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Guftgo Video Calling Application

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ABSTRACT: Guftgo is a video calling app developed by Siddesh Naik, Piyush Vishwakarma, Azaruddin Samani, Nishith Shetty, as a part of the Third Year Major Project. This app is used as a Social Media Platform. This app has been developed using Android Studio. The user data has been stored using Firebase. The Database is created with the help of User's Phone Number. The Main priority was to create a Video Calling application that can provide user with an uninterrupted Video Conversation Experience.

KEYWORDS: Guftgo, Video Calling App, Video Conferencing App, Social Media App.

I. INTRODUCTION

In the next few years, we shall see explosive growth in the use of video conferencing as a fundamental tool for businesses to enhance communication and collaboration between employees, partners and customers. The technology has developed considerably from early adopters to its current form of mass market roll-out. Research has shown that humans process visual information more quickly and accurately than text and audio. Therefore, when you have a meeting via video conferencing, your attendees will retain more information and comprehend it more effectively than they would if you held the meeting via audio. The advantage of video conferencing is the ability to facilitate all of those benefits without requiring constant travel for face-to-face communication.

In the real world the communication plays a very vital role. People have been communicating with each other through various applications or mediums. Communication through internet is becoming vital these days. An online communication allows the users to communicate with other people in a fast and convenient way. Considering this, the online communication application must be able to share the texts or images or any other files in a faster way with minimum delay or with no delay. Firebase is one of the platforms which provides a real-time database and cloud services which allows the developer to make these applications with ease. Android provides a better platform to develop various applications for instant messaging compared to other platforms such as iOS. The main objective of this paper is to present a software application for the launching of a real-time communication between operators/users. The system developed on android will enable the users to communicate with another user through text messages with the help of internet. The system requires both the device to be connected via internet. This application is based on Android with the backend provided by Google Firebase.

Making a video call is a good option for meetings when we are far from the people we want to talk to. Android smartphones and tablets may already come with a built-in video call feature and give pre-installed apps that allow this.

II. RELATED WORK

To set the foundations for future elaboration, at the simplest level, a video conference is an online meeting (or a meeting over distance) that takes place between two parties, where each participant can see an image of the other, and where both parties are able to speak and listen to the other participants in real time. The components necessary to make this happen include:

- A microphone, webcam and speakers
- A display

- A software program that captures the voice stream from the microphone, encodes it, transmits to the other participant, and simultaneously decodes the digital voice stream being received from the remote participant in the video conference (most commonly referred to as a “Codec”).
- A software program that bridges both parties together across a digital connection, managing the exchange of voice and video between participants. At either end of the connection, the video and voice traffic is combined and delivered to each participant in the form of a real-time video image and audio stream.
- An optional management tool for the scheduling of video conferencing sessions. At a slightly more advanced level, it is also possible to provide the ability to share content from a device during a video call. The quality and type of content that can be shared depends on the rate of data exchange during the call. Terminology used by video conferencing users to describe the process of dialling into and participating in a virtual meeting is known as “joining a bridge.” Different virtual meeting rooms are assigned unique “bridge numbers,” and users join a video call by “dialling a bridge number.”

III. PROPOSED METHODOLOGY

The project is with following steps:

Point-to-point video conferencing

Video-enabled meetings happen in two distinct ways: either point-to-point or with multi-point. In point-to-point, the simplest scenario is where one person or group is connected to another. The physical components (i.e. microphone and camera) that enable the meeting to take place are often integrated in desktop computing solutions like a laptop or tablet, or can be combined into dedicated, room-based hardware solutions.

Video call management and protocol

In order to build an architecture that scales, the software platform must be able to provide call signalling functionality, and dynamically manage the set-up and maintenance of a large number of video calls. The software architecture has to be capable of reconfiguring itself and its resources in real-time, so that these resources are used to their best ability. In addition, the software architecture has to understand the bandwidth requirements of each call being placed, the policy that is associated with each call (the prioritization and importance of a call), and where the participants of a call are geographically located. By understanding this, the software platform can utilize local resources instead of redirecting data streams and call signalling to resources that are far away, an approach which would eat up large amounts of bandwidth on WAN links that are very costly. The software platform should also be able to instantly detect any failure of hardware resources or loss of communication across infrastructure links, so that it can re-direct traffic and re-establish calls utilizing alternative resources, without overly impacting video calls or their quality. When systems on different customer premises try to join the same video call using devices which run different protocols (i.e. H.323, RTV or SIP), the video conferencing platform must first perform protocol conversion to a common language so the infrastructure can understand and process information correctly. In other words, the software platform should provide intrinsic gateway functionality between devices that talk different languages and interfaces between the outside world and the bridging resources. This optimizes how incoming video calls are handled by virtual resources at its disposal. The Polycom RealPresence DMA can apply business rules that help it place incoming meetings on bridges that make the most sense, either for capacity, geography, or other priority rules.

Let us consider three examples of this approach and see how it simplifies the process.

Example A

Customer A in California wants to meet with Customer B in New York, Customer C in London and Customer D in Paris. The Customer has a video bridge in Denver and a video bridge in Paris and a virtualization manager on a server in London. In this situation, the virtualization management software would identify those two participants wanted to join the call from the U.S., and may, for example purposes, direct them to the resources on the Denver bridge. Likewise, the European participants may be directed to the Paris bridge, with overall control of the call being given to the Master Denver bridge. Under this scheme, large amounts of video data are not shipped across a transatlantic WAN, thereby potentially providing cost savings.

Example B

In the above example, the U.S. customers are using an H.264 based system, and in Europe they are using Microsoft® Lync® enabled video conferencing based upon RTV. In this scenario, the virtualization management software on the London server acts as a gateway between Microsoft® and the U.S. video resources, converts the Microsoft signalling, and establishes the whole call using the bridges in the U.S. and Paris.

Example C

In this example, the call is proceeding but the bridge in Denver suddenly stops functioning due to a fire in the data centre. The Virtualization Manager in London detects this, and redirects the video traffic across the WAN link to the Paris bridge. Users connecting via H.323 simply re-dial to re-join the call, with the administration and management being performed seamlessly in the background. However, for SIP based calls there is an added advantage: the platform will detect the problem and reconnect the participants back into the call automatically, hopefully before the user has even noticed that there was a problem.

Device management

To enable large-scale deployment and management of video conferencing solutions, the software platform provides for the management and maintenance of hardware infrastructure components through a separate functional area: The Device Manager can help dynamically provision devices and components of the video conferencing infrastructure. Once component hardware is deployed within the network and its infrastructure, the Device Manager will monitor and help troubleshoot problems with these devices. When software updates are required, the Device Manager will help deploy them. A significant contributing factor to the rise in demand for video conferencing is because of the ease of use by which calls can be established by users. The scheduling and management of calls has become easy, through the creation of user-friendly scheduling portals, or via integration into Microsoft® Outlook®. The Device Manager will also provide reporting, and comprehensive details of video calls, processing the information to evaluate current system usage, and expansion plans for the video network.

Content management

Historically, the primary motivating factor for most companies has been to use video conferencing as a way of saving business travel costs. Recently, organizations are beginning to understand that the benefits of video conferencing can impact many different parts of an organization including training, marketing, education, compliance, internal communications, advertising, PR, to name just a few. As the usage of video conferencing in these fields has begun to grow, customers have discovered the potential to not only use video conferencing to communicate in real time, but also to uncover the possibilities that exist for reusing digital recordings of past events and communications. Moving beyond “meetings,” the same technology is being used to create digitally encapsulated rich media, which can then be edited, enhanced, archived, and broadcast across multiple media. These assets can be made available to target audiences on-demand.

IV. DISCUSSION & RESULTS

Results is considered as the video calling Application in its fully Functional form. This implies that the Video Call Feature is working. The user can call any user he/she wants at the cost of low data consumption and less traffic.

V. CONCLUSION

The development of this project was following the phases that pre-determined based on the methodology used. It started with initial project planning which defined all the information of the project and what need to be achieved so the project development able to run smoothly. During the project development phase, several objectives that defined at the beginning of the project had achieved.

Video calling is one of the best ways of communication for large organizations as they provide an instant and reliable method through which the entire organization can connect, communicate, and collaborate.

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