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Islamic events reminder system via short message service notifications alert

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ABSTRACT

For persons working in the field of modern technology, the lack of awareness about Islamic events remains a significant obstacle. One of the numerous reasons why the event gets forgotten on its designated date. This prompted the creation of an automatic reminder system with mobile technology integration. This paper has the purpose of assisting people in remembering their daily Islamic events, as well as serving as a model for informing people of Islamic occasions via short message service (SMS) notifications. As a result, the main goal is to develop an Islamic model that uses SMS to inform people. To develop a free system based on the concept of recalling the most significant events in Muslim history in order to keep people informed. (Microsoft Visual Studio.net and Microsoft SQL Server Management Studio Express) as our main database. The text message reminder system is made up of two parts: an SMS application for automatic text messaging and a web-based application for customer registration and automatic reminder scheduling. The automated method delivered 100% of the SMS messages to the participants throughout the pilot testing. Finally, the system displayed a notice indicating that the text messages were successfully despatched, and the application was confirmed to be functional.

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1. INTRODUCTION

The use of computers and their integration into offices and home departments have grown in significance with the advancement of technology and digital information, bringing new design opportunities and issues for ubiquitous computing. In this area, we've built on the values and ideas that define how we want people to use computers in their work and personal life. This has been broadened to encompass the recognition that many people want to incorporate technology into their spiritual pursuits [1], [2]. This work contributes to this new field of research by utilizing design reporting. The application's evaluation requires Muslims to participate in their own Islamic event. A smartphone software that sends visual and audible notifications to users to inform them. We'll start with a review of recent research on reminder systems and religious technology applications. Then we go over a timeline of Islamic events, the sundial's design process, and the outcomes of a formative review. Our main findings concern how American Muslims in the real world use our mobile call to remember the Islamic events system [3].

Interest in studying how mobile phones could be used to remind people of forthcoming memory tasks is growing as research into reminder systems goes beyond the office and home. In these systems, the idea is that location or other contextual information is the most important aspect in determining when a reminder is appropriate. Although location is important, as reminder systems grow more common in daily

life, other factors must be considered [4], [5]. Previous systems relied on a predetermined reminder set by the computing system; in other words, the computer is solely responsible for reminding its user. As specified in the system, Islamic events are reminded. With the exception of more developed computerized systems to remind the phone, which are not difficult to start or run, reminder systems have been in use for several decades. Also, a friendly reminder phone calls (through computer or centralized programs), message, and e-mail are only a few of the tools that the systems can use to demand that the subscribers do something. While there are many different sorts of effective reminder systems, the phone reminder was proven to be the most effective [6], [7]. Short message service (SMS) is a service provided by most mobile phones, and is simple to use and inexpensive. SMS allows users to communicate non-verbally, expressing oneself in a variety of ways. More than 160 characters of alphanumeric codes in a single SMS message. SMS Links entered the world as a low-cost, quick, and effective way to communicate with people over long distances [8], [9].

However, the problem with this system is how it reminds or alerts people about the most important Islamic events. Because some people do not realize or know the exact date of the event, and their desire to communicate about the most important events. Resulting the development of systems to recall and take advantage of it in the service of subscribers by SMS in mobile phones due to the fact that most people have mobile phones nowadays, so this system is opportune [10], [11].

As a result, the major goal of this article is to create an event Islamic reminder model that works using SMS notifications alerts. To attain this goal, you'll need the following: i) To figure out what makes up a reminder subscription or person; ii) Create a prototype of the recommended model for sending SMS notifications alerts to people; iii) Evaluate the improved model's efficiency and efficacy.

The goal of this paper is to eliminate the use of paper by utilizing mobile technology through SMS to remind users about upcoming Islamic events. This system will be implemented in religious institutions, such as the Ministry of Religious Endowments. Additionally, in the field of communications companies.

2. PROPOSED TECHNIQUE

2.1. Global system for mobile communications

The global system for mobile (GSM) standard was developed to replace first-generation (1G) analogue cellular networks, and it outlined a digital, circuit-switched network that could handle full-duplex voice communication. The European Telecommunications Standards Institute (ETSI) created a set of protocols to describe second-generation (2G) digital cellular networks. With over 80% market penetration, it has established itself as the de facto global standard for mobile communications. Data communications were gradually added, first via circuit switched transfer, later via packet data transport via General Packet Radio Services (GPRS) and enhanced data rates for GSM evolution or EGPRS (EDGE). Third-generation (3G) universal mobile telecommunications service (UMTS) standards were developed by the 3GPP, and fourth-generation (4G) LTE Advanced standards were developed by the 4G LTE Alliance [12]–[14].

2.2. The short messaging service

Over the Internet, SMS text messages can be sent. An SMS gateway converts the hypertext transfer protocol (HTTP) to the SMS protocol, which is subsequently sent to the cell phone network using a GMS modem. Figure 1 shows a flow chart depicts how SMS technology operates across cell phone networks and the Internet.

A text message can be between 140 and 160 characters long. SMS technology was created to allow users to communicate with their phone service. It immediately became a popular means of communication among mobile phone users. It can be quite useful because it allows for silent, discreet, and quick communication. SMS, or "texting," is now not only a feature of our mobile phone applications, but it has also found a home in online discussion forums, advertising, television chat programs, literature, and other places [15].

Short messaging service has the advantage of sending and receiving messages simultaneously with data, faxes, calls, sound, and GSM. The GSM modem, on the other hand, completely supports this procedure, allowing messages to be up to 160 characters long for symbols and integers, as well as the binary format [16], [17]. Furthermore, these messages are delivered by the short message service center via servers connected to computers, from which they are sent to the user via his or her mobile phone if the user is available; otherwise, the message is saved at the center for a period of time before being resent when the user is available. The SMS services enable message delivery verification, which, in combination with message storage, is highly useful in remote control and mechanization [18], [19]. Text mode or protocol description unit mode (PDU) are the two methods for sending SMS [20]. The format of the PDU mode is as explains in Figure 2.

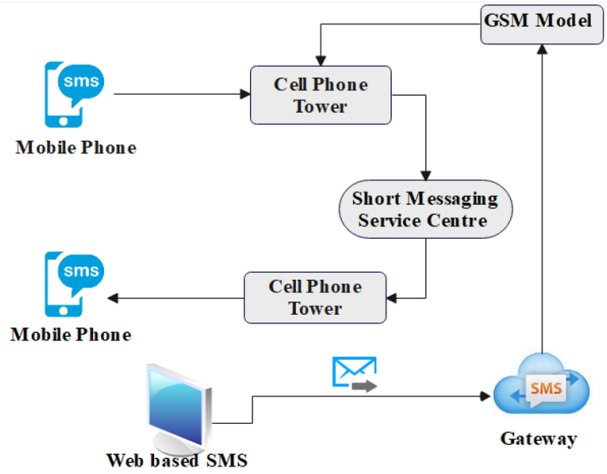

Figure 1. The operation of SMS technology

SCA	TPDU							
	ID	MR	DA	PID	DCS	VP	UDL	UD

Figure 2. PDU Format for SMS [20]

where:
SCA: service centre address
TPDU: transport protocol data unit
ID: TPDU type identifier
MR: message reference
DA: destination address
PID: protocol identifier
DCS: data coding scheme
VP: validity period
UDL: user data length
UD: user data

2.2. Reminder systems

In the related fields, reminder systems are often employed to aid users with forthcoming memory tasks, also known as "the ability to remember to remember." This can include things like remembering to attend a meeting at a specified time, buying milk at the grocery store, or mailing a bill. These systems have tended to rely on event- or context-triggered notifications to carry out these activities [21], [22]. These notifications are frequently connected with events that have pre-determined start and end times, and they are used to proactively attract a user's attention in order to alert them to upcoming occurrences. Building sensing and context aware systems to feed reminder apps has been the focus of much of the research in this field. As research into reminder systems expands beyond the office and home, so does interest in investigating how mobile phones can be used to remind people of upcoming memory tasks [23]–[25].

The assumption in these systems is that the major factor in determining when a reminder is suitable is location or some other contextual information. Indeed, location is crucial; yet, as reminder systems become more prevalent in everyday life, additional aspects must be considered. Previous systems relied on a predetermined reminder set by the computational system in other words, the computer is solely responsible for reminding its user. In some circumstances, though, it may be preferable for technology to play a more supportive role rather than entirely taking over a work. Instead of acting on the user's behalf, technology can "displace" some environmental cues, allowing the user to take an explicit action on their own without being reminded [26], [27]. We used this service in this paper, where the moment is matched to the computer system with the time specified in the event that day and then send the event in the database to users or subscribers to the service via mobile SMS message.

3. METHOD

Its goal is to show how to implement and build the recommended system paradigm. Figure 3 depicts how the Islamic reminder system via SMS alerts alert works for folks who have important events coming up. Before two days before the Islamic event, a reminder will be issued to the registered mobile phone. The SMS would provide information about the Islamic event as well as the date and time of the event.

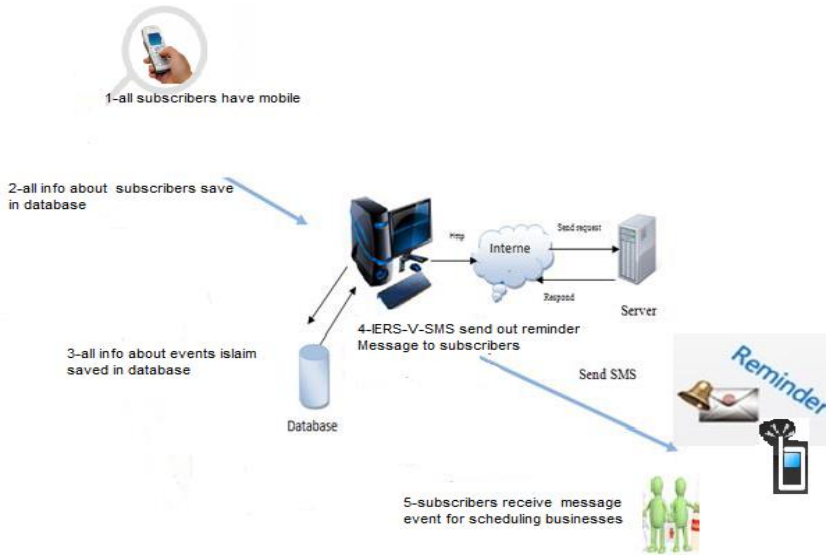

Figure 3. IERS-V-SMS-N-A architecture

3.1. Development

The system will be constructed in this study utilizing C#, Visual Studio.Net 2019 and SQL Server 2019 (Ado.net). Visual Studio 2019's work with (Ado.Net) has introduced two new strategies, and programmers will need to know how to use both of them. These strategies make use of (language integrated query) and (language integrated query) (Ado Net. Entity Frame Work).

The first method allows you to make queries and object to oriented data bases directly from Visual Studio code. The second technique introduces new and powerful model objects, as well as additional features and tools to make databases more flexible. Table 1 shows the interface and implementation. shows the programming languages and server that were utilized in (IERS-V-SMS-N-A).

Table 1. Prototype development environment data type

Program language	C#, VS.Net 2019
Server	SQL server 2019, Net2sms.net server
Database	SQL server 2019
Operating System	Windows 10 Pro

3.2. Service provider

A service provider is a company or organization that provides services to other companies or organizations. This usually refers to a company that sells subscriptions or provides web services to other companies or individuals. Internet access, mobile phone operators, and online application hosting are examples of these services. Communication services are more commonly associated with the phrase than other industries.

In this study, in order to make the system work we need the service provider to provide the system with the ability to send messages to mobile phone by connecting the system to the server of the service provider. The service provider used for this project has the following website: **(**http://www.net2sms.net/api/httpsend.asp). It is a company based in Jeddah, Saudi Arabia. They offer programmers and distinguished solutions to cover most demand to send online SMS messages, depending on national or international networks. The limit of coverage is more than 500 networks in 170 countries around the world. This service provider covers all mobile companies in Iraq.

3.3. Collaboration diagram for (IERS-V-SMS-N-A)

In the same way that sequence diagrams explain how items interact over time, collaboration diagrams do the same. On the other hand, collaboration diagrams depict the sequence of events by calculating the messages on the diagram rather than the diagram's layout. This makes it easy to observe how the objects in Figures 3, 4, and 5 are related to one another.

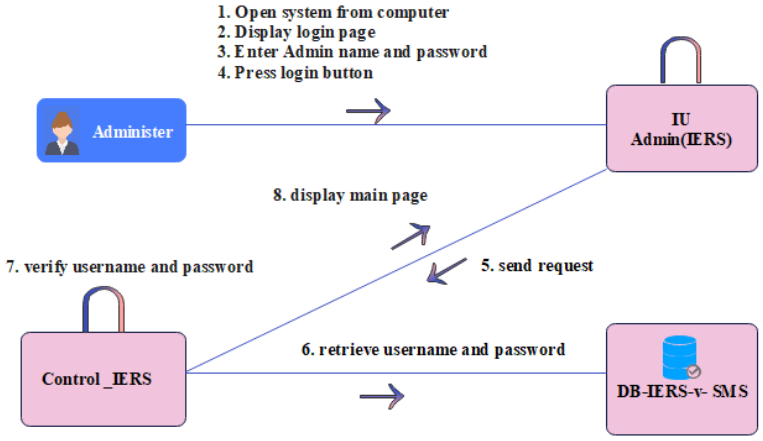

Figure3. Login collaboration diagram

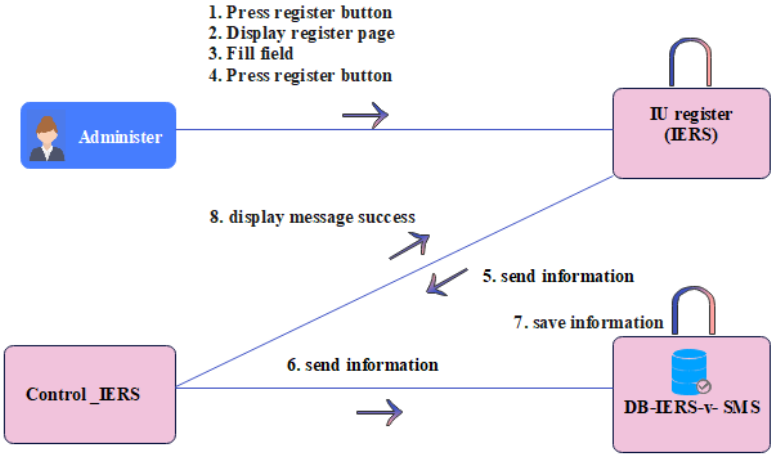

Figure 4. Collaboration diagram for register

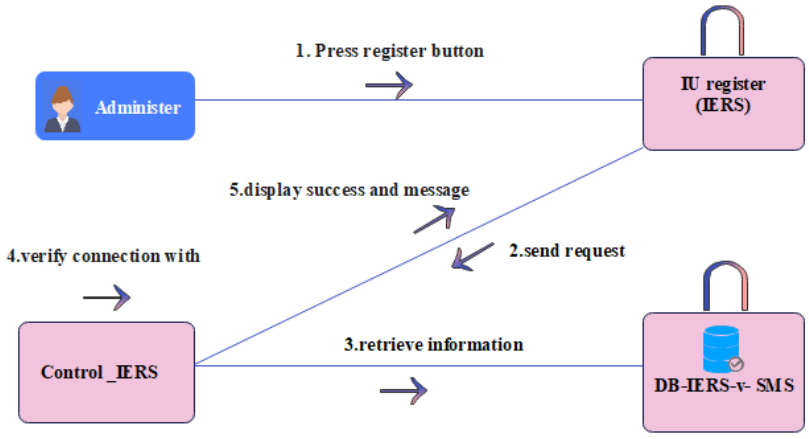

Figure 5. Collaboration diagram for send message

3.4. Database design

The proposed system has a lot of functionality, this study employs SQL 2019. To develop a free system based on the concept of recalling the most significant events in Muslim history in order to keep people informed about Islamic history. Therefore, as our main database includes:

- Users may create tables, queries, forms, reports, pages, and models using SQL.
- Tables are grids that include connected data.
- Queries elicit information from the database by asking questions.
- Support for a number of data formats is another software characteristic of SQL.

4. RESULT AND DISCUSSION

4.1. IERS-V-SMS-N-A login page

Islamic events reminder system via SMS notification's alert (IERS-V-SMS-N-A) login page. If both are correct, the system will display the main page; if one is incorrect (Figure 6), the system will display an error message ("The Admin Name or Password you supplied is invalid. To re-enter, click OK").

Figure 6. IERS-V-SMS-N-A Login Page

4.2. IERS-V-SMS-N-A main page

When the Admin enters his or her name and password and then pushes enter. The main page for the Islamic events reminder system via SMS notifications alert appears. Figure 7 shows the main page, which is divided into two sections (Enter to Info System and Add New Admin).

4.3. IERS-V-SMS-N-A registration page

The registration page for IERS-V-SMS-N-A as shown in Figure 8. It will be displayed when the presses Admin on (New Admin? button) in the main page. In this page the admin can change user name and password as well as the new Admin can register here by inserting Admin name and password then pressing registration button and then the system will show a message saying: "Registration Successful" in Figure 9.

4.4. IERS-V-SMS-N-A send message page

When the Admin presses the Send button or returns to the previous page, the Send message page for Islamic Events Reminder System Via SMS Notification Alert will appear as shown in Figure 10. The admin can add new subscribers or edit existing subscribers on this page. Additionally, by selecting the 'send button,' the admin can send a message to parents reminding them of their subscribers' Event date, and the system will display a message ("OK 000, message has been sent,[1] ID: 5324397") Figure 11. The user can't edit the contents of this message because it's from the service provider. In addition, the system will display certain information about the subscribers, such as name, phone number, and event name, in the 'list box'.

4.5. IERS-V-SMS-N-A received message on mobile

Two days before the event. The system will send a message to subscribers via hand phone. It will be containing the name of the event, the names of the subscribers, and the date of the event. As shown in the Figure 12.

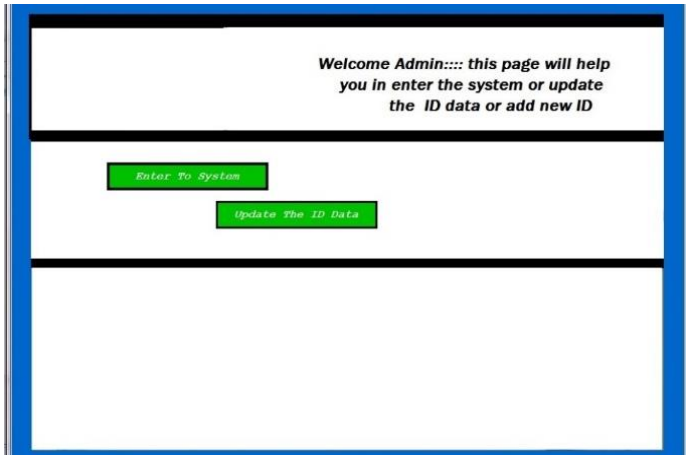

Figure 7. IERS-V-SMS-N-A main page

Figure 8. IERS-V-SMS-N-A register for add new admin page (1)

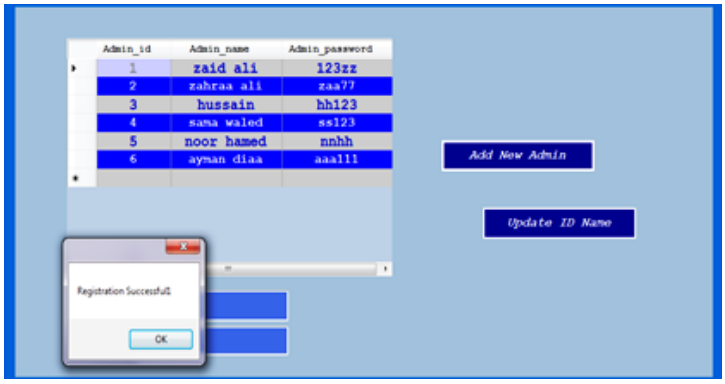

Figure 9. IERS-V-SMS-N-A registration when add new admin name page (2)

Figure 10. IERS-V-SMS-N-A send message page

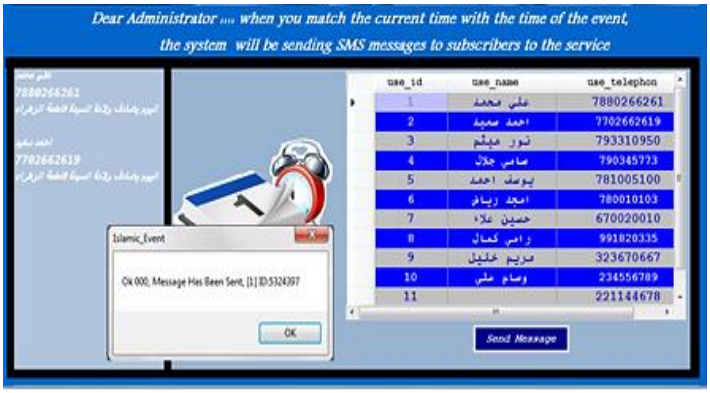

Figure 11. IERS-V-SMS-N-A send message page (2)

Figure 12. IERS-V-SMS-N-A received message on mobile

5. DISCUSSION

The designed reminder system is safeguarded by a password-protected user interface. This research showed how to create an automatic reminder system for Islamic occasions across the world. The study found that getting a reminder about the content of text messages is critical, as is iteratively testing the developed system before deploying it. According to the findings, adapting the reminder system to the client's preferences and using several modalities leads to better system development. Text messages should also include measures to ensure that they are designed and tested properly before being deployed, according to the evidence.

6. CONCLUSION

This paper reviews the finding of the paper and explains its outcomes its contributions. It also illustrates the limitation of this study and the recommendations for future work. This paper proposed a (EIRS-V-SMS-A-N) system that will help people by reminding or notifying them about Islamic events on schedule by using the SMS messages. Through to results we have this system; we recommend its importance and the possibility of development and use it as a web site that helps people reminding them of the most important Islamic events via SMS notifications. On the other hand, we recommend using it in religious institutions and offices that are based on religious events where organizes conferences and festivals based on these dates for events where the system automatically calculates. Must show through this research has been to rely mainly on mobile phone technology because of the increased use of mobile phones where the number of users has increased dramatically. Phones have become a part of the people and most people now have the technology and the possibility in the field of communication. Spiritual of the Muslims with all the events that they are interested in and also the means of their rituals and ceremonies are reminded because a preoccupation with their lives and their work may not know the actual schedule. However, the efficiency of this system will be able to solve this problem by being easy and giving accurate results at any event. It has a specific date yet matches with the date of the computer by sending the message reminders to subscribers of the service automatically.

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