



**IJIRCCCE**

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

**Volume 9, Issue 10, October 2021**

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 7.542**



9940 572 462



6381 907 438



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www.ijircce.com

# Proposed a New Approach for Electronic Reservation System

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**ABSTRACT:** The research aims to design and implementation of an electronic reservation system for an airline named (Karbala Airlines) by designing this site and uploading it to the cloud, to facilitate the process of booking tickets for customers and save time and effort.

The site contains five pages that included (Home Page, Special Offers Page, Ticket Booking Page, Contact us Page, About Company Page). All of these pages are designed by using HTML language as well as using the JavaScript language. So, we using MySQL Language to building four main tables (Flight Information Table, Ticket Information Table, Customer Information Table, Credit Card Information Table). So, to link the designed pages to the database, we used the Java language (java data base connectivity (jdbc)) in our work.

**KEYWORDS:** Electronic Reservation; programming; system, Reservation System; ARS; airline systems.

## I. INTRODUCTION

ARS was a system. Each airline company has its own system, separate from other airlines or ticketing agents, so can only be used by a specific number of airline employees. Push travel agents in the 1970s to access airline systems. Today, air travel information is linked, stored & retrieved through a network of computer reservation systems (CRS), which can be accessed by multiple airlines & travel agents. The global distribution system (GDS) makes a larger network of airline information, not only integrating the purchase and sale of multiple airline tickets, but also making the systems available to consumers directly.[1]

### Electronic Reservation Systems.

It is a computerized system used to store, inquire and carry out travel reservations. It was used initially by airlines, and later by travel agencies. It allows customers to process their reservation online. Modern global distribution systems allow booking hotel rooms and car rental in addition to air tickets, and train tickets in some countries.[1]

### Objectives of this project.

The study aims to build and design an electronic reservation system, for a company named Karbala Air, to facilitate the ticketing processes for the company by the company's customers, and to save time, effort and money used in this reservation process, this study shows the outlines of designing these electronic systems and testing them in the correct way in order to enter the service.

### Advantages of the electronic Reservation system.

If we apply electronic booking systems, we can have the following advantages:

- ✓ Facilitate the search for flights.
- ✓ Comparison of service prices between them.
- ✓ High sales of airlines and their income.
- ✓ Increase the size of customers for airlines, hotels and others.
- ✓ Facilitate administrative processes and reduce the number of employees as they combine more than one system into one system.[1]

### Security Data.

Information security is one of the most important problems of electronic work in the sense that the information and documents that are being saved and the application of electronic processing procedures and the transfer of electronic work to implement the requirements of the work must maintain its security as the weakness of security in the field of

electronic work is a weakness of confidence, which requires providing this confidence within the electronic systems and users Several factors of confidence that represent information security and thus must be achieved by the user and authentication and confidentiality and integration, which requires that the issuance and modification of the laws and legislation governing the electronic business and based on the above we believe that the electronic management It represents a comprehensive transformation in the concepts, theories, methods, procedures, structures and legislation that underpin the traditional administration.[2]

## II. RELATED WORK

### **Etihad Airways Electronic Reservation System.**

Etihad Airways is the official carrier in the United Arab Emirates and the official website is <https://www.etihad.com/en/> Etihad Airways have special (ERS) contain of the following activities:

- ✓ Planning and booking: booking a trip, booking a car with driver, booking a seat with extra space for the legs, booking a train, ...etc.
- ✓ Better flight: in the air, airport lounges, family travel, special assistance.
- ✓ Before travel: in which to manage the booking, luggage information, entertainment options, completion of electronic travel procedures, airport information.
- ✓ Offers: showing offers, registering for offers.[3]

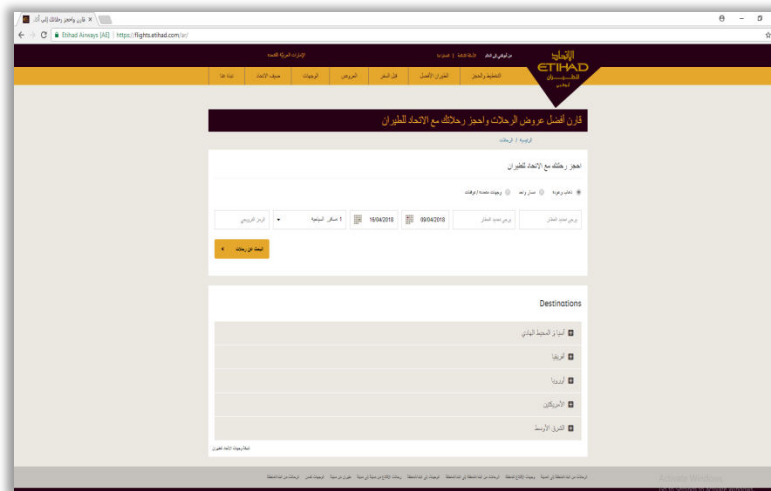


Figure 1 .The official website of Etihad Airways

### **Air Arabia.**

Air Arabia is the first public shareholding company in the region. and its website [www.airarabia.com/ar](http://www.airarabia.com/ar) is a private low-cost UAE airline established in February 2003, when we enter the official page, we will find drop-down lists such as booking your trip, booking management, travel procedures, destinations and Air rewards. Constantly (Permanent objects).[4]

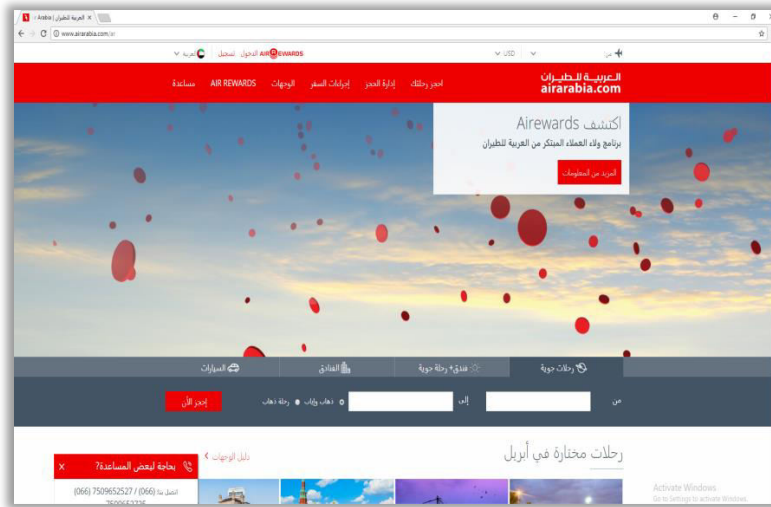


Figure 2.The official website of Air Arabia

### Air Asia.

Air Asia is Air International Limited and its website <https://www.airasia.com>, a low-cost Malaysian airline, when we enter the official page, we will find drop-down lists such as booking your trip, booking management, travel procedures, destinations and Air rewards.[5]

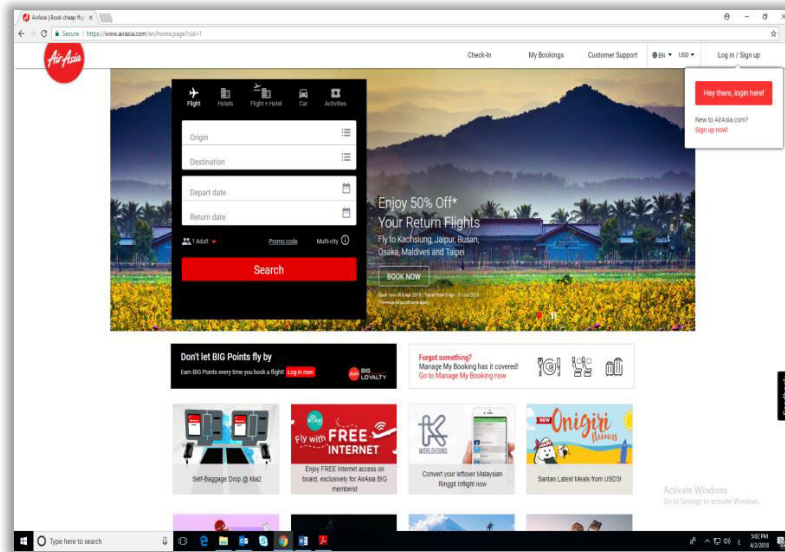


Figure 3. The official of Air Asia airline's website

### 2.4 Qatar Airways.

Qatar Airways is the national carrier of Qatar and its website [www.qatarairways.com](http://www.qatarairways.com) is headquartered in Doha, Qatar. Qatar Airways was established on 22 November 1993. When we enter the home page we find several drop-down lists where you can find, book, travel, franchise club, log in and find lots of offers, links and payment methods.[6]

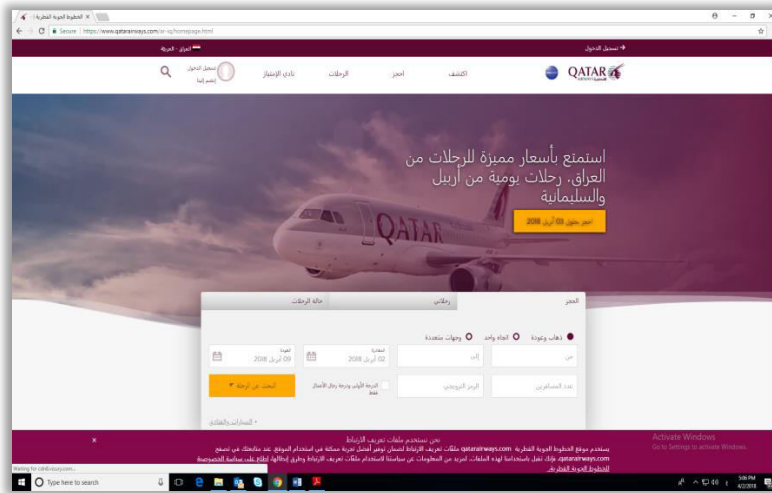


Figure 4. The official website of Qatar Airways

### III. PROPOSED ALGORITHM

#### 3.1 Overview.

The electronic reservation information systems have led to a qualitative development and revolution in technology in the concept of electronic management, as it provides specialists with the information required in time to take the appropriate decision, and because of the importance of this type of systems must programmers design strong and coherent systems with the lowest error rate If they are not. So to build a strong system it must go through a set of stages, they are:[7]

##### 3.1.1 Feasibility Study Stage.

This phase includes a feasibility study of the system, which includes what the basic costs of this system of time and effort and the material cost we need to build this system, and on the other thing what benefits and benefits we will get from the construction of this system.[7]

##### 3.1.2 Analysis and System Planning Stage.

This stage can be summarized in the following two points.[8]

###### A. System Study.

it includes the study of the system, what are the inputs of the system, what are its outputs, what procedures and processes are performed by the system, what are the relationships between these processes, as well as determining the reports that will be issued by the system to its beneficiaries. [8]

###### B. System planning.

in this stage, the basic project structure, the feasibility and risk assessment of the project, the appropriate management and the technical approach to be followed will be established. [8]

##### 3.1.3 Determining of System Requirements.

This stage involves determining the following requirements.

###### A. Software Requirements Identification.

This stage includes identification of software required for the production and subsequent operation of these systems, which includes the use of the following tools in the construction of our project: [8]

###### ✓ Hyper Text Markup Language (HTML).

It is a non-programming descriptive language used to describe the structure of web pages. It was used in this system to build web pages of the system, program them, and then preview and modify them to reach the optimal design of those pages. [9]

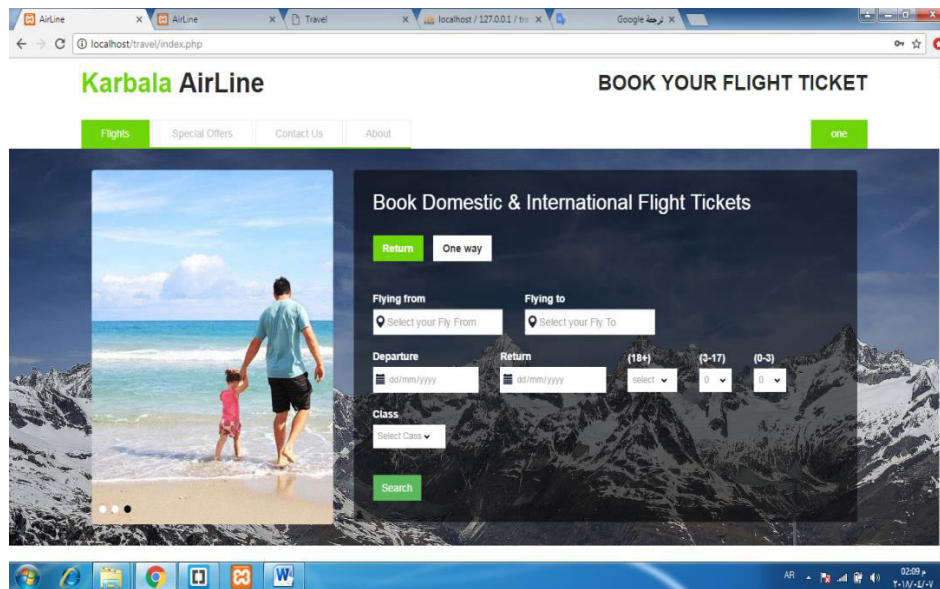


Figure 5. Main page of our system

✓ **Java Script.**

Java script is a programming language that can play a vital and effective role in web pages by doing internal and external functions so that it is more flexible to make you control every part of the web page. Used with forms, as well as pop-out windows for the user to tell him or her about a particular issue, alert, and other uses that are the spirit of the web developer in his pages while programming. [10]

✓ **Language Php (Personal Home Page).**

Php is an easy-to-learn language that has been specifically created to design dynamic pages that meet the user or visitor's purpose for that page. And prefer to the rest of the competing languages such as the language of ASP because it is an open source language and ranks first in the Internet. To design a Php page, you must install a local server, Php language, and a database such as My sql and Php My admin. [11]

**B) Identification of physical requirements.**

This stage includes the identification of the physical components and devices required for the operation of electronic systems from computers, networks and servers, in addition to high-speed Internet, available around the clock, as well as other physical components according to the need of the system and its work. [12]

**3.1.4 System Design Stage.**

This stage includes the transition from the ink phase to the paper, which was produced through the analysis and planning stage to the actual design stage of the system to be implemented later to come into effect. This stage summarizes the following activities: [13]

**A. Logical design.**

This stage is considered one of the most difficult stages in which the main features of the system are determined by identifying the parts of this system and how these parts are connected to each other, this stage will contain of inputs design and output design. [13]

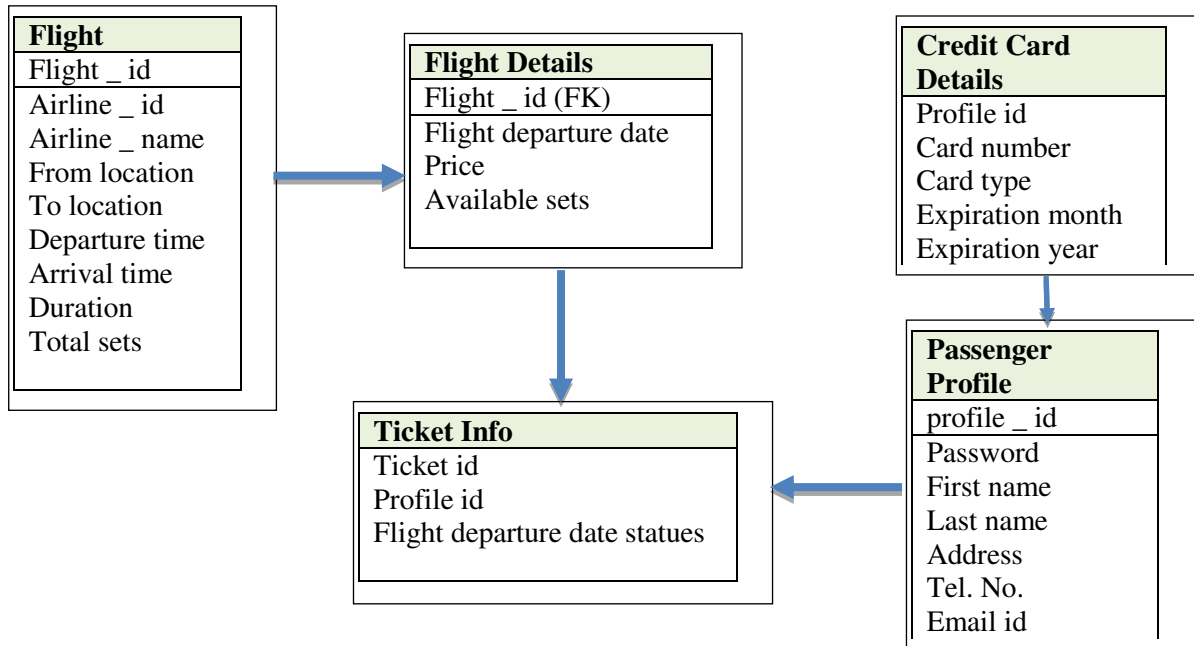


Figure 6.The logical design of reservation system

**B. Physical Design.**

This stage includes defining what processes and events can be performed by the system, and determining the relationship between each process and the other. Each process will be called here Process or Module. In other words, the process of dividing the system into a group of branches, each branch has its own work to be programmed later. The process of splitting the system into a subset of subsystems helps in the future development of the system and ease of maintenance operations in addition to easy detection and processing of errors. [13]

**C. Database design.**

The main objective of the development of information technology is to treat data as an integrated and integrated organizational resource known as the database, which can be described as an integrated and coherent repository of data designers should pay attention to organization and privacy and protection from any external intrusion, sometimes called the database file The database contains a special management system called a database management system. The process of organizing these data in the form of databases aimed at achieving three main objectives is. [14]

- ✓ Data integration.
- ✓ Data integrity.
- ✓ Data independence.

It should be noted that the database consists of a set of tables each table has its own structure and contains the information of a homogeneous specific subject, and these tables are linked to each other interdependencies and according to the need of the system, In the design of this project database we used the language of MySQL, in our project we build the following tables.

- Flight information table.  
Which include flight id, airline id, airline name, departure from, arrival to, departure time, arrival time, duration, total sets.
- Ticket information table.  
Which include ticket id, profile id, Flight departure date statues, Ticket price, available sets.
- Passenger profile table.  
Which include profile \_ id, Password, First name, Address, Tel. No., Email id.
- Credit card information table.  
Which include Profile id, Card number, Card type, Expiration month, Expiration year.

#### D. Design of system interfaces.

To provide flexibility to users, flexible interfaces must be designed that the user can access through web browsers. These interfaces are based on coherent information that is part of the system's activities and requires a documentation process to reach them.

These authorized interfaces help perform required operations on data such as data additions, data deletions, data updates with large and extensive data search capabilities. These interfaces help users access their data. In addition to the possibility of conducting the required operations of the system, which is in our project this process of electronic booking, this is a diagram of the site map, which shows access to each page of the site and how to link pages with each other to allow the user to navigate between those pages easily and easily. [15]

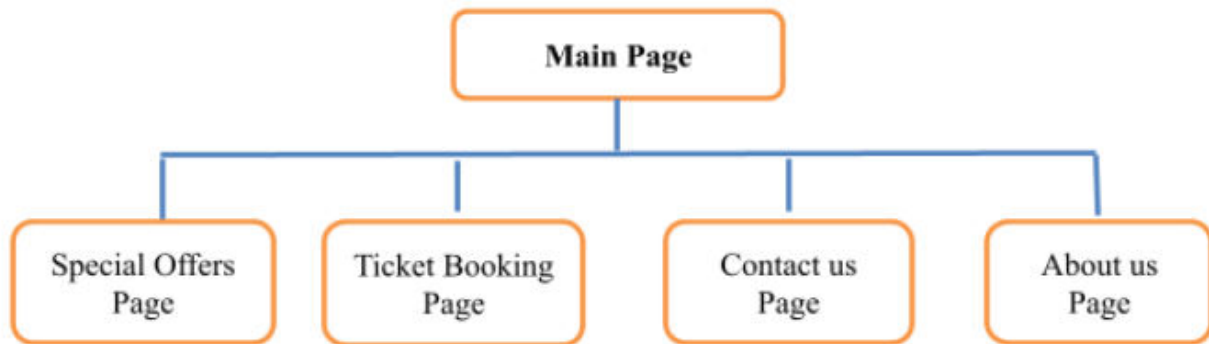


Figure 7. The site maps

#### 3.1.5 System Programming Stage.

The goal of this stage is to translate the design that has been developed in to an effective system in the best possible way. The process of writing the system code should be clear, transparent and free of complexity, i.e. it is simple and clear for easy maintenance and development in future. [16]

#### 3.1.6- System Test Stage.

The process of testing the system is a fundamental aspect of quality assurance programs, and represents the final review of specifications, design and code written, this stage aims to find errors that may be appear in program to identify and correct the imbalance in the system, where this stage is a vital stage for the system's success.

The process of testing the system through the implementation of different types of computers and networks and several times in order to detect the defect in the different system units. [17]

### IV. SIMULATION RESULTS

The online reservation process is simple and easy. The airline connects to the airline either by telephone or via the Internet, provides the company with travel information, and then receives or prints the booking number. As for hotel reservations, the efficient user of the site not only knows where the hotel wants to go or shape. He also wants to know the price of the rooms as well as the number of empty rooms he can book, we can summarize the benefits and advantages of this system with the following points:

- A. Facilitate the search for flights.
- B. Comparison of prices of services between them.
- C. higher sales and income of airlines.
- D. Increasing the size of customers to airlines, hotels and others.
- F. Guarantee the best price if you find a lower price.
- G. When booking directly, you will benefit from exclusive offers

### V. CONCLUSION AND FUTURE WORK

Due to the above results and advantages obtained from the design and construction of the electronic booking system, we recommend the following.

- A - The need to develop these types of systems and in line with the development of information technology.
- B - The need to build a secure banking system that provides electronic payment for the purchase of airline tickets and booking of hotels and other means of transport.





- C - The need to legislate strict laws that protect companies and customers alike when there are emergency problems.
- D - The need to build advanced protection systems that protect both companies and customers from extortion and electronic penetration.
- E - The need to spread the culture and electronic awareness and employment in the benefit of this technological revolution to simplify the procedures that we need in our daily lives.

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