**Software Requirements**

**Specification**

**For**

**Icollab**

**(A Collaboration Platform for Teams and Organizations)**

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**1. Introduction**

**1.1 Purpose**

The purpose of this document is to define the requirements for Icollab, a platform designed to enhance collaboration, streamline workflows, and improve productivity for teams and organizations. Icollab aims to provide robust communication tools, real-time updates, and integration capabilities.

**1.2 Document Conventions**

* Entire Document Should be Justified

* Convention for main title

Font : Arial

Font style : medium

Font size : 18

* Convention for sub title

Font : Arial

Font style : medium

Font size : 12

* Convention for body

Font : Arial

Font style : small

Font size : 12

**1.3 Intended Audience and Reading Suggestions**

* Admin
* User

**1.4 Product Scope**

Icollab will enable teams to communicate effectively via messaging, video calls, and file sharing. It will include features such as:

* Creation of workspaces and channels for specific projects.
* Integration with external tools (e.g., GitHub, Google Drive).
* Notifications and message summarization using machine learning.

**1.5 References**

1. MongoDB Documentation
2. ReactJS Official Guide
3. Node.js Documentation
4. WebRTC Documentation

**2. Overall Description**

**2.1 Product Perspective**

Icollab is a web-based platform built using the MERN stack (MongoDB, Express.js, ReactJS, Node.js). It is designed to integrate seamlessly with third-party APIs for enhanced functionality, such as authentication and storage.

**2.2 Product Functions**

* Workspace creation and channel management.
* Real-time messaging and notifications.
* File sharing with storage integration (e.g., Firebase, Google Drive).
* Message summarization using AI.
* Video calls with multiple participants.

**2.3 User Classes and Characteristics**

* **Admin**: Manage users, workspaces, and settings.
* **Team Members**: Create/join workspaces, participate in channels, and collaborate.

**2.4 Operating Environment**

* **Platform**: Web application
* **Browser Compatibility**: Chrome, Firefox, Edge, Safari

**2.5 Design and Implementation Constraints**

* Support for both desktop and mobile devices.

**2.6 User Documentation**

User manuals and help guides will be provided to assist users in navigating and utilizing the platform effectively.

**2.7 Assumptions and Dependencies**

* Internet availability is required for full functionality.
* Users should have basic knowledge of collaboration tools.

**3. External Interface Requirements**

**3.1 User Interfaces**

* **Login Page**: Clean and intuitive with multi-factor authentication.
* **Dashboard**: Displays workspaces, notifications, and recent activity.
* **Chat Interface**: With real-time updates.

**3.2 Hardware Interfaces**

No specific hardware requirements beyond internet-enabled devices.

**3.3 Software Interfaces**

* MongoDB for database management.
* WebRTC for video calls.

**3.4 Communications Interfaces**

* HTTPS for secure communication.
* WebSocket for real-time chat updates.

**4. System Features**

1. Workspace and Channel Creation
2. Real-time Messaging
3. Video Calling and Conferencing
4. File Sharing
5. Notification System
6. Message summarization
7. Integration with Github, Gmail etc.

**5. Functional Requirements**

**5.1 User Authentication**

**Description**: Enables users to securely log in, register, and recover passwords.

* **5.1.1 Login**
  + Input: Email and Password
  + Output: Access to the dashboard upon successful login.
* **5.1.2 Registration**
  + Input: Name, Email, Password
  + Output: Account created successfully.

**5.2 Workspace Management**

**Description**: Users can create or join workspaces for their teams.

* **5.2.1 Create Workspace**
  + Input: Workspace name, description.
  + Output: Workspace successfully created and listed on the dashboard.

**5.3 Channel Management**

**Description**: Workspaces consist of channels where members collaborate.

* **5.3.1 Create Channel**
  + Input: Channel name, type (public/private).
  + Output: Channel created successfully.

**5.4 Messaging System**

**Description**: Real-time chat with options for file sharing and reactions.

* **5.4.1 Send Message**
  + Input: Message text or file upload.
  + Output: Message displayed in the chat.

**5.5 Video Calling**

**Description**: Supports one-on-one and group video calls using WebRTC.

* **5.5.1 Initiate Call**
  + Input: Select participants.
  + Output: Video call session initiated.

#### **5.6 Integration with Third-Party Apps**

**Description**: Provides integrations with tools like GitHub, Gmail

* **5.6.1 GitHub Integration**
  + **Input**: Repository link, API key.
  + **Output**: Commits and issues visible in the workspace.
* **5.6.2 Gmail Integration**
  + **Input**: Google Account authentication.
  + **Output**: Workspace events synced with Gmail.

#### **5.7 Message Summarization**

**Description**:Message summarization provides a concise overview of lengthy conversations in a channel or workspace.

* **5.7.1 Summarize Channel Conversations**
  + **Input**: Chat of particular Channel
  + **Output**:A brief summary of the conversations.

### **6. Other Non-Functional Requirements**

#### **6.1 Performance Requirements**

* The platform must deliver fast and interactive responses.
* Opening channels, sending messages, and retrieving chat histories should not exceed **1 second** of delay.
* Database operations such as fetching user data, channel information, and file uploads must be fast.
* The summarization of messages for large conversations (should be processed fast.

#### **6.2 Safety Requirements**

* Only authorized administrators can manage and query the database contents.
* All users must be authenticated before accessing restricted features, such as private channels, workspaces, or messaging.
* Data protection is ensured during message transmission and storage.
* Any failed or interrupted payment transactions must have a refund or reversal system to ensure financial accountability.

#### **6.3 Security Requirements**

* Communication must be encrypted using **HTTPS** to secure data transmission.

#### **6.4 Software Quality Attributes**

* **Browser Compatibility**: Supports major browsers, including Chrome, Firefox, Safari, and Edge.
* **Mobile Responsiveness**: Fully responsive design ensures seamless access across Android and iOS devices.

#### **6.5 Business Rules**

* **Trademark and Copyright**: Ensures all intellectual property, such as the platform's logo and codebase, is trademarked and protected under copyright laws.
* **File Sharing Restrictions**: Limits the types of files shared in chats to prevent malware or illegal content.

### **7. Goals of Implementation**

1. **Ensure Mobile Responsiveness**: Provide a seamless experience across devices, including smartphones, tablets, and desktops.
2. **Promote Marketing and Campaigns**: Enable announcements and promotional campaigns within channels for organizations.
3. **Workspace and Channel Customization**: Allow users to customize their workspace and channels with preferences, including themes and notification settings.
4. **Chatbot Functionality**: Introduce a chatbot to assist users with platform navigation, FAQs, and task automation.
5. **Optimized Performance**: Focus on delivering fast response times for message sending, file sharing, and workspace switching.

### **8. References**

1. MongoDB Documentation
2. React Documentation
3. Node.js Documentation
4. WebRTC Documentation
5. OpenAI API Documentation (for message summarization)