



**SUDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**COLLEGE OF COMPUTER SCIENCE AND INFORMATION**  
**TECHNOLOGY**  
**DEPARTMENT OF SOFTWARE ENGINEERING**

# Conference Management System

## نظام إدارة المؤتمرات

**A THESIS SUBMITTED AS PARTIAL FULFILLMENT OF THE**  
**REQUIREMENTS FOR THE DEGREE OF B.Sc. (HONORS) IN**  
**SOFTWARE ENGINEERING**

**OCTOBER 2017**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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سورة يوسف (76)

## **DEDICATION**

We thank Allah for giving us guidance to complete this project.

Special gratitude to our loving parents, for always having our  
backs throughout our lives.

Also, we would like to dedicate this humble effort to our dearest  
families whom never lost faith in us.

# Acknowledgment

First and foremost praise goes to almighty Allah. My parents, brothers and friends thank you for being with us through our journey.

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And a special thank you goes to our supervisor T. Ashwag Mohamed for all of her effort and guidance towards us.

## **Abstract**

Conference Management System is software that allows companies and organizations organizing the conference advanced possibilities in organizing and managing the various stages of the conference.

In this project a website was developed that allows the user to request to create new conference or participate/ search for conference that existing in the website , after the registration process, the website served the process of finding sponsor to new conferences by using text mining techniques, provide video stream for conference and send certifications for the participants that participate in conference , this research is to design a conference management site that assists companies and organizations in the organization and management of the conference and to create an opinion for it. It also facilitates the use of conferences, raising the scientific papers participating in the conference and following up live broadcasts of all conference activities through the internet.

We used techniques that explore text data with the Rapid Miner tool, which contains a word processing algorithm to classify it according to the content provided by those sites to suit the activities of the conference owners. As well as web development techniques (PHP, CSS ... etc) and web-RTC for streaming the conference.

## المستخلص

نظام إدارة المؤتمرات هو نظام برمجي يتيح للشركات والهيئات المنظمة للمؤتمر امكانيات متقدمة في تنظيم وادارة المراحل المختلفة للمؤتمر و الحد من معدل فشل المؤتمرات وربط المشاركين في المؤتمر معا وتوفير كم كبير من الوقت المستهلك في عملية إعداد المؤتمر في عملية ايجاد راعي للمؤتمر.

في هذا المشروع تم تطوير موقع يساعد المستخدم في انشاء مؤتمر جديد أو المشاركة/البحث في المؤتمرات المسجله مسبقا في الصفحة. يوفر الموقع إيجاد راعٍ للمؤتمرات عن طريق استخدام تقنيات التنقيب في النصوص، يوفر خدمه البث الحي للمؤتمر، و ارسال الشهادات للمشاركين في المؤتمر. يهدف هذا البحث لتصميم موقع لإدارة المؤتمرات يقوم بمساعدة الشركات والمنظمات في عمليات تنظيم وإدارة المؤتمر وإيجاد راعي له ، وأيضاً يسهل على المستخدمين عملية ايجاد المؤتمرات، رفع الاوراق العلمية المشاركة في المؤتمر ومتابعة البث الحي لكافة فعاليات المؤتمر عن طريق شبكة الإنترنت.

تم استخدام تقنيات تعمل على تنقيب البيانات النصية بواسطة أداة Rapid Miner التي تحتوي على خوارزميات لمعالجة النصوص و تصنيفها حسب المحتوى الذي تقدمه تلك المواقع لملائمة نشاطات أصحاب المؤتمرات وتقديم الراعي المحدد من تلك المواقع حسب تشابه المحتوى بين صاحب المؤتمر وخدمات الموقع لتوفير الرعاية والدعم.

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# List of Abbreviations

API	Application Programming Interface
CRUD	Create, Read, Update, and Delete
CSS	Cascade Style Sheet
HTML	Hypertext Markup Language
JSON	JavaScript Object Notation
MVC	Model–View–Controller
PC	Personal Computer
PHP	Hypertext Preprocessor
Web-RTC	Web-Real Time Communication
SOA	Service-Oriented Architecture
SOAP	Simple Object Access Protocol
URI	Uniform Resource Identifier
URL	Uniform Resource Location
UML	Unified Modeling language
W3C	World Wide Web Consortium
XAMPP	Cross-Platform Apache MariaDB , PHP and Perl
XML	eXtensible Markup Language
XSLT	eXtensible Stylesheet Language Transformations

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**CHAPTER ONE**  
**INTRODUCTION**

# **1. Introduction**

In this chapter we will provide an introduction to conferences, the problems they face, define our study's scope, objective and methodology and the structure of the project.

## **1.1 Preface**

A conference is a meeting of people who "confer" about a topic. It's a well known device for gathering a community together both for the formalized and the informal information sharing. Like conferences for research and innovation. And they can be used as a means of learning as well as for business means like product promotions and advertising.

Conferences are usually composed of various presentations. They tend to be short and concise, with a time span of about 10 to 30 minutes; presentations are usually followed by a discussion. The work may be bundled in written form as academic papers and published as the conference proceedings.

Usually a conference will include keynote speakers (often, scholars of some standing, but sometimes individuals from outside academia). The keynote lecture is often longer, lasting sometimes up to an hour and a half, particularly if there are several keynote speakers on a panel.

## **1.2 The problem Statement**

When people need to establish new conference they face the difficulty of finding a sponsor for the conference, also the people who need to search/participate in specific conference face difficulties in finding the conference in its indented filed, limited seats for each conference and the long complicated operation of sending the certificates to their respected parties after the conference ends.

## **1.3 The Proposed Solution**

Develop a website for conference management that simplifies the operation of searching/participating in particular conferences, finding sponsors for new conference by the use of text mining techniques to search the web to find list of bearable sponsor, as well as providing live video streaming by using web-RTC.

## **1.4 Objectives**

The project objectives are as follows:

- To find sponsors for new conferences from pre-processed web data.
- To Send certificates for all participants who participated in the conference.
- To offer Video streaming capabilities for conferences.
- To search/participate in a specific conference.

## **1.5 Scope**

This website will have the functions of selecting a conference to host on its website and then find suitable sponsors for that conference with text mining that will be implemented on English language only.

As for participants and conference audience they'll be able to search for conferences, submit papers and stream the selected conference on the internet. After the conference ends it will provide the capability of sending certificates to all participants in that conference.

## **1.6 Methodology**

The methodology of the thesis will consist of:

- Finding sponsors, where text mining techniques will be used in the order of scraping the web for the sponsors and then applying the text mining



main tasks (tokenization, filtering...etc). And then clustering those processed websites.

- WEB-rtc packages will be used in developing the video streaming functionality in the conference management system's website.
- As for searching for conference's and sending certificates the already known web development languages (PHP, CSS...etc) will be used inside the Laravel environment.

## **1.7 Importance of the Research**

This research adds another level of conference management for organizations fulfilling their needs and also provides a variety of services like finding sponsors by using text mining techniques (web mining).

## **1.8 Project Structure**

Chapter1 gives an introduction to the project, mention the problems, scope and solutions. Chapter2 talks the background of the techniques used and the previous studies that were found in the same domain of this project. Chapter3 gives an insight on the current conference management system, the requirements and a UML illustration of those requirements. Chapter4 Will discuss the used tools & techniques and the implementation phase of the project. Chapter5 displays the results of this study, future recommendations and the references used.

## **1.9 Summary**

In this chapter we talked generally about conferences, their problems and the proposed solutions, then we defined our scope and objectives.

In the next chapter we will talk about the background of the techniques that will help us solve the problem of research and previous studies found.

# **CHAPTER TWO**

## **Literature Review**

## 2.1 Introduction

In this chapter we'll discuss the background of the SOA and text mining, as well as mentioning literature surveys found.

## 2.2 Service-Oriented Architecture(SOA)

Service-Oriented Computing (SOC) is a computing paradigm that utilizes services as fundamental elements to support rapid, low-cost development of distributed applications in heterogeneous environments.

A service-oriented architecture (SOA) is a style of software design where services are provided to the other components by application components, through a communication protocol over a network.

A service is a piece of well- defined functionality that is available at some network endpoint, accessible via various transport protocols and serialization formats and is always on. [2]

The promise of Service-Oriented Computing is worlds of cooperating services that are being loosely coupled to flexibility create dynamic business processes and agile applications.

Realizing the SOC promise involves developing Service-Oriented Architectures (SOAs) and corresponding middleware that enables the discovery, utilization, and combination of interoperable services.

### 2.2.1 SOA Structure

- Service Provider: provide service implementations, supply service description and provide service support.
- Service Register: houses service meta-information (service description, service location, service cost metrics, etc)

- Service client (user): and they use service functionality, and they may be individual end-users, organizations, or other services.

See (figure 2.1)

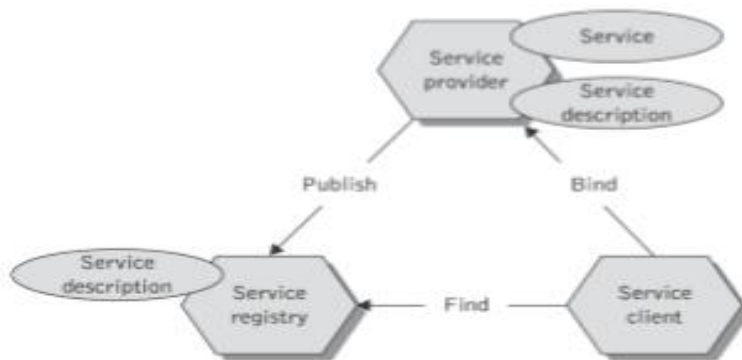


Figure 2.1 Actors in the SOA system [2]

## 2.2.2 Web Service

Web services are client and server applications that communicate over the World Wide Web's (WWW) Hypertext Transfer Protocol (HTTP). They provide a standard means of interoperating between software applications running on a variety of platforms and frameworks. [2]

## 2.2.3 SOAP web services

SOAP is an XML-based protocol for accessing web services and a W3C recommendation for communication between two applications, it is platform and language independent so SOAP web services can be written in any programming language and executed in any platform, by using SOAP, you will be able to interact with other programming language applications.

## **2.2.4 Restful web services**

REST is an architectural style of client-server application centered on the transfer of representations of resources through requests and responses, considered resources and are accessed using URIs, It consumes less bandwidth and resource so it's faster than SOAP.REST is Language and Platform independent, it can use SOAP web services as the implementation.

## **2.3 Text Mining**

Data mining is about looking for patterns in data Likewise; text mining is about looking for patterns in text: it is the process of analyzing text to extract information that is useful for particular purposes.

Most previous studies of data mining have focused on structured data, such as relational, transactional, and data warehouse data. However, in reality, a substantial portion of the available information is stored in text databases (or document databases)

Data stored in most text databases are semi-structured data in that they are neither completely unstructured nor completely structured.

Traditional information retrieval techniques become insufficient for the increasingly vast amounts of text data. Typically, only a small fraction of the many available documents will be relevant to a given individual user. Without knowing what could be in the documents, it is difficult to formulate effective queries for analyzing and extracting useful information from the data. Users need tools to compare different documents, rank the importance and relevance of the documents or find patterns and trends across multiple documents. Thus, text mining has become an increasingly popular and essential theme in data mining.[4]

### **2.3.1 Text mining approaches**

Here the text mining approaches will be discussed briefly.

### **2.3.1.1 Keyword-Based Association Analysis**

Such analysis collects sets of keywords or terms that occur together and finds correlations between them. A simple keyword-based approach may only discover relationships at a relatively shallow level, such as rediscovery of compound nouns (e.g., “database” and “systems”) or co-occurring patterns with less significance (e.g., “terrorist” and “explosion”). It may not bring much deep understanding to the text.

### **2.3.1.2 Tagging approach**

Where the input is a set of tags. This approach may rely on tags obtained by manual tagging (which is costly and is unfeasible for large collections of documents) or by some automated categorization algorithm (which may process a relatively small set of tags and require defining the categories beforehand).

### **2.3.1.3 Information-extraction approach**

This inputs semantic information, such as events, facts, or entities uncovered by information extraction.

The information-extraction approach is more advanced and may lead to the discovery of some deep knowledge, but it requires semantic analysis of text by natural language understanding and machine learning methods. This is a challenging knowledge discovery task.

## **2.3.2 Text mining tasks**

Text mining has many tasks, below are the most used tasks.

### **2.3.2.1 Text categorization**

Categorization is the task of assigning predefined categories to free-text documents. It can provide conceptual views of document collections and has important applications in the real world.

### **2.3.2.2 Text clustering**

Text clustering is to automatically group textual documents (for example, documents in plain text, web pages, emails and etc) into clusters based on their content similarity.

### **2.3.2.3 Concept mining**

Modeling and discovering of concepts, sometimes combines categorization and clustering approaches with concept/logic-based ideas in order to find concepts and their relations from text collections (e.g. formal concept analysis approach for building of concept hierarchy).

### **2.3.2.4 Information retrieval**

Retrieving the documents relevant to the user's query , is finding material (usually documents) of an unstructured nature (usually text) that satisfies an information need from within large collections (usually stored on computers).[4]

## **2.3.3 Mining the World Wide Web**

The World Wide Web serves as a huge, widely distributed, global information service center for news, advertisements, consumer information, financial management, education, government, e-commerce, and many other information services.

*Web mining* is the application of data mining techniques to discover patterns from the World Wide Web. [1]

Yet still, there are some challenges that are facing the operation of mining this rich source of information which are the fact that The Web seems to be too huge for effective data warehousing and data mining.

The complexity of Web pages is far greater than that of any traditional text document collection; Web pages lack a unifying structure, The Web is a highly

dynamic information source; Not only does the Web grow rapidly, but its information is also constantly updated (e.g. newsletters, stock market, weather forecast... etc) and many other challenges that face mining the World Wide Web.

## **2.3.4 Web Mining approaches**

Web mining has three main approaches: Usage mining, Structured mining and Content mining.

### **2.3.4.1 Web usage mining:**

Web Usage Mining is the application of data mining techniques to discover interesting usage patterns from Web data in order to understand and better serve the needs of Web-based applications. Usage data captures the identity or origin of Web users along with their browsing behavior at a Web site.

### **2.3.4.2 Web structure mining:**

Web structure mining uses graph theory to analyze the node and connection structure of a web site. According to the type of web structural data, web structure mining can be divided into two kinds, first is extracting patterns from hyperlinks in the web. The second one is mining the document structure: analysis of the tree-like structure of page structures to describe HTML or XML tag usage.

### **2.3.4.3 Web content mining:**

Web Content Mining is the process of mining useful information from the contents of Web pages and Web documents, which are mostly text, images and audio/video files. The mining of link structure aims at developing techniques to take advantage of the collective judgment of web page quality which is available in the form of hyperlinks that is web structure mining.



It includes extraction of structured data from web pages, similarity and integration of data's with similar meaning, view extraction from online sources, and concept hierarchy, knowledge incorporation. Some of the prominent are:

#### **2.3.4.3.1 Unstructured Text Data Mining:**

Most of the web pages are in the form of text. Content mining requires application of data mining and text mining techniques. The data mining techniques to unstructured text is known as Knowledge Discovery in Texts (KDT), or text data mining, or text mining. Some of the techniques used in text mining are Information Extraction, Topic Tracking, Summarization, Categorization, Clustering and Information Visualization.

#### **2.3.4.3.2 Structured Data Mining:**

The structured data on the Web represents their host pages. Structured data is easily extracted compared to unstructured texts. The techniques used for mining structured data are Web Crawler, Wrapper Generation and Page content Mining.

#### **2.3.4.3.3 Semi-Structured Data Mining:**

Semi-structured data evolving from rigidly structured relational tables with numbers and strings to enable the natural representation of complex real world objects without sending the application writer into contortions. HTML is a special case of such intra-document structure. The techniques used for semi structured data mining are Object Exchange Model (OEM), Top down Extraction and Web Data Extraction language

#### **2.3.4.4 Multimedia Data Mining**

Multimedia data mining can be defined as the process of finding interesting patterns from media data such as audio, video, image and text that are not ordinarily

accessible by basic queries. The aim of doing Multimedia data mining is to use the discovered patterns to improve decision making. Comparison of Multimedia data mining techniques with state of the art video processing, audio processing and image processing techniques is also provided. The techniques of Multimedia data mining are: SKICAT, Color Histogram Matching, Multimedia Miner and Shot Boundary Detection.[4]

## **2.4 Literature survey**

### **2.4.1 Easy chair**

EasyChair is a conference management system that is flexible, easy to use, and has many features to make it suitable for various conference models.

The first version of EasyChair was implemented in 2002. It was used by 12 conferences in 2002-2004 and by 66 conferences in 2005.

EasyChair was designed to help conference organizers to cope with the complexity of the refereeing process. The current version supports management and monitoring of the program committee, automatic paper submission, list of the latest events, preparation of conference proceedings and many more.

Currently, EasyChair supports two models: The standard model is intended for conferences having a single program committee And the multi-track version is for conferences having multiple tracks. Each track has its own program committee and one or more track chairs. For each of the supported models the users can choose among various options to adjust the system to their requirements.[7]

## **2.4.2 Recommendation system of the Academic Advising help**

Recommendation system in Academic Advising was used at the Faculty of Computer Science and information Technology at the University of Sudan for Science and Technology, to provide recommendation in helping academic advisors make good guidance to student, and the use of new Technologies to assist the academic advisor analyze the data, reach the best recommendations and submit them to reduce the burden of guidance counselors to teachers.

The tools that were used in this study are Rattle, Rapid Miner, Apache Mahout, PSPP, R and Weka

This study found relationships that indicated is a student fails in certain subjects he will most likely fail in other subjects linked to them, and then provided advising help those students. [5]

## **2.4.3 Web Mining techniques for recommendation and personalization**

In this work, the aim was to address improving the performance of Web information retrieval and Web presentation through developing and employing Web data mining paradigms.

First, they established a mathematical framework, called the usage data analysis model,

To reveal the underlying relationships among Web objects, such as Web pages or user sessions, three kinds of latent semantic analytical techniques based on three statistical models, namely traditional Latent Semantic Indexing,

In the traditional Latent Semantic Indexing, a specific matrix operation, i.e. Singular Value Decomposition algorithm, is employed on the usage data to discover

the Web user Behavior pattern over a transformed latent Web page space, which contains the maximum approximation of the original Web page space. Then, a k-means clustering algorithm is applied to the transformed usage data to partition user sessions. The discovered Web user session group is eventually treated as a user session aggregation, in which all users share like-minded access task or intention. The centroids of the discovered user session clusters are, then, constructed as user profiles. Probabilistic Latent Semantic Analysis and Latent Dirichlet Allocation approaches are also introduced into Web usage mining.

The discovered user profiles, which are represented by the centroids of the Web user session clusters, are then used to make usage-based collaborative recommendation via a top-N weighted scoring scheme algorithm. In this study

*K-Nearest-Neighbour* (kNN) approach, which is to compare the current user activity with the historic records of other users for finding the top  $k$  users who share the most similar behaviors to the current one, it is the most often used recommendation scoring algorithm In recommender systems.

- **Content-Based Recommendation**

Content-based recommendation is a textual information filtering approach based on user's historic ratings on items. In a content-based recommendation, a user is associated with the attributes of the items that rated, and a user profile is learned from the attributes of the items to model the interest of the user.

- **Collaborative Filtering Recommendation**

Collaborative filtering recommendation is probably the most commonly and widely used technique that has been well developed for recommender systems.

- **Memory-Based Collaborative Recommendation**

Memory-based algorithms use the total ratings of users in training databases while computing recommendations.

- **Model-based Recommendation**

A model-based collaborative filtering algorithm is to derive a model from the historic rating data, and in turn, uses it for making recommendations [6]

## **2.4.5 Literature survey comparison**

The following table was taken from a survey done by International Journal of Computer Applications on conference management systems.

**Table 2.1 Previous studies comparison[3]**

<b>System feature</b>	<b>EDAS</b>	<b>OpenConf</b>	<b>ConfTool</b>	<b>EasyChair</b>
<b>Register to system</b>	YES	YES	YES	YES
<b>Create Conference</b>	YES	YES	YES	YES
<b>Specify topics for conference and reviews</b>	YES	YES	YES	N.A
<b>Submit Paper to a already registered and valid conference.</b>	YES	YES	YES	YES
<b>Chairing:-Lists the conferences where the user is a chair</b>	YES	YES	YES	YES
<b>View all the papers submitted by the user. Including Accepted, Rejected, Published and Withdrawn</b>	YES	N.A	N.A	YES
<b>View details of submitted paper</b>	YES	YES	N.A	YES
<b>Schedule of the conference</b>	YES	N.A	N.A	YES
<b>Video (live stream) conference</b>	N.A	N.A	N.A	YES

## 2.5 Summary

In this chapter we talked about the backgrounds of both SOA and text mining and mentioned some previous studies that we found.

# **CHAPTER THREE**

## **System Analysis**



## **3.1 Introduction**

This chapter explains a detailed description of how the current conference management system operates, then talks about the functional requirements of the system and provides UML models to further simplify them.

## **3.2 Current System**

First, the current conference management process including planning, organizing the conference then promoting and marketing it to attract the audience will be discussed.

### **3.2.1 Planning and organizing the conference**

There are many steps to planning and organizing conferences which will be detailed in the following points:

#### **3.2.1.1 Craft a Vision of Your Conference**

Every event begins with a vision, but that vision needs to be transformed to words and numbers in order to measure costs and make informed planning decisions.

#### **3.2.1.2 Creating a Business Plan**

The need of mapping out where the money is coming from and what it is being used for. The first part of this equation, the revenue, should be calculated early in the planning process.

#### **3.2.1.3 Comparing Venues and Services**

After you have a more specific idea about when your conference will take place and how many people you want to attend, you can then begin to shop for an appropriate venue.

Most conferences will need to provide some sort of overnight accommodations for guests traveling from outside the region. This necessity creates another set of considerations to factor into your venue decision.

### **3.2.1.4 Recruiting and Managing Registrants**

Even the most popular conferences must effectively market their event to fill every seat in the house. Attendance is the single most important factor to the success of your event. Good attendance numbers bring revenue and sponsorship opportunities. And the more people you have registered will create more demand for advertising and participation openings

### **3.2.1.5 Planning On-site Details**

Finally, after organizing and implementing the business elements of the conference, you can begin to think about the on-site details. This includes how attendees will navigate the conference, the general layout of each room, and the distribution of food and beverage. This is the part of planning a conference that most people associate with event planning

### **3.2.1.6 Exhibitions Management**

Conferences typically feature an exhibition area or convention floor where sponsors and vendors rent space to promote their products.

## **3.2.2 Promoting for the conference**

There are many methods that conference managers use to attract people to their conference, below are the most used methods In doing so:

### **3.2.2.1 In-House Resources**

This includes email lists, blog readers, Facebook friends and Twitter followers. These channels represent your core audience, and they should be your easiest sales if you approach them with a respectful and value-driven message.

### **3.2.2.2 Strategic Partnerships**

Similar to in-house resources, targeting the communication channels of other closely-related organizations reaps huge returns. Many times free advertising can be done by simply asking for a mention in a partner's email newsletter or Facebook page. This can even be negotiated into contracts with sponsors and speakers.

### **3.2.2.3 Blogger Outreach**

Blog advertising, whether through sponsored posts or banner buys, is one of the cheapest forms of online advertising. The best bloggers have a dedicated fan base that reaches thousands of people with similar interests, and they are always searching for new material to write about. A subtle announcement on the right blog can lead to an instant wave of traffic to a website.

### **3.2.2.4 Industry Calendars**

Here is another conference marketing opportunity that can be had for free or very little cost. Every trade magazine and association newsletter features a list of upcoming events related to their industry, and many others maintain a calendar of events on their website. This is a service provided for readers, which means you should be able to list your conference for free.

## **3.2.3 Finding a sponsor**

One of the most pervasive findings in sponsorship is that the best advantages are taken when both the sponsor and the sponsored event logically match in their nature, e.g. (a communications company sponsors an event about a new advancement in the communications field). That's why most event organizers physically search for a sponsor in the same field of knowledge of the event their hosting.

# 3.3 System Requirements

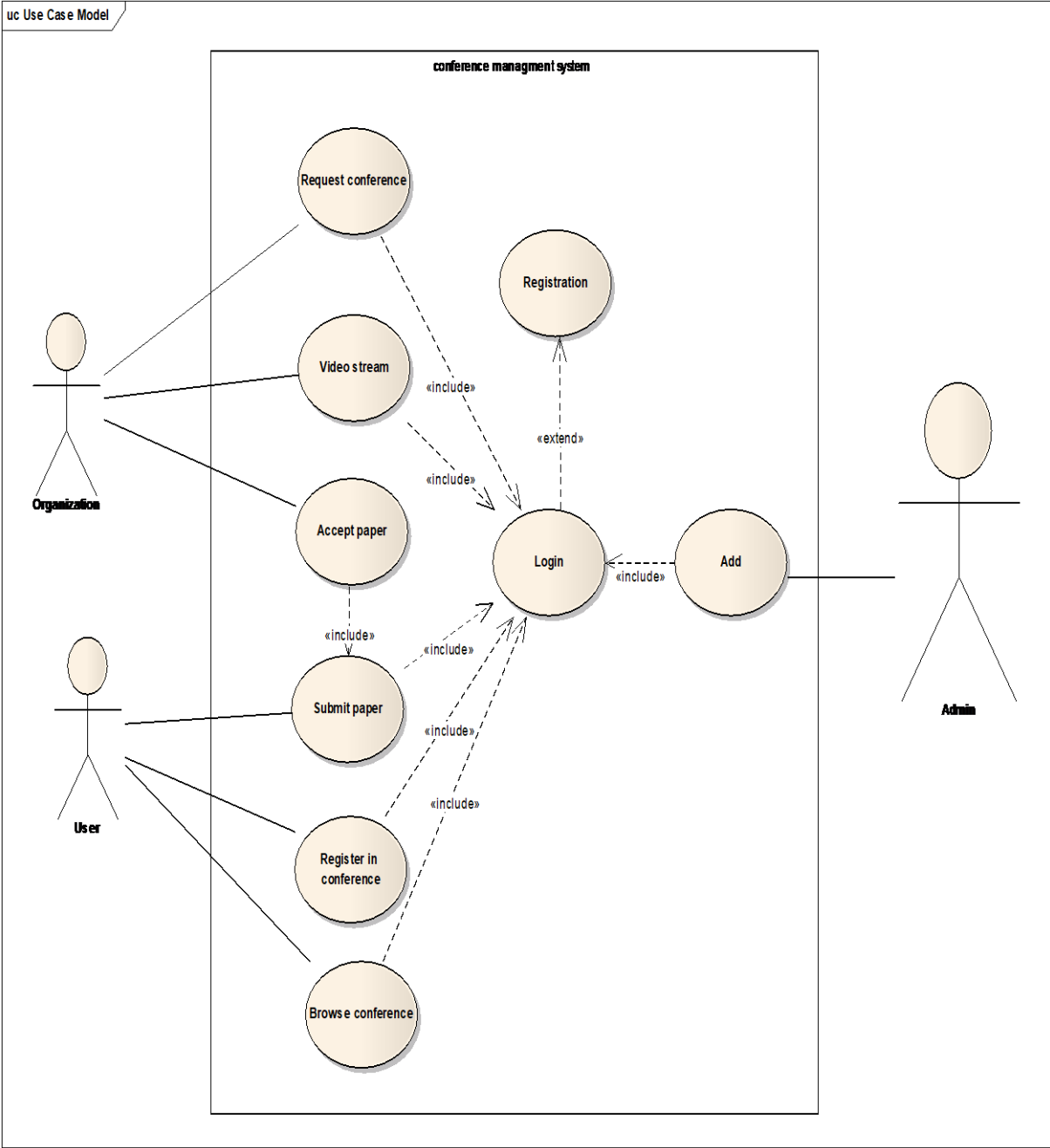


Figure 3.1 Use Case diagram of the system's functions

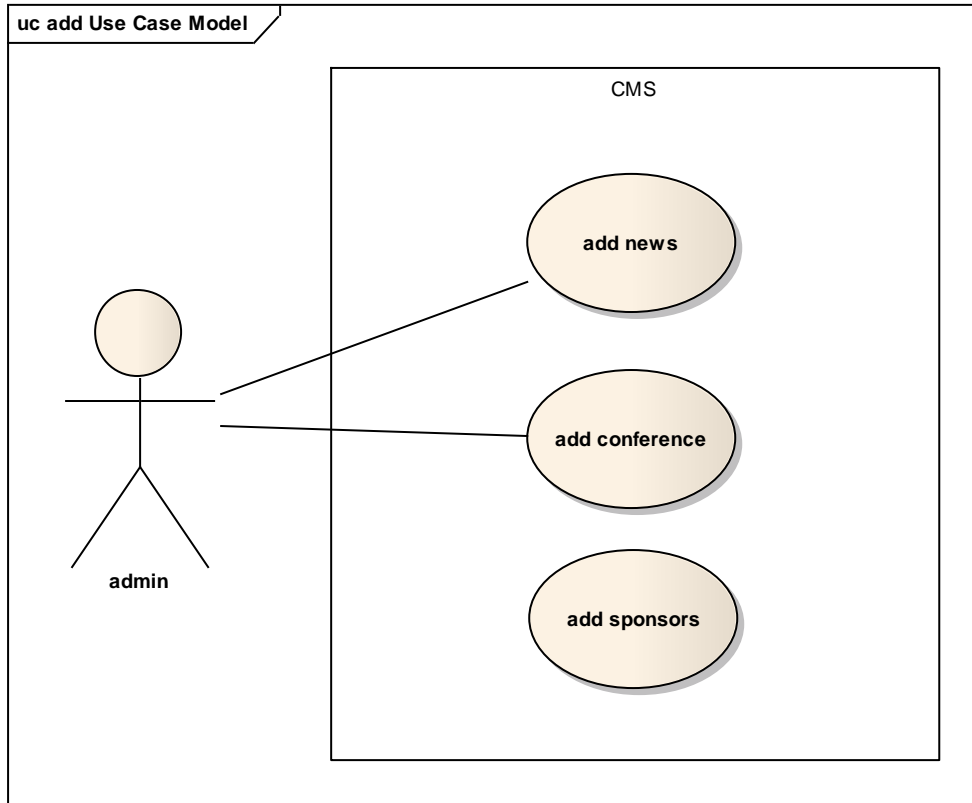


Figure 3.1.1 Admin add use case

## 3.3.1 Functional Requirements

The functional requirements define the specific functions that the system performs; here we'll talk about the functionalities that the system will provide as we listed in figure(3.1).

### 3.3.1.1 Add news

The system administrators add news about upcoming conferences and the latest about each field of knowledge and added the latest features of the system that has been updated to keep users up to date.

### 3.3.1.2 Registration:

There are three types of registration, the first administrator registration, second is organization registration and finally we have users registration.

### **3.3.1.3 Request Conference:**

A company or an organization has the ability to request a new conference which later will be accepted or rejected after we hold a meeting with the organization or company to understand the nature of the conference and clarify the advantages that we can provide them.

### **3.3.1.4 Add Conference:**

After the organization has been accepted into the system, its validity is extended to facilitate the management of the conference by providing it with a special page in which it can display the latest news of the conference place and time of the conference and accept the submitted paper or reject it by the committee and be announced on the official page of the system.

### **3.3.1.5 Find Sponsors:**

The administrator uses web-mining techniques to find sponsors for the conference according to the field that the organizers specify the conference to be in (science, health ... etc) after we meet the organization you want to create a conference with.

### **3.3.1.6 Browse Conferences:**

After Users registration they can search and browse conferences in the website viewing the available information about each one, like the field of the conference, the conference program and date.

### **3.3.1.7 Submit Papers:**

Participants submit scientific papers to a conference they're interested in participating in, then await a reply from the conference organizers.

### **3.3.1.8 Accept paper**

The conference organization or company has the ability of accepting or rejecting the papers that are submitted by participants after they are reviewed by a reviewers committee that they assign.

### **3.3.1.9 Send Certificates:**

The conference organizers send acknowledgment certificates to all participants in the conference after the conference has finished and all papers are documented.

## **3.3.2 Nonfunctional Requirements**

A Non-functional requirement is a description of a property or characteristic that a system must exhibit or a constraint that it must exhibit.

### **3.3.2.1 Security:**

Login access level, where only administrators can do (CRUD) operations. And user information is kept hidden.

### **3.3.2.2 Availability:**

System should be available at all times except on scheduled maintenance time.

### **3.3.2.3 Usability:**

The system interface must be made out of a consist level of colors and have all the main operations buttons easy to find by the users.

### **3.3.2.4 Integrity:**

System must only deal with validated user data.

### 3.3.3 Sequence Diagram of system functions:

Here the sequence diagram of each use case will demonstrate how each function works.

#### 3.3.3.1 Sequence diagram for registration

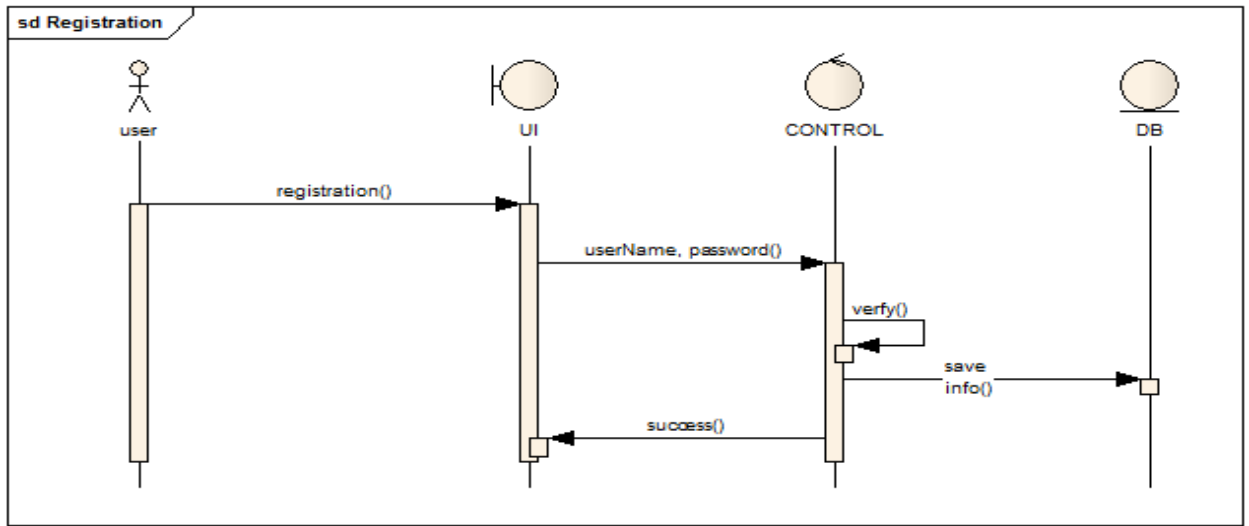


Figure 3.2 Sequence diagram for registration

Figure (3.2) describes the registration process where the user inserts his information which is then checked and verified and then saved to the database.

#### 3.3.3.2 Sequence diagram for request conference

Figure (3.3) describe the request of a new conference function operation initiated by a user (organization).



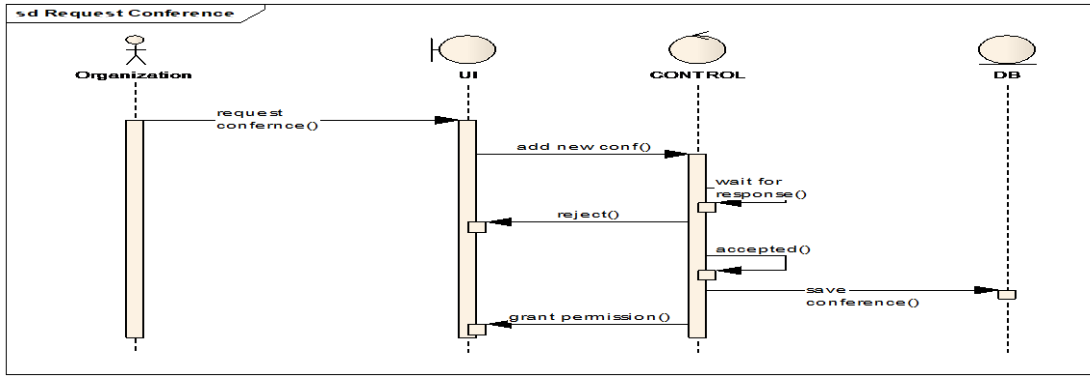


Figure 3.3 Sequence diagram for request conference

### 3.3.3.3 Sequence diagram for add conference

Figure (3.4) describe the sequence of operations that occur when an admin adds a new conference to the database which was already requested by a user after approving it.

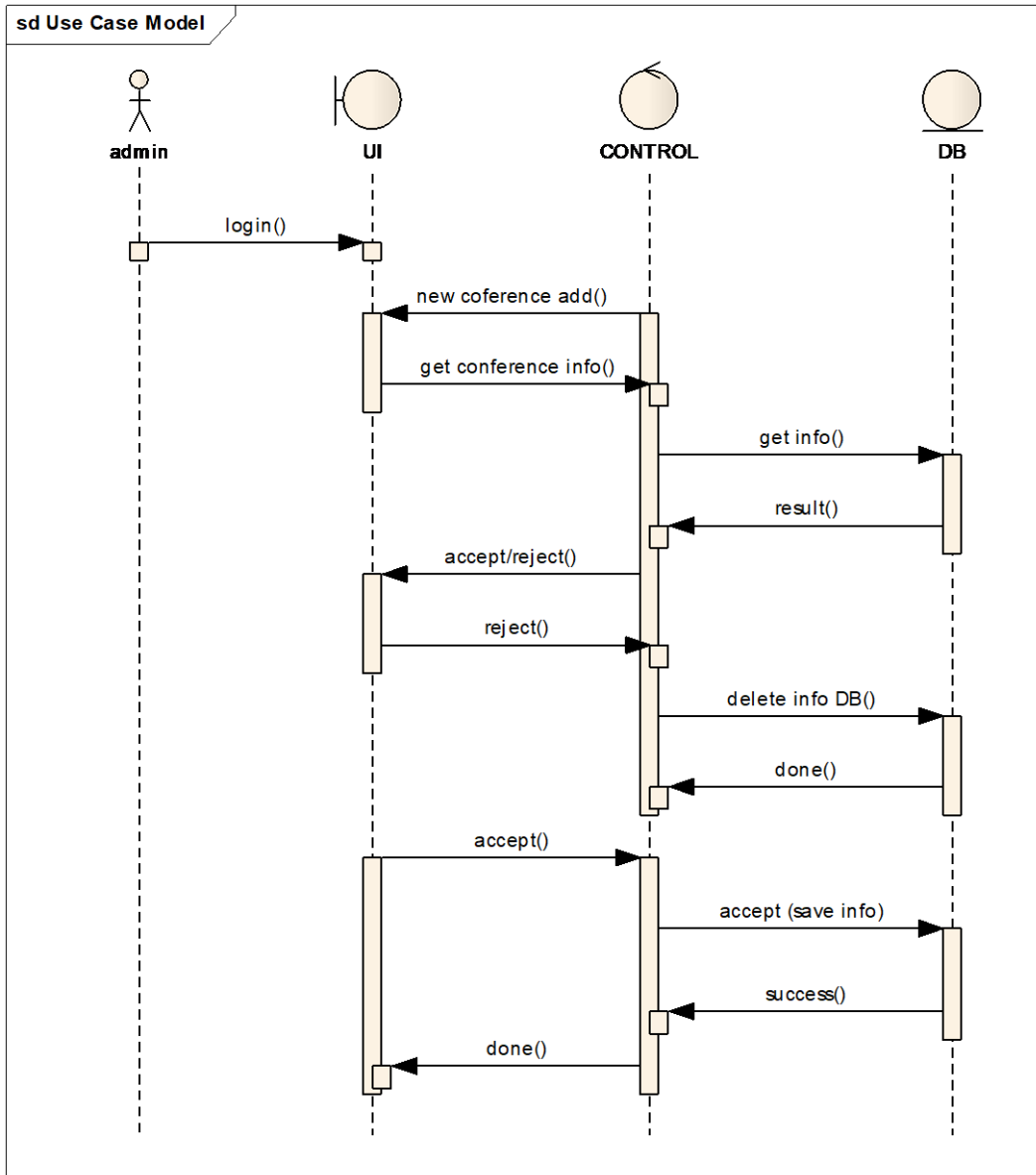


Figure 3.4 Sequence diagram for add conference

### 3.3.3.4 Sequence diagram for find sponsors

Figure (3.5) describes the process of finding a sponsor for a particular conference which includes fetching data from the sponsors database then comparing it to the nature or subject of the conference.

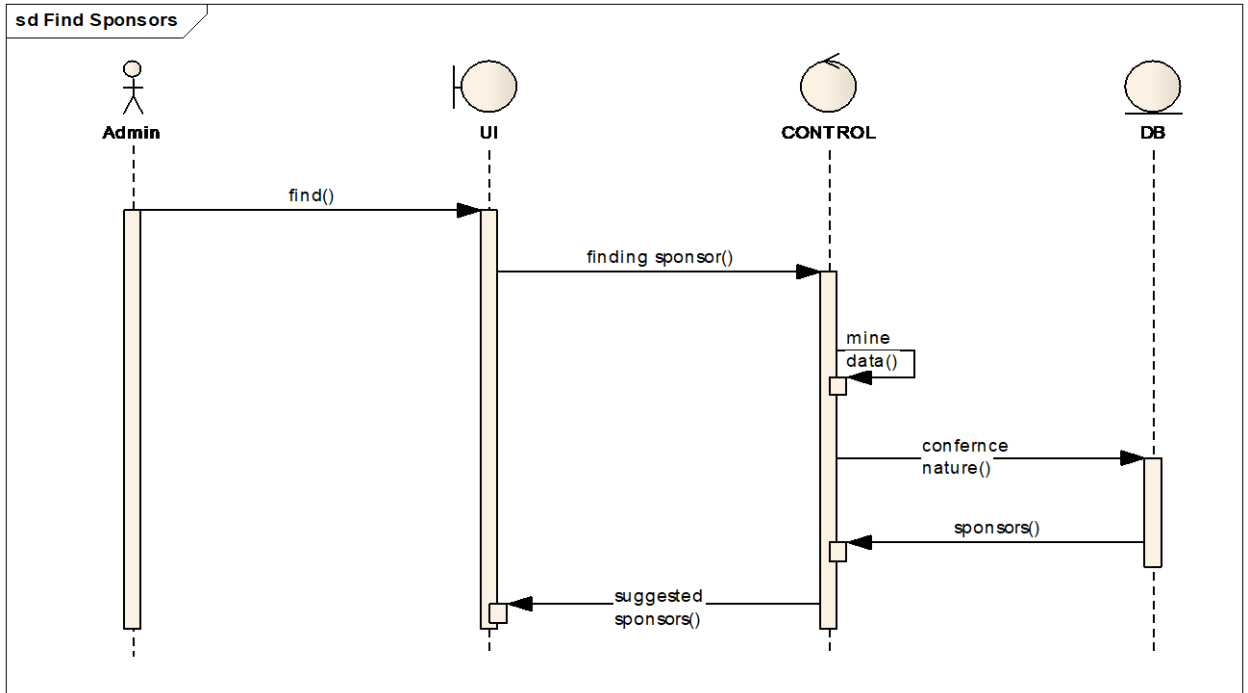


Figure 3.5 Sequence diagram for find sponsors

### 3.3.3.5 Sequence diagram for send certificate

Figure (3.6) describe the sequence of sending the certificates to the participants after the conference ends.

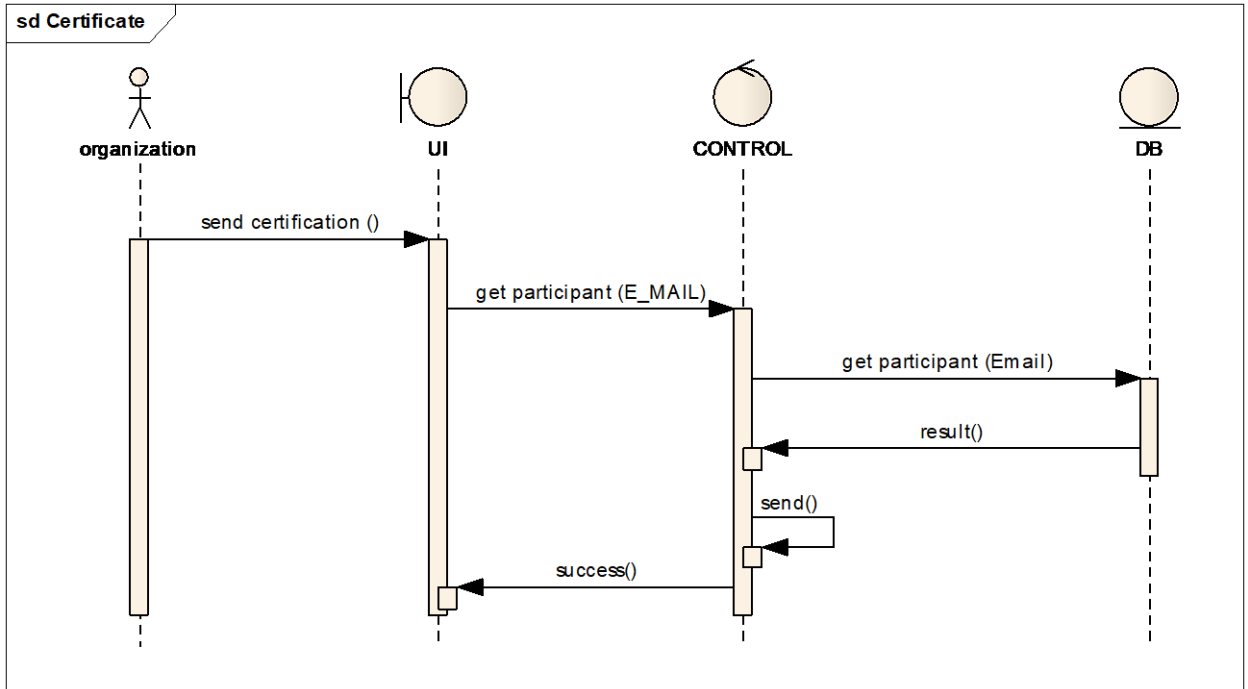


Figure 3.6 Sequence diagram for send certificate

### 3.3.3.6 Sequence diagram for browse conferences

Figure (3.7) describes the function of browsing and searching conferences already added in the Database.

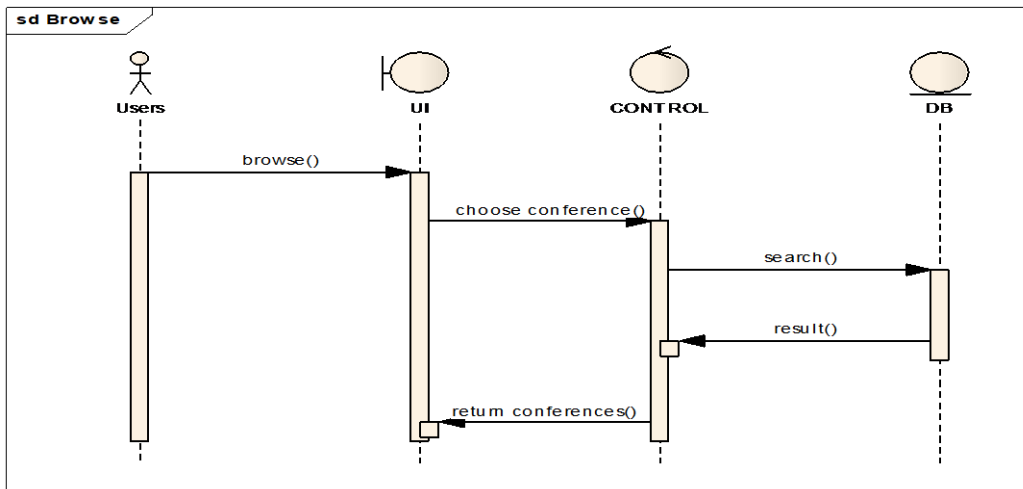


Figure 3.7 Sequence diagram for browse conferences

### 3.3.3.7 Sequence diagram for submit papers

Figure (3.8) describes the sequence of submitting papers to a certain conference and shows whether these papers are accepted or no later.

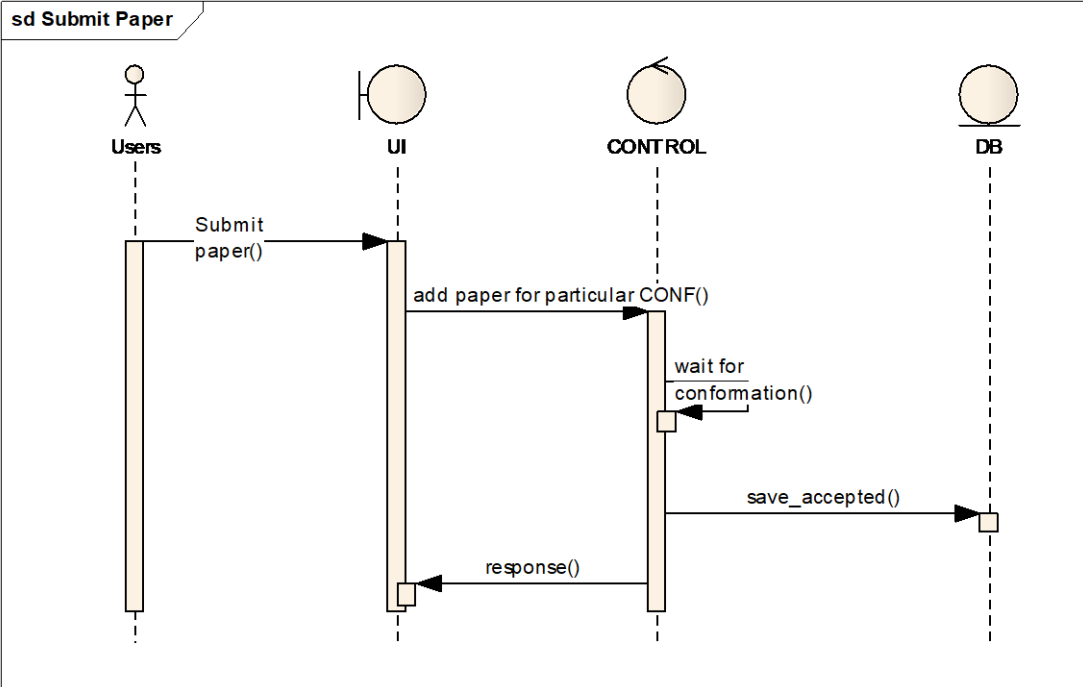


Figure 3.8 Sequence diagram for submit papers

### 3.3.3.8 Sequence diagram for accept papers

Figure (3.9) describes the functionality of accepting/rejecting pre-submitted papers by users in the conference and it is done by the organizing team of the conference.

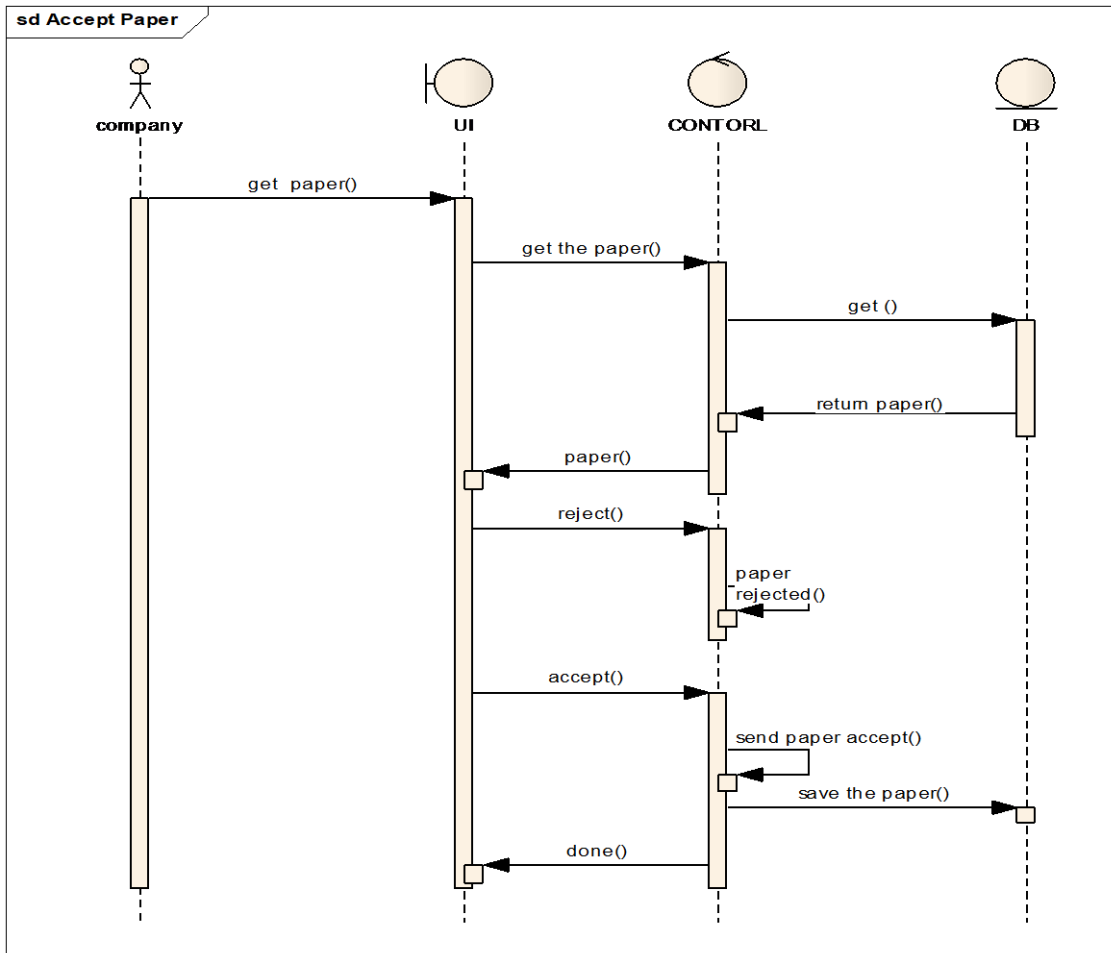


Figure 3.9 Sequence diagram for accept papers

### 3.3.3.9 Sequence diagram for video stream

Figure (3.10) describes how the video streaming of conferences (done by the organization) happens on the conference they select to stream.

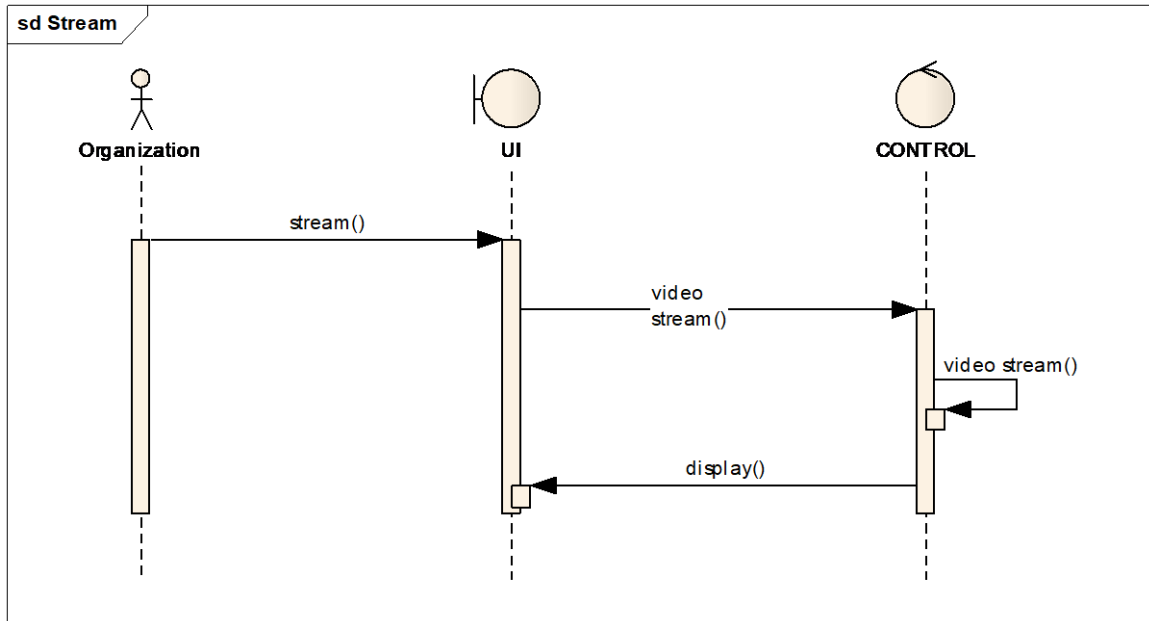


Figure 3.10 Sequence diagram for video stream

### 3.3.4 Activity diagram

The activity diagram is a flowchart diagram that describes the dynamic aspects of the system.

It represents the flow from one operation (activity) to another operation. Showing which operations work sequentially and which do so concurrently.

Figure (3.11) below demonstrates the flow between operations in the conference management system.

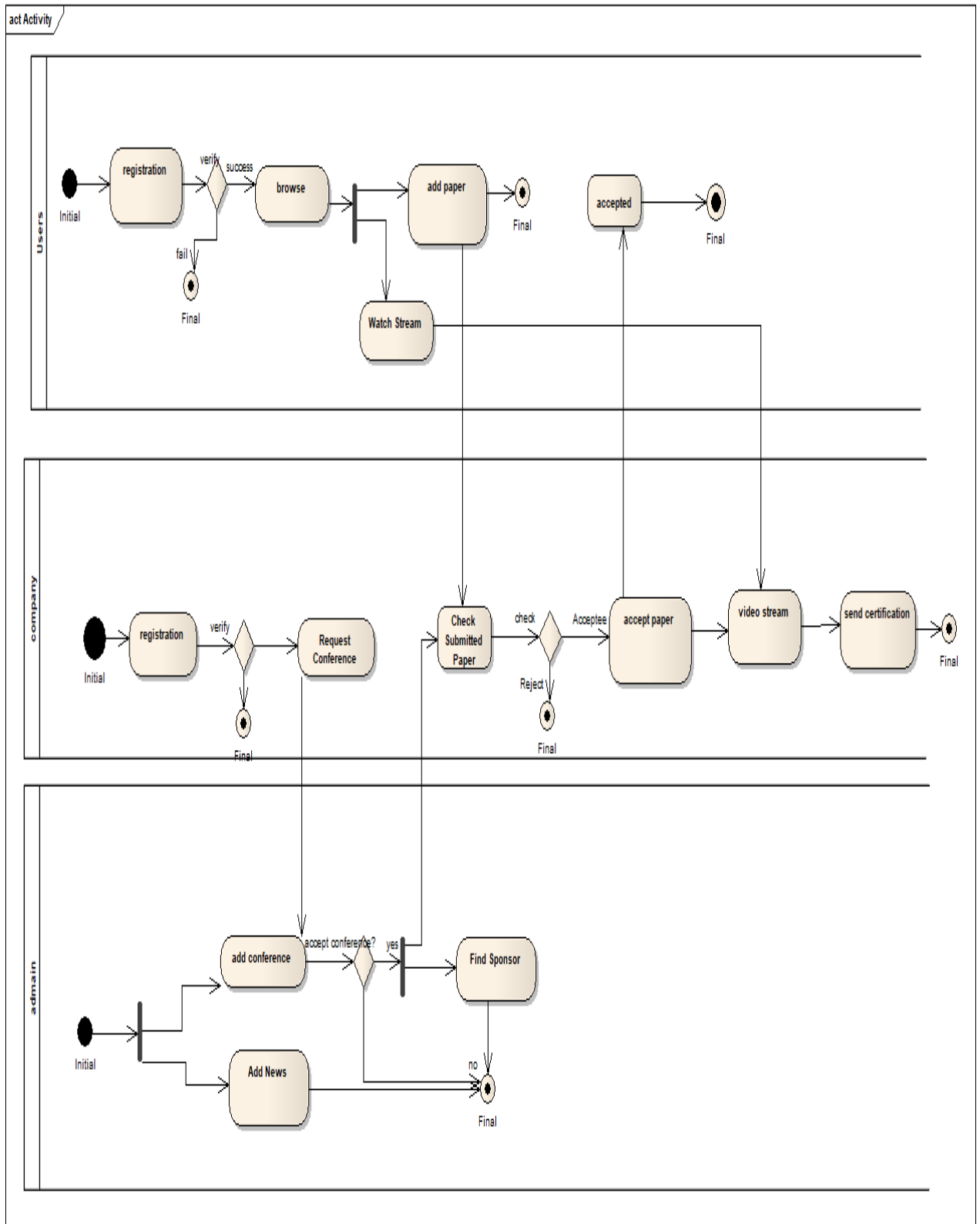


Figure 3.11 System activity diagram



# 3.4 Database analysis

In this section the structure of the database will be briefly discussed.

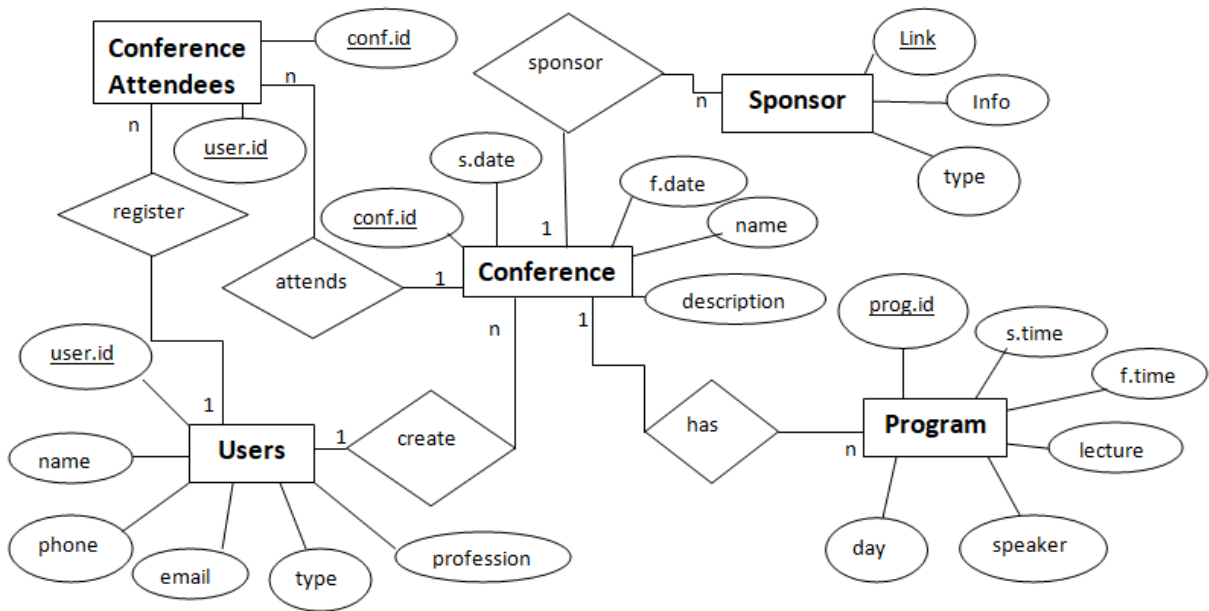


Figure 3.12 Entity Relationship Diagram

The entity relationship model seen in figure (3.12) displays the tables of the database as entities and demonstrates the relationship that connects each table with the other tables.

Below we can see a detailed description of the type and content of the tables in the entity relationship diagram:

Table 3.1 Conference

NO	NAME	TYPE	KEY
1	Conf.id	Int	PK
2	Name	Char	-
3	S.date	DateTime	-
4	F.date	DatetTme	-
5	Description	char	-
6	User.id	Int	FK

**Table 3.2 Users**

<b>NO</b>	<b>NAME</b>	<b>TYPE</b>	<b>KEY</b>
1	User.id	Int	PK
2	Name	Char	-
3	Email	Email	UNIQUE
4	Phone	Int	UNIQUE
5	Type	Int	-
6	Profession	Char	-

**Table 3.3 Conference users**

<b>NO</b>	<b>NAME</b>	<b>TYPE</b>	<b>KEY</b>
1	Conf.id	Int	FK
2	User.id	Int	FK

**Table 3.4 Sponsors**

<b>NO</b>	<b>NAME</b>	<b>TYPE</b>	<b>KEY</b>
1	Link	Char	PK
2	Info	Char	-
3	Type	char	-

**Table 3.5 Program**

<b>NO</b>	<b>NAME</b>	<b>TYPE</b>	<b>KEY</b>
1	Prog.id	Int	PK
2	Conf.id	Int	FK
3	S.time	DateTime	-
4	F.time	DateTime	-
5	Lecture	Char	-
6	Speaker	Char	-

## **3.5 Summary**

In this chapter we talked about how the current conference management system works, defined the system requirements and illustrated them with UML diagrams. Finally the database was briefly analyzed for better understanding of the system.

In the next chapter we will talk about the used tools and techniques as well as the implementation phase.

# **Chapter Four**

## **Implementation**

## **4.1 Introduction**

In this chapter the tools and techniques that we used will be briefly discussed and then the implementation phase and how each was used.

## **4.2 Tools and Techniques**

This section of research reviews the tools, techniques, packages, algorithms and every mechanism that used in project.

### **4.2.1 Enterprise Architect**

Enterprise Architect uses the Unified Modeling Language (UML) which is the standard for building Object-Oriented software.

### **4.2.2 Laravel:**

Laravel is a powerful MVC PHP framework, designed for developers who need a simple and elegant toolkit to create full-featured web applications. It was used because of its flexibility in using route and sessions.

### **4.2.3 WEB-RTC**

WebRTC is a free, open project that provides browsers and mobile applications with Real-Time Communications (RTC) capabilities via simple APIs. The WebRTC components have been optimized to best serve this purpose.

### **4.2.4 Google docs**

Google docs is a web-based office suite: the office programs, and the documents you create with them, are all kept on a Google server and accessed via the internet at docs.google.com, free with a Google account, allows you to share

documents for viewing and editing and allows multiple users to collaborate simultaneously on a project over the web.

## **4.2.5 X-PATH**

XPath is a syntax used for selecting parts of an XML document, the way it describes paths to elements is similar to the way an operating system describes paths to files.

Xpath is a W3C standard, is not itself written as XML, but is used heavily in XSLT and is almost a small programming language where it has functions, tests, and expressions

## **4.2.6 RapidMiner:**

RapidMiner Is a data science software platform developed by the company of the same name that provides an integrated environment for data preparation, machine learning, deep learning, text mining, and predictive analytics. It is used for business and commercial applications as well as for research, education, training, rapid prototyping, and application development and supports all steps of the machine learning process including data preparation, results visualization, model validation and optimization.

## **4.2.7 XAMPP:**

XAMPP is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file.

## **4.2.9 HTML**

HTML is the standard markup language for creating Web pages, describes the structure of Web pages using markup.

## **4.2.10 CSS**

CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. **CSS** is independent of HTML and can be used with any XML-based markup language.

## **4.2.11 PHP**

PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

## **4.2.12 JavaScript**

JavaScript is a cross-platform, object-oriented scripting language. It is a small and lightweight language. Inside a host environment (for example, a web browser), JavaScript can be connected to the objects of its environment to provide programmatic control over them.

# **4.3 Implementation**

This section of research reviews the full implementation of the project.

## 4.3.1 Web implementation

In web development we used php , css on the Laravel MVC to create and design the pages and laravel controleers to implement a RESTful web service in addition to the web-RTC catch video elements for streaming.

In this section we will explain the system interfaces and how the system works in general.

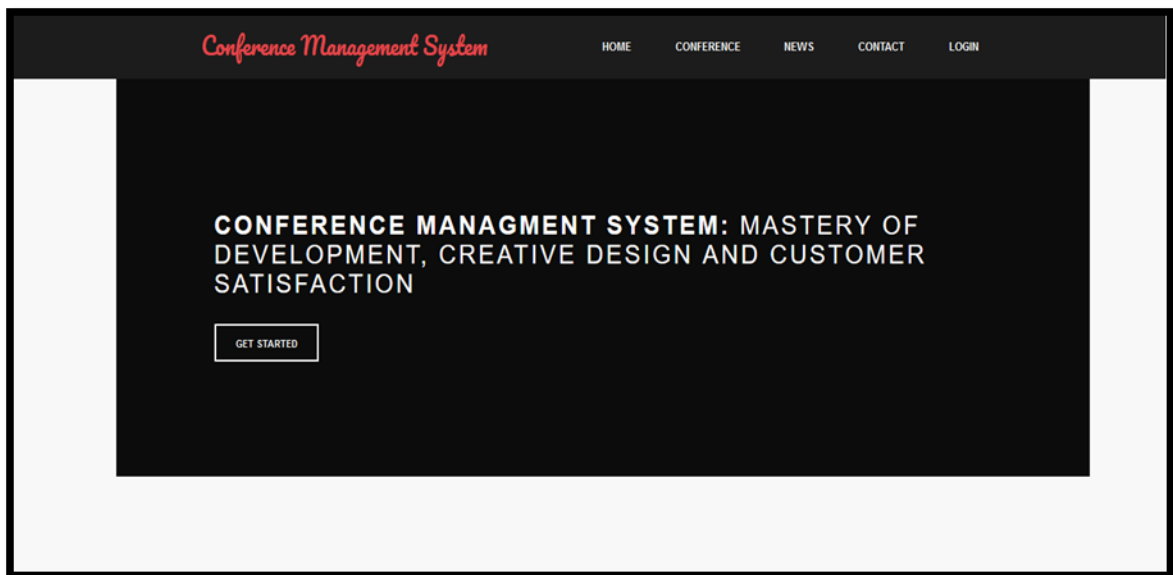


Figure 4.1 Home Page

Figure (4.1) shows the main page of the system which allows access to the system for creating an account, browsing and following up with news.



Conference Management System

HOME CONFERENCE NEWS CONTACT LOGIN

Sign Up

FIRST NAME

LAST NAME

E-MAIL ADDRESS

PHONE NUMBER

AFFILIATION (E.G UNIVERSITY OF ...)

DEPARTMENT

COUNTRY

PROFESSION

PASSWORD

Figure 4.2 Registration

Conference Management System

HOME CONFERENCE NEWS CONTACT LOGIN

AFFILIATION (E.G UNIVERSITY OF ...)

DEPARTMENT

COUNTRY

PROFESSION

PASSWORD

CONFIRM PASSWORD

f t G YouTube i

Figure 4.3 Registration part2.

Figures (4.2) and (4.3) illustrate how to create an account on our site, which includes comprehensive information to ensure the safety of future dealing so that the registrants on the site enjoy many of the characteristics that are not available to the normal visitor of the site.



**Figure 4.4 Conferences Page**

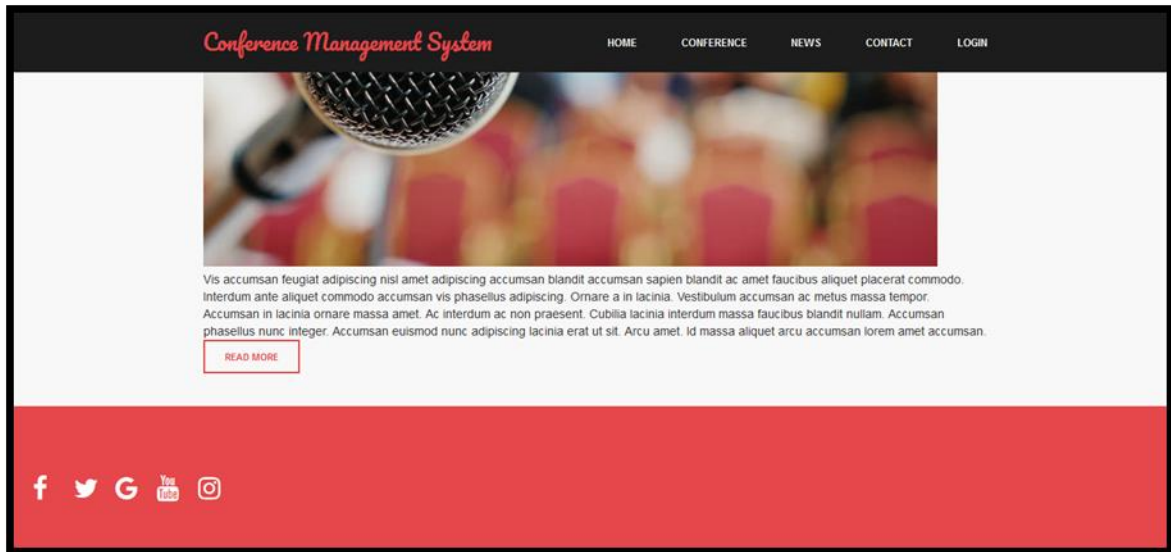
Figure (4.4) the conference page in the system can be seen. At the top of the page appears a button for registering in a conference.



**Figure 4.5 Conferences Page part 2**

Figure (4.5) shows the page for viewing existing conferences. At the top of the page there is a conference creation button. This button appears for system

administration only. In order to add a conference after the administration of the system has accepted the request to organize the conference.



**Figure 4.6 Conference page part 3**

Figure (4.6) shows a conference in the system, description of this conference and read more button that leads to the conference program page and full information about this conference.

The screenshot shows the 'Request conference' form in the Conference Management System. The header includes the system name and navigation links: HOME, CONFERENCE, NEWS, CONTACT, and LOGIN. The main heading is 'FILL THE FOLLOWING TO COMPLETE YOUR REQUEST'. The form contains three input fields: 'E-mail' (with a note '\*make sure the e-mail you entered is it you register with'), 'Phone Number', and 'Select Conference Field'. Below the fields are 'Submit' and 'Cancel' buttons. A red footer bar contains social media icons for Facebook, Twitter, Google+, YouTube, and Instagram.

Figure 4.7 Request conference

Figure (4.7) show the page about Submit a request to organize a conference through one of the members registered in the system.

The screenshot shows the 'Add new conference' form in the Conference Management System. The header includes the system name and navigation links: HOME, CONFERENCE, NEWS, CONTACT, and LOGIN. The form contains three input fields: 'conference name', 'Conference summary description', and 'Conference full description'. Below the fields are 'Add' and 'Cancel' buttons. A red footer bar contains social media icons for Facebook, Twitter, Google+, YouTube, and Instagram.

Figure 4.8 Add new conference

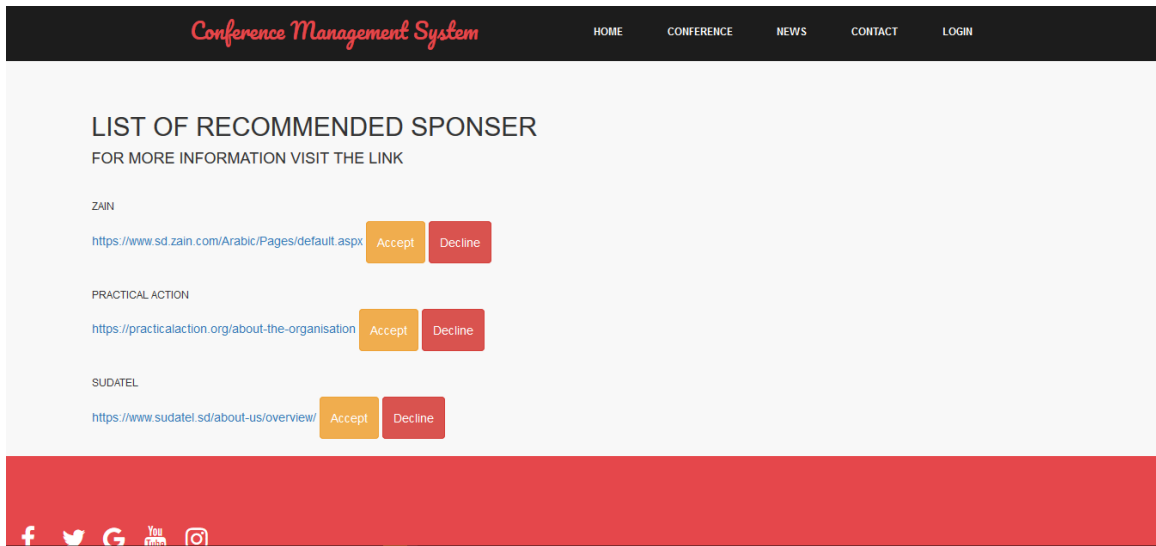
Figure (4.8) shows a page where a new conference is added by the system administrator after accepting the request to organize a conference.

The screenshot displays the 'Conference Management System' website. The header includes navigation links: HOME, CONFERENCE, NEWS, CONTACT, and LOGIN. The main content area is titled 'DESCRIPTION' and contains a paragraph about the International Conference on Computational Science. Below this is the 'CONFERENCE PROGRAM' section, which features a table with three columns: 'day', 'Lecture', and 'speaker'. The table lists three days of the conference with their respective topics and speakers. A 'REGISTER TO CONFERENCE' button is located below the table. At the bottom of the page, there are social media icons for Facebook, Twitter, Google+, YouTube, and Instagram.

day	Lecture	speaker
10/10/2017	Software Development & Maintenance	Dr.Mohammed Ahmed
11/10/2017	Cyber Security	Dr.Hashim Ali
12/10/2017	How To Manage Your Project	Dr.Adam

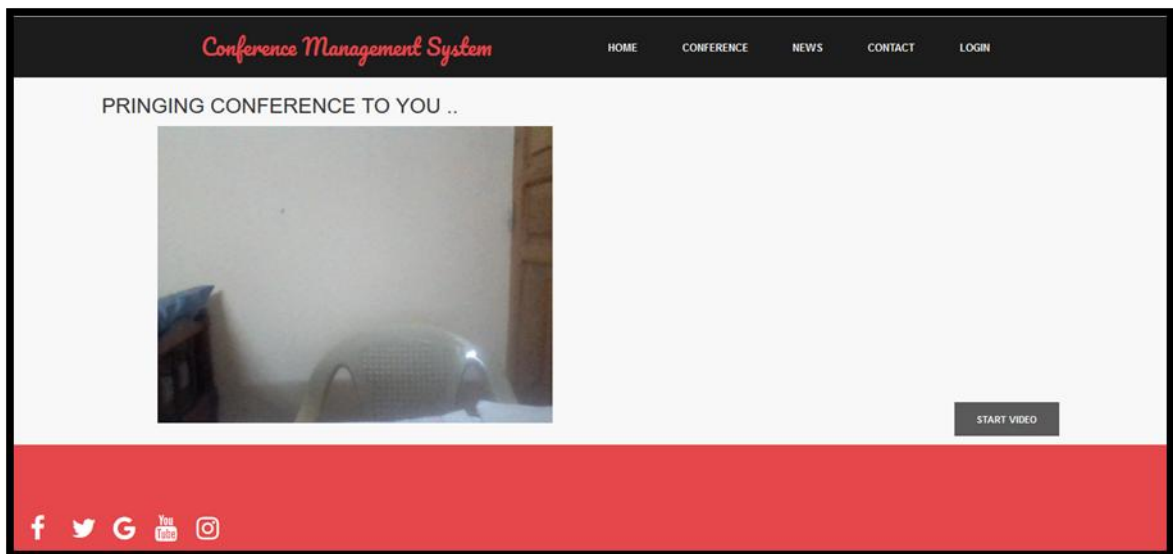
**Figure 4.9 Conference Program**

Figure (4.9) shows a page where the full program of the conference is displayed, as well as a full description of the conference and its activities.



**Figure 4.10 Sponsors**

Figure (4.10) shows the page where sponsors suggested by the system are displayed based on the conference field.



**Figure 4.11 Video Streaming**

Figure (4.11) shows the page where the conference is broadcast live to the registrants in the conference.

### 4.3.2 Text Mining Implementation

For extracting the information out of the web we used the `importxml()` function on Google sheets which offers capabilities for extracting data out of the online web pages structure and saves them in excel document format.

The `importxml()` function takes two arguments, the first of which is the URL of the page and the second is the X-PATH query. Example:

`=importxml("https://www.google.com", "//@href")` returns all hyperlinks found in Google's main page.

The `importxml()` function was implemented on <https://www.alexacom/> which is a website that contains a vast amount of web sites with descriptive information on each one (figure 4.12)

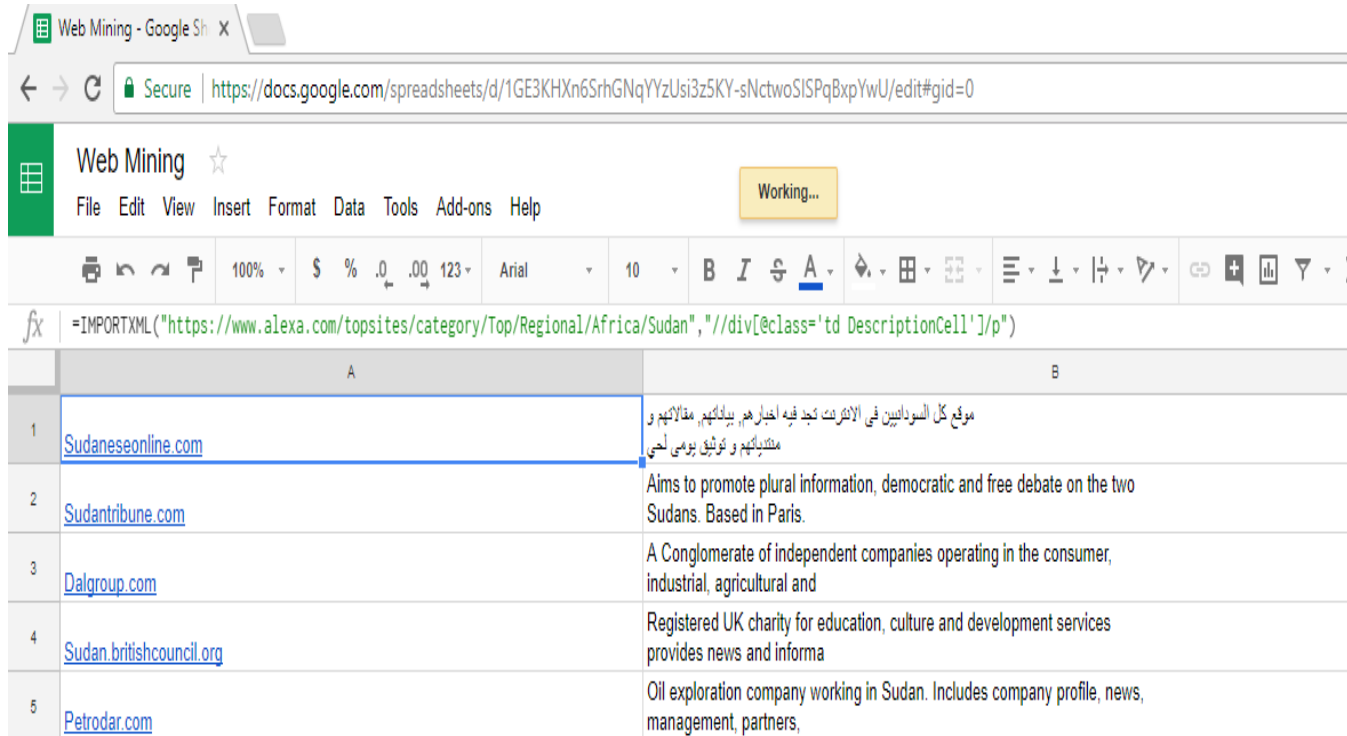


Figure 4.12 Example showing the use of the `importxml()` on Google sheets.

The resulting .xlsx file (excel) was imported into RapidMiner to apply text mining on it in order to find a sponsor.

In *Rapidminer* first we implemented the (process document from files) function to input the .xlsx file into the studio and do the all the preprocessing, then we applied k-medoids clustering operator to find the top keywords in each website.

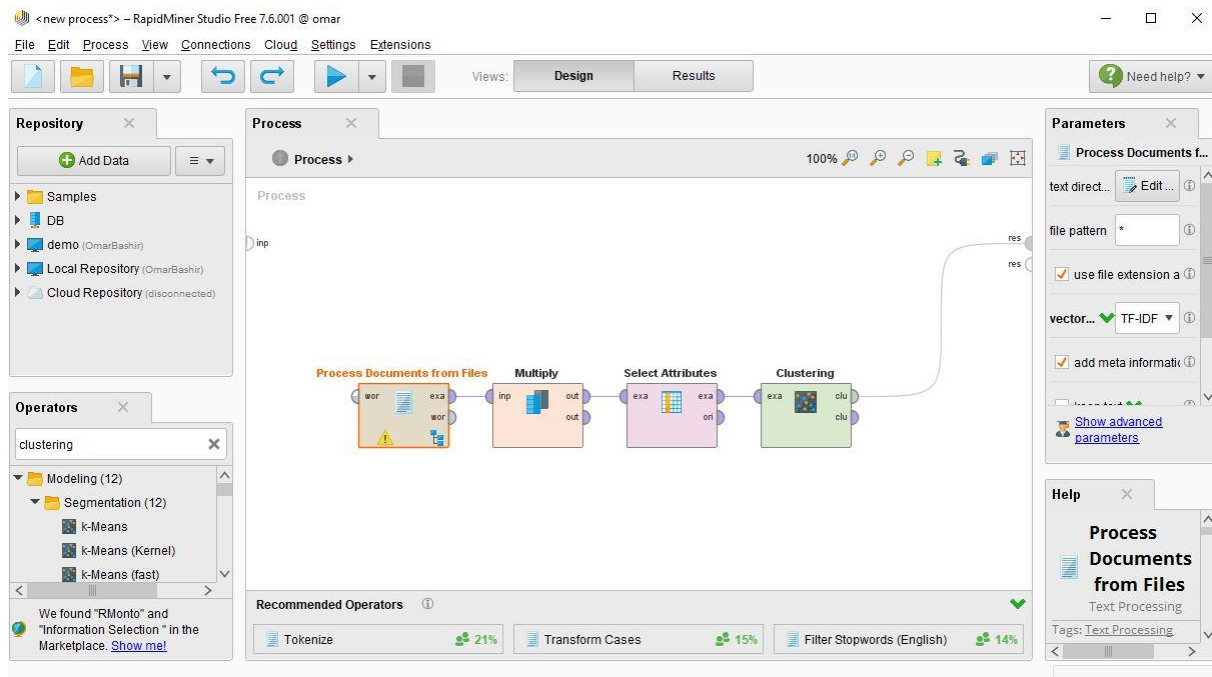


Figure 4.13 Rapidminer studio interface

## 4.4 Summary

In this chapter the tools and techniques used as well as the implementation of both the web and the text mining were outlined.

The next chapter will talk about the results, future work recommendation and references.



# **Chapter FIVE**

## **Results, Conclusions and Recommendations**

# 5.1 Introduction

In this chapter the result will be addressed, the recommended future work in this field and the references used for information.

# 5.2 Results

The following figure (5.1) shows the output from the clustering operation. Displaying the number of clusters and the number of sites grouped inside each one

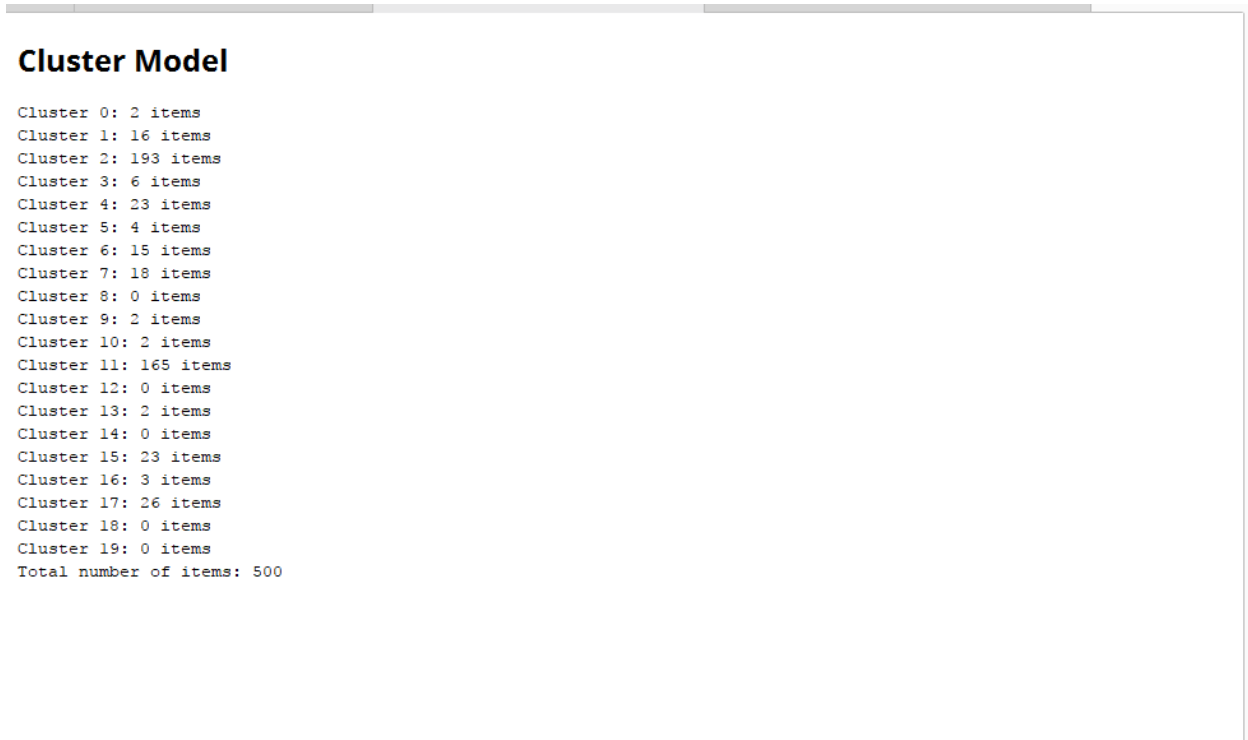


Figure 5.1 Clusters Model

	A	B	C	D	E	F	G	H
406	22.0	cluster_6	loc gov law help guid nation sudan php					
407	42.0	cluster_6	state gov p af ci su					
408	43.0	cluster_6	state gov g drl rl hrrpt htm					
409	44.0	cluster_6	state gov g drl rl hrrpt af htm					
410	45.0	cluster_6	travel state gov content passport en countri sudan html					
411	52.0	cluster_6	ncbi.nlm.nih.gov					
412	67.0	cluster_6	noaa.gov					
413	74.0	cluster_6	weather.gov					
414	83.0	cluster_6	bom.gov.au					
415	87.0	cluster_6	nhc.noaa.gov					
416	92.0	cluster_6	usg.gov					
417	93.0	cluster_6	usda.gov					
418	101.0	cluster_6	nih.gov					
419	105.0	cluster_6	cdc.gov					
420	110.0	cluster_6	http://medlineplus.gov					
421	119.0	cluster_6	fda.gov					
422	136.0	cluster_6	fema.gov					
423	138.0	cluster_6	niddk.nih.gov					
424	139.0	cluster_6	niam.nih.gov					
425	140.0	cluster_6	nimh.nih.gov					
426	144.0	cluster_6	cancer.gov					
427	147.0	cluster_6	nichd.nih.gov					
428	202.0	cluster_6	ncbi.nlm.nih.gov					
429	217.0	cluster_6	noaa.gov					
430	224.0	cluster_6	weather.gov					

Figure 5.2 Cluster Items

Figure (5.2) shows the contents of clusters. Taking cluster number 6 as an example it demonstrates that all the websites grouped here are gov which is short for government.

## 5.3 Conclusions

We were able to get sponsors from their websites information using keyword clustering implemented by RapidMiner. Also create a web site for planning conferences as well as video streaming to the users.

**Table 5.1 comparison between management systems**

<b>System feature</b>	<b>EDAS</b>	<b>OpenConf</b>	<b>ConfTool</b>	<b>EasyChair</b>	<b>OUR SYSTEM</b>
<b>Register to system</b>	YES	YES	YES	YES	YES
<b>Create Conference</b>	YES	YES	YES	YES	YES
<b>Specify topics for conference and reviews</b>	YES	YES	YES	N.A	YES
<b>Submit Paper to a already registered and valid conference.</b>	YES	YES	YES	YES	YES
<b>Chairing:-Lists the conferences where the user is a chair</b>	YES	YES	YES	YES	YES
<b>View the papers submitted by the user.</b>	YES	N.A	N.A	YES	YES
<b>View details of submitted paper</b>	YES	YES	N.A	YES	YES
<b>Schedule of the conference</b>	YES	N.A	N.A	YES	YES
<b>Video (live stream) conference</b>	N.A	N.A	N.A	YES	YES

## 5.4 Recommendations

The World Wide Web is ever changing and increasing in size so future work in this domain will have a rich source of information

What we recommend for future work is:

- A way of contacting and communicating with sponsors is developed not just finding them.
- Save the streaming of videos in a server for future use.
- Connect the system with venues and hotel systems for automatic reservation.
- Automating the text mining processes.

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