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### Channels Based Platform for Text and Video Conferencing

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#### Abstract

Communication has become the essential part of our lives over various technologies. As the large the number of users gets connected to internet everyday it becomes one of the problem to provide better communication services to every users. Text messaging has become common and many users are getting attracted towards video meetings. Application has problem in connecting large number of users in a video meeting for the purpose of communication. In this project report a new approach to make communication easier has been proposed. Users can quickly register themselves and then can access the applications which provide users the channels functionality. A user can either create their channel or else join other channels. Inside channels they can communicate using text messaging and also video conferencing with large number of users present in a channel. Users can share their screen and text each other while attending video meeting. Application can also generate attendance report of users in channels who attended video meeting.

**Keywords:** Communication, Text messaging, Video conferencing, Attendance report.

#### 1. Introduction

Our Web Application will be a free instant messaging and Video conferencing platform designed for creating communities ranging from gamers to education and businesses. This application will specialize in text, images, video and audio communication between users in a channel. In this application there will be a feature for video conferencing that can mark information about user like when they are connected and disconnected, attendance etc. also they will be able to do text messages when they will be video chat. This application specializes in text, video, image and audio communication between users in a channel and the most useful feature of this application is to connect peoples with video conferencing. [1-4]. When travel is not an option, impractical, or undesirable, video conferencing has

grown in popularity and reliability as a means of bridging the distance. Audio and video telecommunications are used in video conferencing to bring people from different locations together. Understanding the requirements for video conferencing and how to use it has become a major research topic for various educational institutions and businesses. The major focus of the platform is to make communication and video conferencing easier and efficient for use. We have achieved this by providing a simple user interface for our application for communication and video conferencing. Our application have the features of registration, text messaging, video conferencing, and screen sharing and generating attendance report automatically.[5-8].

#### 2. Literature survey

“A LARGE STUDY OF TEXT MESSAGING USE by Agathe Battestini, Vidya Setlur, Timothy

Sohn” In this paper it is shown that text messaging is a popular, global method of communication that involves sending short 160-character messages between mobile phones. Text messaging usage has increased from 12 million to 135 billion messages per month in the last decade. Text messages' popularity can be attributed to a number of factors, cost per message versus voice minutes, social appropriateness, ease of use, and the lightweight nature of sending messages are all factors to consider. Interaction with online services such as bank statements, social networks, and chat clients has also increased text messaging usage. K.V Rop's, Nelson Bett "VIDEO CONFERENCING AND ITS APPLICATION IN DISTANCE LEARNING" In this paper it is shown that Meetings are a common occurrence in businesses of all sizes and nationalities. Meetings are an unavoidable part of modern working life, defined as a gathering of three or more people who agree to gather for a purpose supposedly related to the functioning of an organisation or group. Company management, for example, estimate that they spend 60-75 percent of their time in face-to-face or telephone meetings. Despite the fact that business meetings are sometimes viewed as a waste of time, most managers and employees recognise the importance of holding them on a regular basis. [7-12].

### 2.1 WhatsApp

WhatsApp Messenger, or simply WhatsApp, is a Facebook, Inc.-owned freeware cross-platform centralised messaging and voice-over-IP (VoIP) service. Users can send text and voice messages, make voice and video calls, and share images, documents, user locations, and other content through the app. WhatsApp users can share their location in real time through text messages. They can also use WhatsApp to organise contact lists so that they can quickly send messages to large groups of people in group chats.

### 2.2 Telegram

Telegram's core features are similar to those of most other messaging apps: you can send messages to other Telegram users, create group conversations, make phone calls, and send files and stickers. Telegram's main feature is privacy, which it achieves through end-to-end encryption. WhatsApp, on the other hand, has used end-to-end encryption in messages, calls, and video calls, despite its reputation as a less secure service.

Optional two-factor authentication is available on both services.

## 3. Proposed Work and Solution

### 3.1 Creating a Platform for text messaging and video meeting:

The important part of the applications is how we can communicate. The platform proposed uses react and node has the ability to connect remote users into single application for the goal of better communication. The platform has registration implemented using Google firebase service which will help users to authenticate themselves and provide their basic details like name and email to firebase real time database of our application for later use by the application for profile section. After that user will get redirected to main platform. The platform can give user the ability to create channels and join channels. Then inside of channel it has text messaging which is implemented using React and Firebase Real time database. Users can communicate using text messaging in a channel

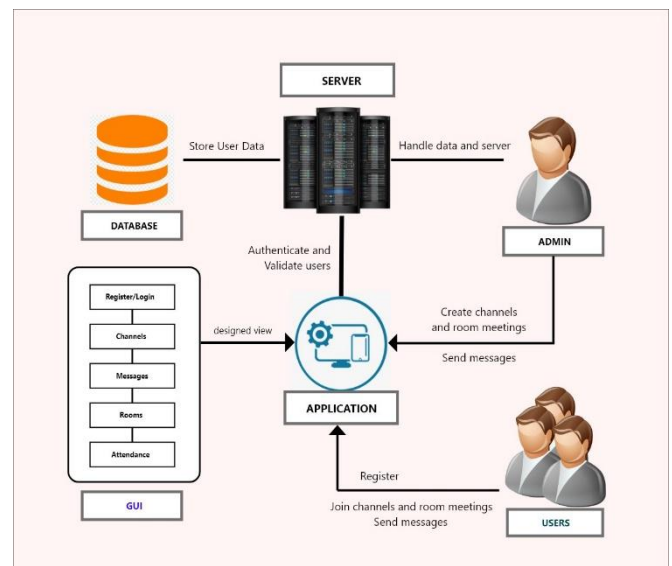


Fig.1 System Architecture

### 3.2 Application for Video Conferencing:

The platform has a video conferencing feature implemented using Node and Socket which will connect remote users. Video meeting and conferencing has become important part of the communication these days. In these platform users can create video meetings and can also send the join meeting link to other users with the help of channels connecting all users.

The video conferencing uses socket share real-time video of the remote users and have the screen

sharing feature implemented using node. Text messaging for the users in video conference has been implemented for the ease of communication between the users in a meeting.

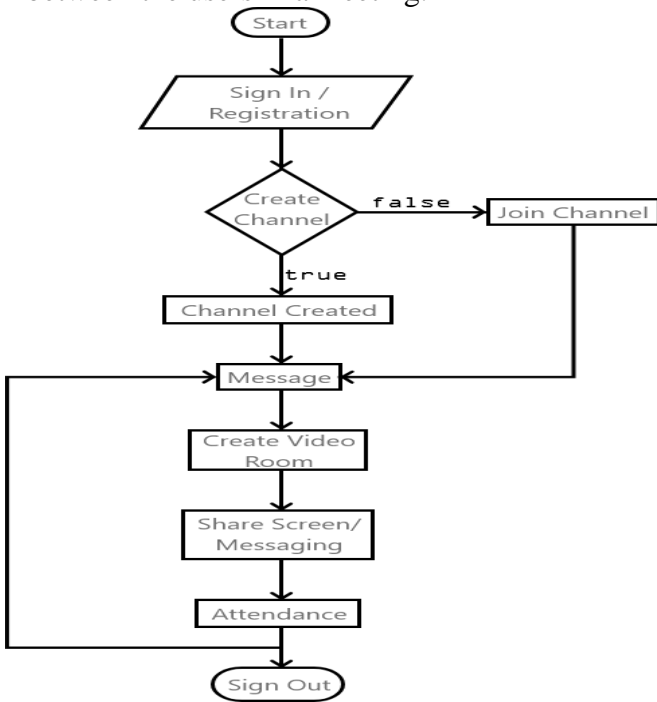


Fig.2 Flowchart

### Attendance system in video conferencing application:

The most important part of the application is to collect the details of the user who attended video conference which is done by generating attendance report of the users. The attendance report will collect name and other details like duration of attended time for proper evaluating attendance of the users who attended video meeting. After evaluating attendance application will automatically generate attendance report of the users who attended video conference.

### 4. Implementation

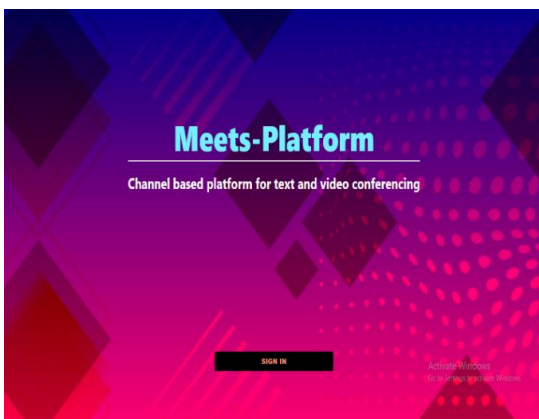


Fig.3 Registration Page

In Fig 3, for registration and login to the application google OAuth is implemented for handling users using its Firebase service. Users have to enter a valid email and password for the registration from which users name and photo associated with that account will be used by the application.

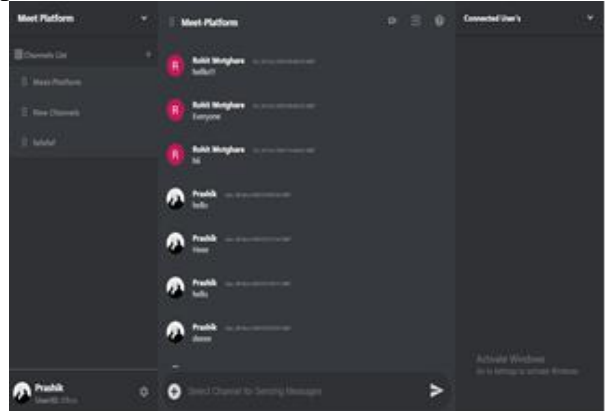


Fig.4 Messaging Home screen

In Fig 4, After successful registration user get redirected to the home screen of the application where user can create different channels into application share their messages in that particular channels or any other channel .Data associated with all the channels will be stored in Firebase.

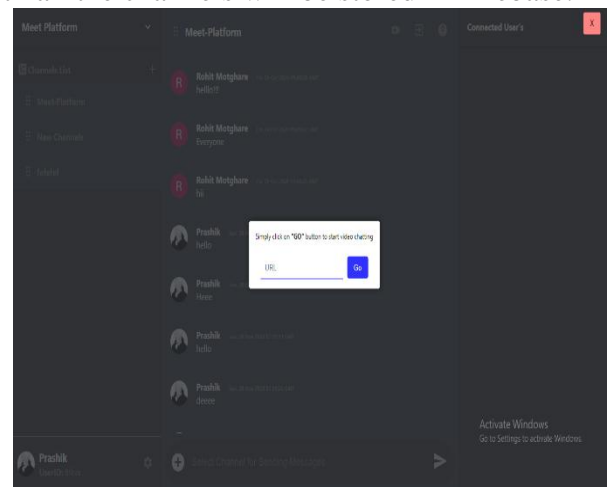
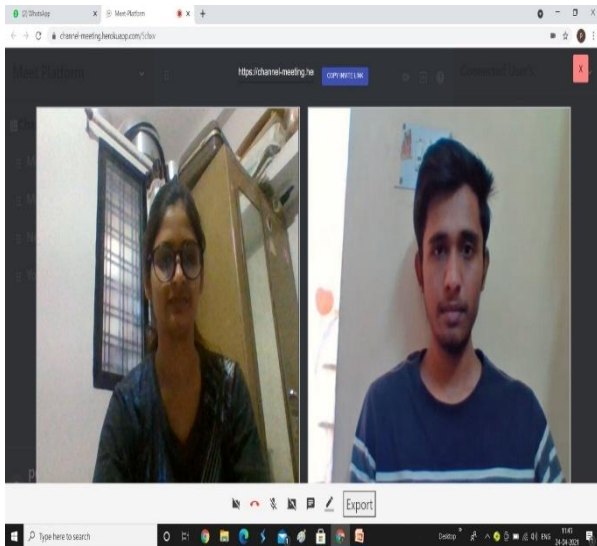


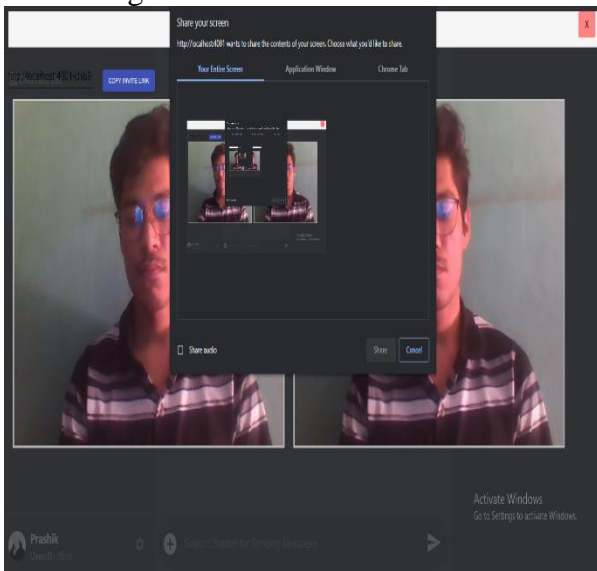
Fig.5 Create Meeting

In Fig 5, Users can able to create or join video meeting in application by clicking create meeting icon with which they can communicate with other users in a real time video sharing and chatting environment with a lot of features to chat and sharing screen for the presentation of slides or any other use required by the user. Users have to enter their name and then they can join or connect to others and share their real time video to other users.



**Fig.6 Video Meeting**

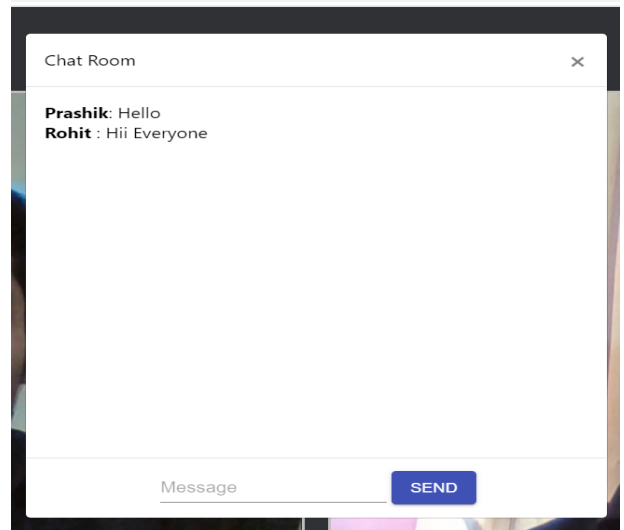
In Fig 6, after creating or joining video meeting remote users get connected together and share their real time video to other users in a video meeting. Users can also copy the meeting link and share it in their channels or with any other user they want to get connects with. Here, user will get a lot features to make communication effective like chatting and screen share with other users. User can also download the list of connected users for the maintaining records of attendees connected in a video meeting.



**Fig.7 Screen share**

In Fig 7, it is shown those users are able to share their screen by clicking on a screen share button present on the screen. User can choose to share entire screen, window or a chrome tab with the other users in a video meeting. Screen share is implemented similar to google meet screen share

where user can also choose to share their audio with other users they are sharing screen with. We can choose screen sharing on or off. We can share entire screen to the participants in a video meeting.



**Fig.8 Chat Room in video meeting**

In Fig 8, it shown that participants can chat with all other participants present in a video meeting. Chat is essential part of modern web applications and in this application it is implemented using React web framework and Socket to connect peer-to-peer users in a room and chat with all the participants.

**Conclusion**

We have designeda Web application and completed its development. Our application will enhance the mode of video conferencing. This application can also be used for text messaging and generating attendance reports of users for video conferencing. We have applied engineering knowledge to analyze the societal problem of connecting large number of people in a video conferencing and then getting attendance report of them and provide a modern engineering solution. Then we have designed the application in three modules. We have investigated the available application to find out the new solutions and updates. We have used modern tools React and Firebase for the implementation of the application. During this project tenure we have applied professional ethics and understood the importance of team work and communication while presenting project in various competitions and conferences for project management. This solution can be developed at generalized level for multiple sectors for life-long learning



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