multiple users at once without experiencing a drop in performance. These technical issues are resolved by putting in place scalable hosting infrastructure, content delivery networks, and effective caching systems.   
Risks related to cultural sensitivity include whether it is appropriate to use digital platforms to present sacred content. The theological legitimacy of using technology to teach religious practices instead of traditional human instruction may be questioned by some Islamic scholars and conservative users. To allay these worries, the system must be positioned explicitly as an additional teaching aid rather than a substitute for expert advice, and it must have the support of reputable Islamic authorities.

**1.7 SCOPE/PROJECT ORGANISATION**

The entire design, development, and testing of a web-based Hajj Guide System with an emphasis on ritual guidance and educational support is included in this project. From initial preparation to final farewell procedures, the scope covers all major Hajj rituals performed during the traditional pilgrimage timeline.

The eight main ritual modules that make up the system's functional scope correspond to the Hajj activities' chronological progression. Arafat day observance, Muzdalifah overnight stay, Jamarat stoning ceremonies, Tawaf al-Qudum performance, Mina encampment activities, Ihram preparation and intention setting, and farewell Tawaf completion are some of these modules. Interactive demonstrations, instructional materials, useful tools, and evaluation systems catered to particular ritual needs are all included in each module.

The technical scope includes database integration using MongoDB for persistent storage of user preferences and completion records, responsive design optimization guaranteeing functionality across desktop and mobile platforms, frontend development using Next.js framework with React components for interactive elements, and backend implementation through Next.js API routes data management and user progress tracking.

The scope of the content includes working with knowledgeable Islamic scholars to validate religion, creating animated visual demonstrations for intricate rituals, incorporating real Arabic prayers with English translations, compiling pertinent Hadiths and historical background information, and developing assessment questions that support learning goals.

To keep the project feasible and focused within academic constraints, some components are purposefully left out. The scope does not include commercial features like financial transactions or booking systems, sophisticated crowd control tools, or real-time location services that would need to be integrated with other systems. Furthermore, the system prioritizes ritual guidance over more general Hajj logistics like lodging, transportation, or medical care.

With separate stages for requirements analysis, system design, development and testing, and final evaluation, implementation adheres to a structured timeline that matches academic semester requirements. Throughout the development process, this organization guarantees methodical advancement while allowing for iterative improvement based on user input and academic consultation.

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