

Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation: AICTE

PS Code: SIH-1464

Problem Statement Title: Design and Developed a personalized online meeting system for AICTE

Team Name: Server Sentinels

Team Leader Name: Mann Gupta

Institute Code (AISHE): C-36237

Institute Name: Acropolis Institute of Technology and Research

Theme Name: Blockchain & Cybersecurity

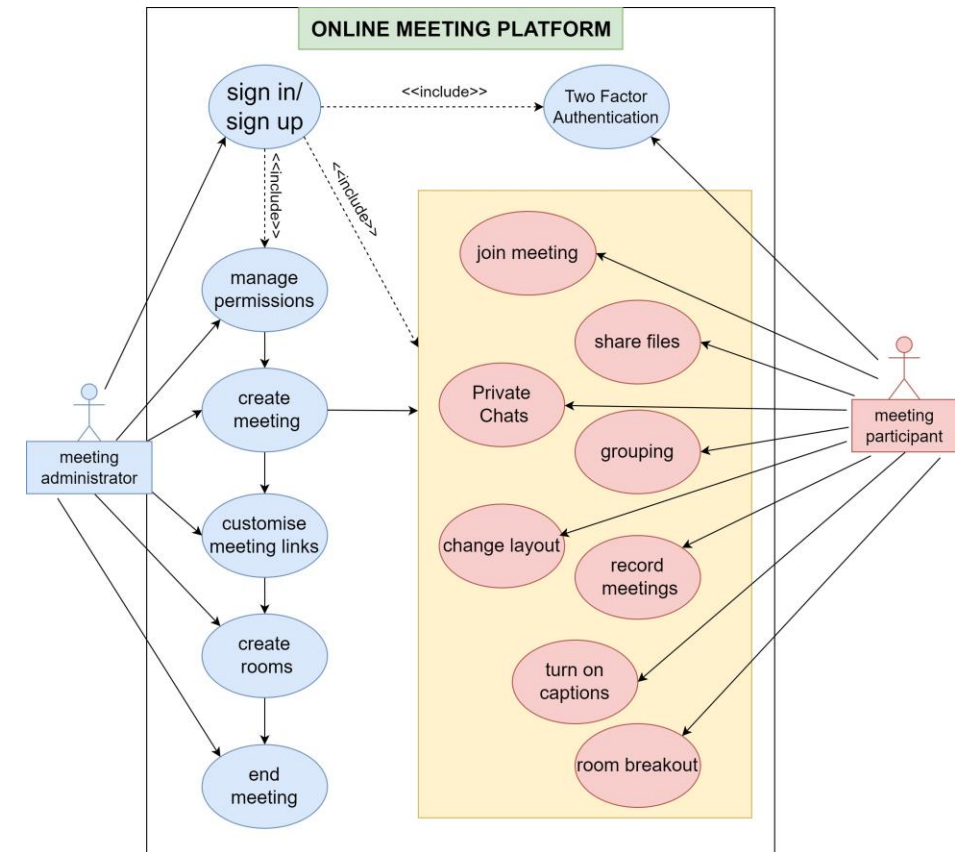
Idea/Approach Details

Describe your idea/Solution/Prototype here:

We aim to develop a secure and personalized online meeting system for AICTE accessible on both web and mobile platforms.

The Prototype will function as follows:-

- Provides a seamless way to create or join video conferences using the **Web-Real-Time-Communication (WebRTC) SDK** for high-quality and secure communication.
- User Management, Two-factor authentication, dynamic joining links using reliable **Nodejs backend** and **MongoDB** database.
- Ensure data privacy and security with **end-to-end** encryption protocols, implemented using technologies like Transport Layer Security (**TLS**).
- Facilitate collaborative work by enabling secure **peer-to-peer file sharing** using **WebRTC** data channels.
- Uses **blockchain** smart contracts to manage authentication and authorization for anytime access of shared files and records file details (hashes, timestamps, sender/receiver) for an **immutable transaction**, which is stored on a **decentralized swarm**.
- Provides a reliable **cloud storage** solution, integrated with **Amazon S3**, for seamless access to session recording after the meeting.
- Enhance inclusivity with real-time **multilingual captions** powered by automatic speech recognition (**ASR**) using advanced Machine Learning (**ML**)² models, such as Large Language Models (**LLM**).



Describe your Technology stack here:



Idea/Approach Details

Describe your Use Cases here

- The users will register and will receive a conformation email for **verification** of their credentials.
- The **link** to the meeting room will be **dynamic** and, as such, can be changed by the meeting administrator, and only those who are verified and have access will be able to join.
- The **Video Conferencing quality** and streaming quality would be adjustable as per the user's need and network strength.
- The files sent over the platform will be through a **Peer-to-Peer** connection and later would be accessible to meeting participants.
- Recorded sessions would be made available to the participants after the meeting using the **Amazon S3 Cloud**.
- The chat for the meeting will be **end-to-end encrypted** in real-time.
- Users will also get privileges of **Realtime captions** along with session recording .

Describe your Dependencies / Showstopper here

- **Secure Authentication and Access Control:** Utilize role-based access control (**RBAC**) to manage permissions and ensure that users only have access to the specific resources and features necessary for their roles, reducing the risk of unauthorized access.
- **End-to-end Encryption for Recordings:** encrypt meeting recordings both in transit and at rest, adhere to robust data security standards, and provide transparent privacy policies, fostering user trust in the confidentiality and security of their data.
- **Room Breakout Feature:** With Room Breakout feature, create virtual breakout rooms within the meeting platform where participants can easily split into smaller groups, fostering collaboration and interaction in a versatile meeting environment suited to various objectives.
- **Secure Document Vault:** The Files shared over the meeting would be available to meeting participants through **blockchain** (swarm).
- **User-Friendly Experience:** Creating a user-friendly online meeting system for AICTE requires streamlined design and functionality to simplify participant engagement.
- **Multilingual Support** for transcriptions and real time captions.

Team Member Details

Team Leader Name: Mann Gupta

Branch (Btech/Mtech/PhD etc): Btech

Stream : CSE

Year (I,II,III,IV): III

Team Member 1 Name: Mahi Patel

Branch (Btech/Mtech/PhD etc): Btech

Stream :CSE

Year (I,II,III,IV): III

Team Member 2 Name: Manan Telrandhe

Branch (Btech/Mtech/PhD etc): Btech

Stream :CSE

Year (I,II,III,IV): III

Team Member 3 Name: Rajat Ankel

Branch (Btech/Mtech/PhD etc): Btech

Stream : CSE

Year (I,II,III,IV): III

Team Member 4 Name: Anuj Sharma

Branch (Btech/Mtech/PhD etc): Btech

Stream : CSE

Year (I,II,III,IV): III

Team Member 5 Name: Shivam Patel

Branch (Btech/Mtech/PhD etc): Btech

Stream : CSE

Year (I,II,III,IV): III

Team Mentor 1 Name: Prof. Anita Mahajan

Category (Academic/Industry): Academic

Expertise : AI/ML, Web Development

Domain Experience (in years): 20

Team Mentor 2 Name: Prof. Narendra Pal Singh Rathore

Category (Academic/Industry): Academic

Expertise : Deep Learning, Cloud Computing

Domain Experience (in years): 16