

**KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY**

*Indian Institute of Science campus, Bengaluru*

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Website: www.kscst.org.in/spp.html or https://kscst.karnataka.gov.in/en

**FORMAT FOR STUDENT PROJECT PROPOSAL FOR THE**

**48th SERIES OF STUDENT PROJECT PROGRAMME**

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|  | **Name of the College: ACHARYA INSTITUTE OF TECHNOLOGY** |
|  | **Project Title: Callify :Video Conferencing Application** |
|  | **Branch: Computer Science & Engineering** |
|  | **Theme (as per KSCST poster):**  **Networking and Communication Engineering, Embedded Systems, VLSI Design, Robotics** |
|  | **Name(s) of project guide(s):**   1. **Name: Prof. Prashanth Kumar S P**   **Email id: prashanthsp@acharya.ac.in**  **Contact No.: 9008929445** |
|  | **Name of Team Members (Strictly not more than four students in a batch):**  **Name: Anish Kumar USN No.:1AY21CS028**  **Email id: anishkumarbdmi@gmail.com**  **Mobile No:9903941812**  **Name: Aditya Jyoti Sahu**  **USN No.:1AY21CS017**  **Email id: adityajyoti7319@gmail.com**  **Mobile No.: 7319241118**  **Name: Hanji Ranjan**  **USN No.:1AY21CS060**  **Email id: hanjiranjan127@gmail.com**  **Mobile No.: 7022299057**  **Name: Dalavai Hruday**  **USN No.:1AY21CS049**  **Email id: dalavaihruday@gmail.com**  **Mobile No.: 9908344234** |
|  | **Team Leader of the Project:**  **Name: Anish Kumar**  **USN No.:1AY21CS028**  **Email id: anishkumarbdmi@gmail.com**  **Mobile No.: 9903941812** |
|  | **Processing Fee Details (Through Online Payment only):  (processing fee of Rs. 1180/-)**  **Please furnish the payment details in the format provided in the last page of the proposal.** |
|  | **Date of commencement of the Project:**  **September 2024** |
|  | **Probable date of completion of the project:**  **December 2025** |
|  | **Scope / Objectives of the project:**   * To create a scalable and secure platform for virtual meetings. * To provide an intuitive user interface for hosting and joining meetings effortlessly. * To integrate advanced features like screen sharing, breakout rooms, and real-time collaboration tools. * **Social Importance**: Bridges communication gaps across diverse regions, supporting remote work, learning, and community building. * **Technical Importance**: Incorporates robust technologies to ensure low-latency and high-quality video streaming. * **Economic Importance**: Reduces travel costs for individuals and organizations, promoting cost-effective communication. |
|  | **Methodology:**   * **Proposed Methodology Overview** * The project "Callify" aims to provide a secure, real-time video   conferencing platform with robust features like meeting scheduling,  real-time communication, screen sharing, and meeting recording. The  proposed methodology involves using a combination of **Next.js**,  **Tailwind CSS**, **Clerk**, **Get Stream**, **ShadCN**, and **Aceternity UI** to  deliver a scalable, secure, and interactive platform for seamless  communication.   * **Authentication**: **Clerk** ensures secure user login via email, social   media, and biometrics.   * **Real-Time Communication**: **WebRTC** and **Get Stream** enable video,   audio, and chat with low latency.   * **Responsive UI**: **Next.js** and **Tailwind CSS** provide fast, scalable, and   responsive design.   * **Data Storage**: **Clerk** stores meeting data securely with fast retrieval. * **Meeting Scheduling**: Users can schedule meetings, and reminders are   sent via notifications. |
|  | **Expected Outcome of the project:**   * **User Authentication**:   1. Users can log in securely using social accounts or traditional methods.   2. Biometric authentication ensures additional security for supported devices. * **Access Control**:   1. Users are granted appropriate permissions based on roles (Host, Participant, Admin).   2. Unauthorized users are restricted from accessing meetings or resources. * **Meeting Scheduling**:   1. Hosts can create and schedule meetings by setting date, time, and participants.   2. Scheduled meetings are stored and displayed in the "Upcoming Meetings" section. * **Real-Time Meeting Management**:   1. Hosts can control participants (mute, pin, block).   2. Participants can interact with features like screen sharing and emoji reactions. * **Functional Requirement-1: Meeting Scheduling**   1. Users can select the date and time for a meeting.   2. Users can add meeting details such as agenda, participants, and meeting type (e.g., video/audio). * **Functional Requirement-2: Meeting Link Generation**   1. Once scheduled, the system generates a unique meeting link that can be shared with the participants.   2. Users can access their scheduled meetings via the link or by visiting the "Upcoming Meetings" page. * **Functional Requirement-1: Real-Time Meeting Management**   1. Hosts can control participant audio, video, screen sharing, and more in real-time.   2. Participants can join, leave, and interact during the meeting. * **Functional Requirement-2: User Interface Customization**   1. The interface is designed to adapt to various devices, ensuring a responsive and easy-to-use experience.   2. Participants can view the meeting grid layout and easily manage their video/audio settings. * **Functional Requirement-1: Secure Data Transmission**   1. All communication, including video and audio, is encrypted using SSL/TLS protocols to prevent interception. * **Functional Requirement-2: Role-Based Access Control (RBAC)**   1. Different levels of access are provided based on user roles (Admin, Host, Participant), ensuring that sensitive information and actions are restricted. |
|  | **Is the project proposed relevant to the Industry / Society or Institution?**  **Yes / No: yes**  **If yes, please provide details of the industry / institution and contact details:**  **Acharya Institute of Technology** |
|  | **Can the product or process developed in the project be taken up for filing a Patent?**  **Yes / No:**  No  **Prior Art search done?**  **Yes/No:** No  **Note:** If your answer is “Yes”, you may contact the Patent Information Centre of KSCST. For more details, email: pic@kscst.org.in |
|  | **Budget details (break-up details should be given):**  Note: KSCST will provide nominal grant support for carrying out the project by students if selected by the project selection committee.   |  |  | | --- | --- | | **Budget** | **Amount** | | a) Materials | 0 | | b) Labor | 0 | | c) Travel | 0 | | e) Miscellaneous | 0 | | **Total** | 0 | |
|  | **Any other technical details (Please specify):**   * **User Authentication Algorithm (using Clerk API)**:  1. User enters login details (email/password). 2. Server sends authentication request to Clerk API. 3. Clerk checks credentials and returns an authentication token if valid. 4. The server stores the token in a secure session. 5. User can now access the platform with necessary access rights.  * **Real-Time Communication (using WebRTC & Get Stream)**:  1. User joins a meeting and requests to start the video feed. 2. The system establishes a peer-to-peer connection using WebRTC. 3. Video/audio data is continuously transmitted in real-time through WebRTC, ensuring minimal latency.  * **Meeting Scheduling (using Get Stream & Next.js)**:  1. User inputs meeting details (date, time, attendees). 2. System checks for slot availability in the database. 3. Meeting is scheduled, and a confirmation is sent to the user. 4. Reminder notifications are sent via **Get Stream** API. |
|  | **SPP Coordinator (Identified by the college):**  **Note:** To be identified by the principal of the institution. The project proposals must be submitted to KSCST through SPP coordinator designated by the principal.  **Name: Dr. Rajeshwari**  **Email id: rajeshwari@principal.ac.in**  **Contact No.: 9901499699** |

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| **Name of the Project Guide: Prof Prashanth Kumar S P** | **Name of the HOD: Dr. Ajith Padyana** |
| **Email id: prashanthsp@acharya.ac.in** | **Email id: hod-cse@acharya.ac.in** |
| **Contact No.: 9008929445** | **Contact No.: 9731015499** |

**DECLARATION**

**(From Project Students)**

(To scan this page and enclose in the project proposal)

We, the project team hereby declare that the details enclosed in the project proposal **“Callify Video Conferencing”** Computer Science & Engineering, Acharya Institute of Technology are true and correct to the best of our knowledge and belief. We undertake to inform the Karnataka State Council for Science and Technology (KSCST) of any changes to the project title or team members' names immediately through our project guide or the SPP Coordinator of our institution.

Additionally, we declare that the project work is original and not a result of copying or purchasing. We are committed to completing the project independently, with support from our faculty and project guide, while utilizing the facilities provided by the college. We will not engage in plagiarism and pledge to be sincere and dedicated in executing and completing the project as proposed.

We understand that if any of the above information is found to be false, untrue, or misleading, we may be held liable. We authorize the sharing of the project information contained in this proposal with KSCST, Bengaluru.

We acknowledge that the project team must exhibit and demonstrate the project, participate in the mid-term evaluation of sanctioned projects, and engage with experts. Additionally, we must exhibit the project at the Annual State-Level Poster Presentation and Exhibition, if selected. Should our team fail to participate in the mid-term evaluation or the Annual Exhibition (if selected), we understand that the supported project funds will be returned to KSCST.

We also enclose the endorsement form for KSCST, Bengaluru.

**Name of the students with USN No. Signature with date**

1. **Anish Kumar - 1AT21CS028**
2. **Aditya Jyoti Sahu - 1AT21CS018**
3. **Dalavai Hruday - 1AT21CS049**
4. **Hanji Ranjan – 1AY21CS060**

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| **(Name & Signature of Project Guide with Seal)** | **(Name & Signature of HOD with Seal)** |
| **Email id:** **prashanthsp@acharya.ac.in** | **Email id: hod-cse@acharya.ac.in** |
| **Contact No.: 9008929445** | **Contact No.: 9731015499** |

**ENDORSEMENT**

**(From College, endorsement to be taken in the institution / Department Letter head)**

(To scan this page and enclose in the project proposal)

This is to certify that 1) Mr. Anish Kumar, 2) Mr. Aditya Jyoti Sahu, 3) Mr. Dalavai Hruday, 4) Mr. Hanji Ranjan are bonafide student(s) of Department of Computer Science & Engineering, in the degree program of our institution. If the project proposal submitted by these students under the 48th series of Student Project Programme is selected by KSCST, we will provide the requisite laboratory / Computer / infrastructure support in our college / Institution. Further we also take necessary steps to see that the project team will exhibit / demonstrate their project in the mid-term evaluation of project and in the Annual State-Level Poster Presentation and Exhibition (if selected). If the student team fails to send the completed project report or fails to attend the evaluation in mid-term evaluation of sanctioned projects or fails to attend the Annual State-Level Poster Presentation and Exhibition (if selected), the supported project amount will be returned to KSCST.

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| **(Name & Signature of  Project Guide with Seal)** | **(Signature of HOD with Seal)** | **(Signature of the Principal with Seal)** |
| **Email id:**  **prashanthsp@acharya.ac.in** | **Email id:**  **hod-cse@acharya.ac.in** | **Email id:**  **rajeshwari@acharya.ac.in** |
| **Contact No.:** **9008929445** | **Contact No.: 9731015499** | **Contact No.:** |

**DETAILS OF PROCESSING FEES MADE THROUGH   
NEFT / UPI PAYMENT**

(**Note:** Include this page in the softcopy of the student project proposal. The student team shall furnish the details in the Google Form. It is informed to the students to 1) keep ready the softcopy of the project proposal and other documents and 2) Furnish the payment made details as processing fees and 3) update the details in the Google Form on the same day of payment made to KSCST by NEFT / UPI payment).

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| 1. TITLE OF THE PROJECT | : | Callify Video Conferencing |
| 1. NAME OF THE TEAM LEADER | : | Anish Kumar |
| 1. EMAIL ID | : | anishkumarbdmi@gmail.com |
| 1. CONTACT MOBILE NO. | : | 9903941812 |

**PAYMENT MADE DETAILS**

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| --- | --- | --- |
| 1. BANK REF. NO. / UTR NO. / UPI No. (12 digits) | : |  |
| 1. TRANSACTION ID | : |  |
| 1. NAME OF THE SENDER / ACCOUNT HOLDER and CONTACT NUMBER | : |  |
| 1. NAME OF THE BANK | : |  |
| 1. PROCESSING FEES | : | Rs. 1,180/- (Inclusive of 18% GST) |
| 1. DATE OF PAYMENT MADE | : |  |
| 1. TIME | : |  |
| 1. MODE OF PAYMENT MADE (NEFT / UPI, PLEASE SPECIFY) | : |  |

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| (Name & Signature of  the team leader) | (Name & Signature of  Project Guide or HOD with Seal) |

**KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY**

Indian Institute of Science campus, Bengaluru

**48th SERIES OF STUDENT PROJECT PROGRAMME (SPP)**

***(Note: This page is for information about bank details of KSCST to the student team and college / institution and not to include this page in the project proposal softcopy)***

**BANK ACCOUNT DETAILS OF KSCST**

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| Name and address of the Institution | Karnataka State Council for Science and Technology, IISc Campus, Bangalore -560012 |
| Account holder’s name / Designation | Secretary, Karnataka State Council for Science and Technology |
| Bank Account No. & Name of the bank | Current A/C No. 0683201000024 Canara Bank, IISc Campus Branch, Bangalore-560012 |
| IFSC Code | CNRB0000683 |
| MICR Code | 560015023 |
| Bank Branch Address | Canara Bank, Indian Institute of Science, Bangalore-560012 |



