Software Requirements Specification

for

Conference Management System (CMS)

Version 1.0 approved

Name	Date	Reason for Changes	Version
CMS developers Team	Jan. 2. 2022	- Initial draft for review	0.1
CMS developers Team	Jan. 10, 2022	- Add Stakeholder Analysis to SRS - Update table of contents	1.0

1. INTRODUCTION

1.1. Purpose

This SRS document provides a complete description of the Conference Management System (CMS), the system function and features. CMS is a system defined by XYZ department at the University of Alberta. This SRS specifies the purpose and scope of the project. Moreover, features, interfaces and functions of the project are specified in this document. The expected audience of this document is the teaching team of ECE-493 and registered students in this course. This SRS is a repository for all requirements that the CMS system should possess. This specification is a baseline upon which all subsequent design, implementation, and test/validation plan will be specified and implemented.

1.2. Scope

CMS is a web application that will support managing a conference organization process. This system includes registration, paper submission, peer reviewer assignments, publishing announcements, scheduling the accepted papers. CMS is going to be a conference management system for a technical specific conference hold by the XYZ department at University of Alberta, but it should be usable and extendable for other conferences. This version of CMS excludes of accommodation facilities for the conference audience. However, it provides useful information through announcement in the webpage. Connecting to the publisher and delivering the right of authors to the publisher is one of the tasks of conference management system, which is performed manually at this time and it is out of the scope of CMS.

2. OVERALL DESCRIPTION

2.1. Product Perspective

CMS is a conference management system that manages most of tasks of a conference. The system provides a responsive user interface, which can be accessed to via chrome and Firefox web browsers. CMS is implemented using Java, JavaScript as a web application with a relational database management system, SQL.

2.2. User Characteristics

CMS is mainly meant to be used by the University of Alberta staff and its conference audience. However, it should be implemented in a way to allow future extensions in scaling the number and type of users. Users of the current version are:

- Public users: guest who visit the web page of CMS.
- Authorized users: registered users who are a referee, an author, or an audience who register for attending to the conference. This can be including:
    - Administrator: A university of Alberta member who mange the system.

- Editor: This role is the same with the administrator in the current version of CMS but it can be changed in the future. Editor is in charge for managing the referee tasks and making decision about the papers.
- Referee or reviewer: This role is an authorized member who can access to the list of assigned review tasks under her/his name.
- Authors: Authors are correspondent authors who submit a paper to the system.
- Attendees: Attendee is an authorized user who can be an editor, author, a reviewer, or a guest of the system who pays based on his/her role to attend in the conference.

2.3. Operating Environment

CMS is a responsive web application which can be ran on every platform where Web Browser exists. Web server should be reliable. Our team guarantee that CMS works responsive on Chrome and Firefox. Web server and DBMS should be capable of receiving and managing several requests simultaneously in 24 hours of a day. System shall possess these features on a server.

2.4. Design and Implementation Constraints

CMS is implemented in Object Oriented paradigm and in a three-layered architecture via Java and JavaScript, and SQL. SQL management Studio is used for administrating the SQL server. CMS is deployed continuously and in three phases on the provided cloud server by the University of Alberta with XYZ features. CMS GUI design should be consistence with the University of Alberta web pages.

3. System Features

This section specify system features and extracted functional software requirements from each one. Each requirement is described as a scenario and in detail. This information is used for design, implementation, and test of the system.

3.1 User Registration

3.1.1 Description and Priority

Users can register in the system by filling out a form, asking users' information. Upon submitting the form, the system verifies that user's e-mail address is unique and valid and stores it in the database. This system allows string passwords which follow Password Security Standards. Users needs to be registered to use the system functionalities, except public announcements. Registered users are authors, editor, referees (reviewers), and Attendees.

Priority: High

3.1.2 Stimulus/Response Sequences

Stimulus: User requests to be registered on the system.

Response: System redirects the user to the registration webpage/form.

Stimulus: User fills out and submits the form with their information.

Response: System validates email and password fields of the form. If they are valid, it stores the information in the database and redirects the user to the login screen. Otherwise, it displays an error message indicating that some of the fields are invalid.

3.1.3 Functional Requirements

FR1 - Request.Registration - The system shall provide the option of registering a new user, i.e., new email address, redirecting to the registration form on request.

3.2 User login

3.2.1 Description and Priority

Users must provide their credentials before accessing the system. The system compares the user's username and password to the one stored in the database and either provides or denies access to other system features. **Priority:** High

3.2.2 Stimulus/Response Sequences

Stimulus: User requests to log-in to the system.

Response: System inquires the user for their username and password.

Stimulus: User provides their username and password.

Response: System compares provided credentials with the ones stored in the database, redirecting the user to their home page if they match or presenting an error message otherwise.

3.2.3 Functional Requirements

FR2 - Request.Log-in - The system shall check if the provided Username and Password are matched with the registered users.

FR3 - Change.Password - The system shall allow the user to change the password upon request and updates it in the database.

3.3 Paper submission

3.3.1 Description and Priority

Users have the option of submitting paper manuscripts trough CMS. The system provides a form questioning about the manuscript. The manuscript file must be uploaded in PDF, Word, or Latex formats with the maximum size of 7MB. **Priority:** High

3.3.2 Stimulus/Response Sequences

Stimulus: User requests to submit a new paper manuscript.

Response: System redirects user to the manuscript submission page.

Stimulus: User fills out the form with the required information and uploads their paper manuscript in PDF format.

Response: System validates if all fields have been filled and the uploaded file follows the system rules. If they are valid, the system stores the information in the database, shows a

success message, and redirects the user to their home page. Otherwise, it displays an error message indicating that some of the fields are invalid. User can save the information at any step of paper submission process by a click on the save button.

3.3.3 Functional Requirements

FR4 - Request.Submission - The system shall provide users the option of submitting their manuscripts. A registered user needs to log-in and provide the following information for the system:

- Name of authors, their affiliation and contact information
- Abstract
- Keywords of the paper
- Main source of the paper

When the user (author) clicks the submission button, the system shall check if all fields in the form are valid. For instance, invalid e-mail addresses, blanks, and source files which are not pdf, word, or latex should be informed to the user. Finally, this information is store in the database.

FR5- Save.Submission – The system saves information of a paper at any stage of the submission process, when author clicks the save button. System checks the paper information validity before saving them and inform the user if finds a violation.

3.4 Referee assignment

3.4.1 Description and Priority

Editor, a registered user who manage the hold conference, assigns three referees to submitted papers. Referees are selected by the editor, based on their research area. The list of available referees is guaranteed to be shared with CMS developers through human resource of XYZ department at University of Alberta. Each submitted paper must be reviewed by three reviewers while each reviewer(referee) should not have more than five papers for review. **Priority:** High

3.4.2 Stimulus/Response Sequences

Stimulus: Editor requests for referee assignment for each paper.

Response: System allows the editor to assign a paper to an e-mail address, i.e, reviewer e-mail address.

Stimulus: System notifies referee of the assignment in a form of a review invitation.

Response: System checks if three referees have been assigned to each paper.

3.4.3 Functional Requirements

FR6- Assign.Referee - The system shall provide editor the option to assign referees to submitted papers using referees' e-mail address. When the editor put an email address as a selected reviewer for a paper, the system counts and checks if the reviewer has more than five assigned papers. The system informs editor of any violation. Otherwise, system sends

the paper information to the referee's email address as an invitation which can be accepted or rejected.

FR7- Save.Referee - The system shall put the paper under the referee's account when she/he accepts the invitation. When a reviewer (referee) accepts an invitation, that reviewer is taken to be account as an assigned reviewer to the paper. The system counts and checks the number of assigned reviewers to each paper and inform the editor if it exceeds of three reviewers.

3.5 Reviewing paper

3.5.1 Description and Priority

Referees can have access to the assigned papers in their account when they accept the review invitation. For each assigned paper, there is a review form including questions about the paper quality which should be filled by each referee. Review form information is shared by the CMS through the University of Alberta. When a reviewer accomplishes a paper review and submit it to the system, the filled forms will be saved in the database and sent to the editor. When all three reviewers submit their review forms, the system allows the editor for a final decision. The editor makes decision about acceptance or reject of a paper.
Priority: High

3.5.2 Stimulus/Response Sequences

Stimulus: Referee log-in and selects review action for each assigned paper.

Response: System redirects the reviewer to the paper review page, representing the review form.

Stimulus: Reviewer fill the form and submit it.

Response: System saves it and sends it to the editor when all three reviewers are done.

Stimulus: The editor makes a decision for each submitted paper with three completed review forms.

Response: System save the decision and send it to the author of the paper.

3.5.3 Functional Requirements

FR8 - Paper.Evaluation - The system shall let the referees access the review form of the paper, to which they were assigned and accepted. The system shall check if all fields in the form are valid (e.g., no invalid characters, no blanks), save it, and send it to the editor.

FR9- Make.Decision- When all three review forms are ready by the referees, system allows the editor to make the final decision for the paper. Editor's decision is sent to the author and saved in the database as well.

3.6 Scheduling

3.6.1 Description and Priority

System assigns time and rooms for accepted papers. This schedule is sent to the editor to be checked or modified. The result is sent to the another with accepted papers and announced on the CMS webpage as well. **Priority:** High

3.6.2 Stimulus/Response Sequences

Stimulus: Administrator requests the conference schedule.

Response: System displays the schedule in HTML format.

Stimulus: Administrator asks for edits to the schedule.

Response: System update the schedule.

Response: The final version of the schedule is sent to the audience and is announced on the CMS webpage as well.

3.6.3 Functional Requirements

FR10 - Make.Schedule - The system uses an algorithm, algorithm X, to make a schedule in HTML format. The schedule is sent to the authors of accepted papers.

FR11 - Edit.Schedule - The system allows the editor to edit and update the schedule. Each time the new schedule is replaced as a final version.

3.7 Conference registration

3.7.1 Description and Priority

The system needs to provide a registration for all audience interested to take part in the conference. The price is different based on the type of attendance. This price list is provided by the University of Alberta. This list is announced in the CMS web page and readable for all registered or guest users of the web page. However, Conference attendee needs a ticket for attending to the conference.

Priority: Medium

3.7.2 Stimulus/Response Sequences

Stimulus: an authorized user requests for the conference registration.

Response: System provides an interface for payment via credit cards.

Response: The confirmation of a payment is sent to the user.

3.7.3 Functional Requirements

FR12 – Pay.Attendance - The system provides an authorized user to pay for attending to the conference. Then, the payment confirmation is stored in the system and sent to the user as a ticket.

4. NONFUNCTIONAL REQUIREMENTS

Performance Requirements

Performance of the system is measured using response time and the speed of the data submission. CMS should have a response time between X and Y. The first version of the system might have a limited file submission speed; that is why there will be no need for large network. However, it will be improved depending on the increase in usage.

Security Requirements

Information should be stored in database with a database replication approach. CMS must be able to backup and recover the data. User information, and paper source files must be saved and transmitted as encrypted data over the network.

Software Quality Attributes

CMS should provide a user-friendly UI which embeds notification and message which inform user of errors violations. Scheduling algorithm in CMS expect to show X% accuracy and Y% error against of test and experiment in test phase of the project.

5. Stakeholders

Possible stakeholders for this project include:

- Users: Author, referee (reviewer), editor, guests.
- University of Alberta: XYZ department as product owner, Human resource of XYZ department, IT admin (future CMS admin), Research Ethics office
- Developer Team: Project manager, team members, a software maintainer
- Publishers
- Copyright agency of Canada

Stakeholder	Role	Influence and Power	Risk level to the project	Interest level	importance
Authors	The author is an authorized user of CMS who can submit a paper for a review process, get the review process result, and have a presentation on a specified date.	High Authors' needs must be seen and embodied in the system to encourage them to use the CMS.	Medium The authors' manuscript can impact the CMS reputation in the future.	High CMS improves the authors' experience in research publications. Authors will be interested in CMS since it makes it easier and more reliable for them to upload, track, and publish their work.	high Authors are one of the main user classes since they feed the CSM execution system.

referees	Referees are in charge of reviewing the assigned papers.	The Referee is interested in the functionality and reliability of the project. They need to access the assigned paper with valid information. They have an influence on the design of the review form and how the information is presented. Besides, they influence the features and reliability of the application.	High Suppose the Referee does not have enough knowledge to review the paper and does not adequately review the assigned article. In that case, the paper's validity will be affected, which can impact the CMS reputation in the future.	High CMS gives the referee the platform to quickly review and read the paper. It also helps assign a proper amount of the article to each referee based on their research area. Therefore, it prevents conflicts and unfair workload.	High Referees are one of the main user classes since they are in charge of validating and reviewing the papers.
editor	The editor is in charge of managing the referee tasks and making a decision about the papers.	The editor is interested in the functionality and reliability of the project. They need to efficiently manage the referees and access the paper with valid information. The editor influences the features and reliability of the application. Their use cases require more development considerations and testing to be delivered sufficiently.	High If the editor does not have enough knowledge to manage the referee and make a proper decision for each assigned article, its validity and CMS reputation can be affected.	High CMS gives the editor the platform to easily review and manage the referee of the paper. It provides them with reliable features to manage their work and assign enough related referees to each article. This system helps them prevent mistakes and invalid paper submissions.	High Editors are one of the main user classes since they are in charge of validating and reviewing the papers.
Attendee	Attendee is one of the authors, someone from the industry, or a guest who attends or presents the paper at the conference.	Like the other user, the attendee is interested in the functionality and reliability of the project. They need to access the conference's registration prices; the price list must be accessible for all registered or guests. Besides, the interface for payment should be functional and reliable.	low They do not have a noticeable risk for the application.	High CMS provides the platform to register at the conference and find the price list easily. Besides, they can get feedback on an early version of their latest work via this application and meet other people in their field.	Medium The importance of Attendees is more for the event. The more people attend the conference, the more success company achieve.

guests	They are the visitor of the webpage	Guests are external stakeholders in the development of CMS. They expect that the Webpage is usable and represents valid publication. The guest influences the features of the application and how information is presented to the user.	Low They do not have a noticeable risk for the application. But if the application is not usable and readable for the user, it may affect the popularity of the CMS.	Medium CMS provides a platform that helps them to access a valid and categorized paper.	Medium Satisfying Guest users helps the system to be seen and get popular among researchers.
XYZ department as product owner	To consult with app developers to ensure the application provides a feature that they need. The product owner will provide expertise to the developers so that the finished product will remain ethical and provide valid paper to the public.	The system's functionality described in this document was built upon the product owner's initial suggestions. Further feedback may influence system features; however, all feedback will be carefully considered among all stakeholders to ensure the best user experience.	High If the product owner does not support the project or is satisfied with the project's result, the whole project will be shut down or at high risk.	High The CMS application is designed to satisfy the owner's requirement and make a suitable platform to manage, publish, and review papers.	High The owner of the product defines the feature and use-case of the project.
Human resource of XYZ department	They give a list of referees to the systems	They do not have a direct impact on the system.	High If they do not provide reliable referees, the validity of papers will be at risk.	Low They do not have much interest in or related benefits from this project.	High They provide data for the CSM execution system.
future CMS admin	CMS admin is the person chosen by UAlberta and product owner as an administrator of the system.	System Administrators identify any system problems, anticipate potential issues and repair systems and software when necessary. They ensure the security and efficiency of IT infrastructure. Admin influence on the service quality and reliability of the system.	High If the admin can not do his/her jobs correctly, the system will be at high risk.	High CMS admin will be hired by XYZ company to monitor the CMS system, so he/she has the interest to meet the project goals.	High The system administrator seeks to ensure that the uptime, performance, resources, and security of the computers they manage meet the users' needs without exceeding a set budget.

Research Ethics office	The office at the FGSR that defines the rule for the ethical aspect of publishing paper	They influence the rules and criteria that each paper should have.	low Since CMS doesn't need their contribution and already everything is ready and welcoming on their side.	High They are interested in being followed Since they take care of publishers and authors' rights!	High The rule they define and provide help to publish valid papers.
Project manager	Project managers (PMs) are responsible for planning, organizing, and directing project completion for an XYZ company while ensuring these projects are on time, on budget, and within scope. Mahsa is a project manager for the CMS system.	She has a direct influence on the developer and the features of the system.	High If she can not manage everything and meet the deadline, the project will be at high risk.	High This project gives her a job opportunity	High She has a responsibility to lead, organize, and meet deadlines.
team members (developers)	Developers in the CMS project are teaching Team They are responsible for implementing and developing the project.	The developers are internal stakeholders in the development of CMS. They are focused on correctly implementing as many specified features as possible. Their input and expectations are directly applicable to the app's functionality and maintainability, more so than all other stakeholders. It is the responsibility of developers to translate the expectations of the external stakeholders into a functioning product. Developers influence the system's software quality greatly because they implement all features in response to the expectations of the external stakeholders (as well as their own).	High Meeting deadlines is the sole responsibility of the application developers. If the developers cannot deliver the software and related components by the deadline, the project risks failure. Many of the application features in this document were included with the user's needs in mind. The delivery of these promised features will directly influence the user's reception to the app's deployment. Not implementing features will	High This project gives them a job opportunity	High Developers are crucial to the project to meet the goal and implement the proper features in the application.

			negatively impact the project.		
software maintainer	The maintainer is a subset of the current developers or new developers looking to learn. Maintainers expect that the project will be modular, understandable, testable, and overall maintainable.	Maintainers are external stakeholders representing any party interested in continuing or extending CMS's development beyond its demonstration at the end of the term. The influence and power of maintainers to the development of CMS are moderate. Many of the expectations of the maintainers are directly addressed by the efforts of the current developers. Adherence to best practices in development and documentation during the development effort will improve the project's overall maintainability. Delivering a functional system that satisfies users and academic staff is considered a higher priority than ensuring the project is easy to adopt/maintain in the future.	High Future maintainers of CMS will assume many of the same risks that the developers have.	High The software maintainer will be hired by the company.	High Software maintenance has become an essential part of the software's development after its execution based on his/her responsibilities.
Publishers	The accepted paper will be sent to a publisher to publish the paper after getting permission from the authors.	They do not have a direct influence on the system.	Low They do not have direct influence on a system, so They do not put a system at risk.	High CMS helps them to access valid articles in different areas.	Low Their work does not have many benefits for the system but gives the authors an opportunity to publish their paper.

Copyright agency of Canada	The Canadian Intellectual Property Office (CIPO) is a special operating agency of Innovation, Science and Economic Development Canada.	They influence the rules and criteria that each paper should have.	low Since CMS doesn't need their contribution and already everything is ready and welcoming on their side.	High They are interested in being followed Since they take care of publishers and authors' rights!	High The rule they define and provide help to publish valid papers.