**Video Conferencing App/Web**

**1. Introduction**

**1.1 Purpose**

The purpose of this Software Requirements Specification (SRS) is to define the requirements for the Video Conferencing App/Web. This document provides a detailed description of the system's features, functionalities, and performance criteria to serve as a reference for developers and stakeholders.

**Goals:**

* The Video Conferencing App/Web offers orgenizational-level communication.
* Provide 24/7 access to online conferencing .
* Platform that offers real-time video, audio, chat, whiteboarding, and document co-editing

**1.2 Document Conventions**

* **UI Screens:** Wireframe diagrams.
* **Dates:** yyyy-mm-dd format.
* **Error Codes:** Use HTTP 400 for client errors and HTTP 501 for server errors.

**1.3 Intended Audience and Reading Suggestions**

* **Head Level / Organiser:** For hosting or starting the meeting
* **User / Students / Others :** For joining. Who enroll in the meeting
* **Developers:** For implementing and maintaining the system.

**1.3 Definitions, Acronyms, and Abbreviations**

- \*\*WebRTC\*\*: Web Real-Time Communication

- \*\*WebSocket\*\*: Protocol for real-time data transfer

- \*\*SRS\*\*: Software Requirement Specification

- \*\*UI\*\*: User Interface

- \*\*Auth0/Clerk\*\*: Authentication services

**1.4 Project Scope**

The Video Conferencing App/Web is an enterprise-level communication platform that offers real-time video, audio, chat, whiteboarding, and document co-editing. It includes AI-driven functionalities like a mock interview generator and a text-to-PDF converter to enhance collaboration and productivity.

**1.5 References**

* - IEEE 830-1998 SRS Standard
* - Lab-1 Synopsis Document
* - Lab-2 Project Narrative Document

**1.5 Overview**

This document outlines the system’s features, external interfaces, constraints, and other non-functional requirements necessary for successful implementation.

**2. Overall Description**

**2.1 Product Perspective**

The Video Conferencing App/Web is designed as a competitive enterprise solution, offering advanced security and collaboration tools. It functions as a standalone platform to facilitate seamless virtual meetings and professional interactions.

**System Architecture:**

* - \*\*Frontend\*\*: Next.js, ReactJS, Tailwind CSS
* - \*\*Backend\*\*: Node.js with WebRTC and WebSocket
* - \*\*Database\*\*: MongoDB
* - \*\*Authentication\*\*: Auth0/Clerk
* - \*\*Messaging & Video\*\*: Stream integration

**2.2 Product Functions**

* - Real-time video and audio conferencing
* - Instant messaging and chat functionality
* - Real-time whiteboarding
* - Document co-editing
* - AI-powered mock interview generator
* - Text-to-PDF conversion

**2.3 User Characteristics**

* Enterprise Professionals\*\*: Secure, high-quality communication tools
* Educational Institutions\*\*: Interactive virtual classrooms
* General Users\*\*: Basic video conferencing needs

**2.4 Constraints**

* Built using Next.js, ReactJS, and Tailwind CSS.
* Secure authentication via Auth0/Clerk
* Real-time communication powered by WebRTC and WebSocket

**2.5 Assumptions and Dependencies**

* Stable internet connection required for optimal performance
* Browser support for WebRTC

**3. Specific Requirements**

**3.1 Functional Requirements**

| **ID** | **Requirement Description** | **Priority** |
| --- | --- | --- |
| FR-1 | Users can register and log in using their credentials. | High |
| FR-2 | The system shall allow users to send and receive instant messages. | High |
| FR-3 | The system shall enable real-time whiteboarding for collaboration. | Medium |
| FR-4 | The system shall support document co-editing in real-time. | High |
| FR-5 | The system shall include a GenAI feature for mock interview generation. | Medium |
| FR-6 | The system shall provide text-to-PDF conversion functionality. | High |
| FR-7 |  | Low |

**3.2 External Interface Requirements**

**3.2.1 User Interfaces:**

* **Client Dashboard:** Intuitive dashboards for meeting management
* **Head Dashboard:** Manage entries and transactions.

**3.2.2 Hardware Interfaces:**

* Server: Minimum 8 GB RAM, 500 GB storage.
* User Devices: Desktop or mobile (min 2 GB RAM).
* **C**ompatible with webcams, microphones, and speakers

**3.2.3 Software Interfaces:**

* University Authentication System (via OAuth2).
* MySQL for data storage.
* Stream API for messaging and video

**3.3 System Features**

**Feature 1: User Authentication**

* Input: User credentials (username, password).
* Output: Access to dashboard on successful login.

**Feature 2: Book Search**

* Input: Title, author, ISBN.
* Output: List of matching books with availability.

**Feature 3: Fine Calculation**

* Input: Return date.
* Output: Overdue amount (if applicable).

**3.4 Non-Functional Requirements**

| **Category** | **Requirement** |
| --- | --- |
| Performance | Ensure encrypted communication for privacy. |
| Security | Support up to 500 concurrent users per meeting |
| Availability | System uptime of 99.9% annually. |
| Usability | Accessible via mobile and desktop devices. |
| Maintainability | Modular architecture for future expansion. |

**3.5 Other Requirements**

* Compliance with data protection policies
* Regular system backups for data integrity