

# Visual Research on GUI of Islamic Tourism Mobile Application Design

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**Abstract.** The visual representation of the interface is very important to attract users with its aesthetic value. It allows users to interact with the system more easily. The choice of sign, visual elements, layout, and composition are essential. Apart from standard icons being applied in mobile applications, designers need to produce an interface that can suit the concept of the application. Even an operating system like Android keeps updating its interface to give a better look and better experience to the user. The elements of colour and shape, combined with text and image can be seen in all designs of interfaces. Some of the items are using the standard visual representation. This paper discusses the process of choosing the right elements of visuals that are being used in an Islamic Tourism mobile application. The design has to go through a proper process that includes a visual analysis of elements that suit the target audience. The concept of design should align with the theme of the application. A proper process of design will not only meet the objective to produce an attractive and usable interface, but it can also reduce the cost and time of the development.

**Keywords:** Visual Research, GUI, Islamic Tourism, Mobile Application.

## INTRODUCTION

Islamic Tourism is one of the potential industries that can boost the economy of a country. Malaysia is not lagging behind in providing Islamic tourism packages. Muslim tourists, especially from Middle Eastern countries, have started to make Malaysia one of their destinations, especially during summer vacations. Apart from the reasonable price, Muslims as the majority of people in the country make more options for halal foods. However, there are still shortcomings in the availability of apps for Islamic tourism. Most travel apps are generic and not focused. Based on the above finding, there is a need to develop a mobile application for Islamic tourism in the state of Selangor. There are problems among Arab Tourists communicating with the local people as they are not speaking English. As a result, a prototype was developed. This initiative hopefully can help to solve the issues. The development process has gone through several phases. It starts with analysis, design, development, and evaluation. The design includes the

selection of information, the interaction type, and the interface's presentation. These aspects are important to ensure that it is attractive, informative, and user-friendly. Experts in tourism, academia, multimedia design, and information technology are involved in this process. Their participation at all stages is necessary to help researchers find the best formula to achieve the objective of product development. This article presents the method used in the interface design phase. This is the most important phase of development to set the direction, speed up the process and minimize the cost. The development of the prototype has some challenges. This product has the potential to be used by tourists from the Middle East because it is bilingual in English and Arabic. This application could promote Selangor and Malaysia in general as tourist attractions. It would also help boost the post-pandemic economy for the state and the country.

### **Islamic Tourism of Selangor**

The OIC and SESRIC (2017) report outlines the five main components of Islamic tourism that need to be prioritized based on adaptation from Akyol and Kilinc (2014). The main components are the same as conventional tourism, but the difference is that these components need to be halal and shariah-compliant, namely, Halal Hotels, Halal Transportation, Halal Food Premises, Halal Travel Packages, and Halal Finance. Ariffin & Hasim (2009) in the OIC & SESRIC Report (2017) stated that Malaysia started offering Islamic Tourism products and services in the market such as natural (eco) and health tourism. Malaysia not only develops Islamic Tourism products and services but also hosts international events such as the first Islamic Tourism Exhibition and the World Islamic Conference in Kuala Lumpur in 2008 which attracted Muslim Tourists including Arab Tourists.

Selangor, as a developed state, is not left behind as one of the tourist destinations for Arab Tourists. Based on the Tourist Arrival Statistics Report (LSKP) issued by Tourism Selangor, there was an increase in the number of Arab tourists from 2015 to 2017, which was 160,615 to 360,749 (Tourism Selangor, 2022). The Selangor state economy recorded a Gross Domestic Product (GDP) growth of 7.1% in 2017 compared to only 4.8% in 2016 (Department of Statistics Malaysia, 2017). The tourism sector contributes a large part to the economic growth of the state of Selangor. State governments under the SMART concept through the SMART Governance domain aim to build a foundation for smart government through smart and integrated technologies. Therefore, this study supports and realizes the aspirations of SMART Special Issue: Hospitality and Tourism Industry Survival – Critical Perspective on the Industry Recovery and Adaptation 317 Selangor to increase the state's economic growth through the development of i-Rehlah Mobile Application for Islamic Tourism in Selangor.

### **Mobile Application**

The amount of time spent online is growing each year and the distinction between desktop and mobile is becoming increasingly obvious. According to surveys from 2021, Americans spend 4 hours per day on mobile devices, 12 times increase over a decade earlier, and 2 hours per day on desktop or laptop computers (Ceci, 2022). Approximately 4 hours per day will be spent using mobile internet, according to E-marketer, and 88%

more time will be spent using mobile apps than browsers. This highlights the significance of developing unique, responsive applications in addition to optimising businesses' mobile websites (Hussein & Ahmed, 2022). The most effective mobile applications at the moment for facilitating travelers' movement are those related to tourism. With the help of this mobile tourist software, users can navigate their way to unfamiliar locations with ease. For travelers, the information provided about points of interest is vital and valuable (Vatankhah et al., 2014).

The mobile tourist application features images of hotspots in addition to text descriptions of the information supplied. Additionally, visitors will be able to look up the amenities near particular locations, such as entertainment and dining, hotels, and other adjacent hotspots. The smartphone application might be better than the printed maps that passengers primarily utilised in the past. As events become more organised, it will be easier for tourists to plan their trip in advance and enjoy a sense of openness during them (Afiza Ismail et al., 2016). As a result, smart tourism modifies how tourists search for information. The phases of data collection and acquisition for tourism information have expanded and become much more flexible in recent years. As a result, visitors can readily access all relevant information and activities via the internet utilising a variety of mobile applications (Vatankhah et al., 2014). Additionally, visitors can use and utilise mobile applications to explore tourist sites and attraction areas. In this way, tourists may simply obtain information on a variety of tour destinations and intriguing locations.

The design of the mobile application requires expertise in Information Technology, Multimedia Design, Arabic Language, and Islamic Tourism. The design phase is essential to make sure that the end product will meet the objective of the project. A good plan will smoothen the process. There are three aspects of design in the development of this prototype namely Information Design, Interaction Design, and Interface Design (Kristof & Satran, 1995). In information design, the content is selected to comply with the requirements of Islamic Tourism based on the feedback given by experts from industry and academia. In terms of interface design, the look and feel of the interface with the presentation of visual elements are planned accordingly to suit the concept of Islamic Tourism. As for the interaction aspect, the type of interaction that is included in the system is designed to facilitate users to find the information and navigate between pages. In order to get a good design, all these three aspects should support each other.

### **Graphical User Interface (GUI)**

Graphical user interface (GUI) becomes part of the system that allows users to have a good experience through the presentation of graphics. Proper user interface design provides a mix of well-designed input and output mechanisms that satisfy users' needs, capabilities, and limitations (Galitz, 2017). There are seven attributes related to visuals produced by International Standard Organisation (ISO, 2010) as a guide for developing interface design. The attributes are clarity, discriminability, conciseness, consistency, detectability, legibility, and comprehensibility. Interface design is an important component of a mobile application. It is the first impression for users to choose the product, to decide whether to download the application to their gadget. It should be attractive, clean, and easy on the eyes. The visual elements on the interface can give a perception of the application. Every development of the user interface has to go through a proper design process. The design should consider the end-user as the target audience to decide on the selection of content,

type of interaction, and the concept of interface. The presentation of the interface can affect usability. It can give impact on user experience. The visual elements could help to improve usability. These can be achieved by referring to the heuristics theory. The development of the user interface considers all aspects of the theory namely the visibility, the match between the system and the real world, user control, consistency, error prevention, recognition, flexibility, aesthetics, recovery from the error, and help guide (Nielsen, 1994). The presentation of GUI will attract the user to use the application. It should not only be attractive but need to be easy to use. As mentioned by Yeung & Law (2006), users will stick to the application when it is easy to use.

## **Visual Research**

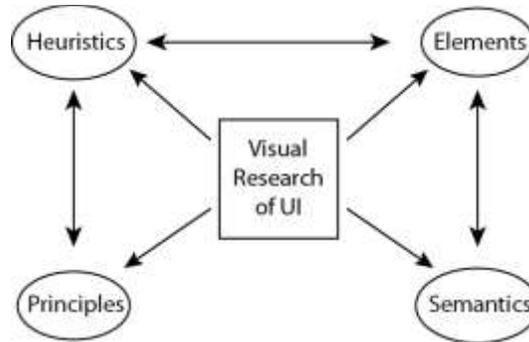
Visual elements play a big part in interface design. Research needs to be done beforehand. It involves knowledge of Visual Communication, Graphic Design, and Typography. It also includes the elements and principles of design with the theory of semantics and heuristics. (Refer to Figure 1). The ideation of the design concept refers to this knowledge. The design should reflect Islamic Tourism's application and represent Selangor's state. According to Adnan (2015), visual elements on the interface can be categorised into text, image, shape, and colour. These elements can give an impact on the look and feel of the design. In order to get the best presentation of the user interface, it is important to do some visual analysis of existing similar mobile apps. This analyzes the visual elements that appear in each interface. These elements combined with an organised layout create a good presentation of the interface.

Apart from having aesthetic value, they should be identifiable, representative, and easy to interact between pages. The visual elements should be able to communicate and give much information with simple interaction. According to Interaction Design Foundation (2022), Visual design is more than aesthetics. Designers place elements carefully to create interfaces that optimize the user experience and drive conversion. The visual elements are vital in making the interface more attractive and easy to use. The right selection of colour will make the interface more appealing. Not too bright nor too mild. An understanding about colour property and colour wheel is essential. The primary, secondary and tertiary is always being applied in design according to their purpose. Designers need to be very careful in choosing colour, not only for aesthetic reasons, it also represents meaning.

The element of the text is vital in user interface design and in conveying information. Sans serif fonts are mostly associated with modern typefaces. It is preferable as it is more legible for on-screen design. Signs, text in apps, and names on maps tend to be sans serif. (Todd & DeCotes, 2022). The shape can be seen in all navigation buttons. Shape helps to distinguish between graphic object and button. According to Galitz (2007), the consistency of the same shapes gives the idea that it is in the same group. Shape plays some important roles in icon usability. It has its influence in clarity, simplicity, consistency, and discriminability.

The image on the interface consists of icons, symbols, and index. This image carries meaning. It is important to understand the theory of semantics which study in relation to sign and meaning. The image or icon used should be representative, and easy to be interpreted. It should be utilized according to the concept of design. Images are easier to be recognized. Improper use of graphic image makes navigation inefficient, which could

distract and confuse the user (Galitz, 2007). Most of the interfaces use both images and text to represent the interaction button. As mentioned by (Lidwell et al, 2010), a combination of images and words is easier to be memorized.



**FIGURE 1.** Visual research framework on GUI design

The visual research framework on the user interface was applied in the design phase. It helps to develop the construct for the Fuzzy Delphi Method (FDM) survey. The elements of text, image, colour, and shape were chosen to suggest the best presentation of the interface, not only for an aesthetic reason but to comply with the usability aspects when it is integrated with the theory of heuristics and semantics. The experts were asked about these elements to get a consensus. All the items agreed upon were implemented on the GUI. The element alone will not make the interface attractive and usable. The designer needs to apply the principles of design. Understanding balance, contrast, hierarchy, emphasis, and unity will help improve the composition of elements on the interface.

## CONCLUSION

Visual research is vital in developing interfaces for mobile applications. The integration between visual elements, principles of design, heuristics, and semantics theory will help designers to produce an effective GUI. For this application, the choice of colours is set to red and yellow to represent the state of Selangor. It is rather hard to get the right combination as both colours are bright and in contrast. Adjustment on value and saturation is needed. The natural tint helps to reduce the density of both colours. It helps to ease the eyes. The shade of black is used for most texts to make them more legible and readable. Sans serif font was chosen for the same reason. The icons should also meet the aim of making the interface simple, attractive, and easy to be interpreted. The presentation of visual elements should align with the heuristics theory. The concept of the GUI has gone through a research process. The decision on the design was made according to the data obtained from the FDM technique. It received a high percentage of consensus among experts. The details of the data will be explained in another research paper.

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