



# Real-Time PHP Video Messaging System

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**ABSTRACT:** The demand for real-time communication systems has increased due to the growth of online learning, business collaboration, and remote interactions. Traditional messaging platforms support text and images, but video messaging adds more clarity and improves user engagement. This project proposes a **Real-Time PHP Video Messaging System** that enables users to record, send, receive, and play short video messages instantly. The system uses PHP for backend processing, WebRTC/JavaScript for video capturing, and AJAX/WebSockets for real-time communication. It offers secure message exchange, low-latency delivery, and user-friendly interface. The platform can be used by colleges, teams, customer support, and social platforms for fast and interactive communication.

**KEYWORDS:** Video Messaging, Real-Time Communication, PHP, WebRTC, AJAX, WebSockets, Multimedia Communication, Video Compression, Online Chat System, Client-Server Architecture, Secure Messaging, HTML5 Video

## I. INTRODUCTION

Video messaging allows users to communicate visually without the need for live video calls. Unlike live streaming, video messaging enables asynchronous interaction where a user can record a video and send it for the receiver to view anytime. The Real-Time PHP Video Messaging System provides an interactive platform where users can exchange video messages securely and instantly. The platform uses a client-server architecture combining PHP, MySQL, JavaScript, WebRTC, and AJAX to ensure low latency and reliable performance. The system also includes features such as message notifications, video compression, file security, and chat thread management. It enables students, employees, and general users to engage in meaningful communication through video, making digital interaction more expressive and convenient.

## II. LITERATURE SURVAY

The user interface (UI) design of social networking tools significantly influences user experience and engagement. Contemporary research underscores the need for intuitive, accessible, and visually appealing interfaces that cater to diverse user groups. Recent studies by Jones et al. (2020) emphasize the importance of simplicity and consistency in UI design, which can reduce cognitive load and enhance user satisfaction. Accessibility features, such as screen readers and high-contrast modes, are essential for inclusivity, enabling users with disabilities to effectively interact with the platform (Smith & Brown, 2021). Additionally, incorporating user feedback into the design process is crucial for creating interfaces that meet user needs and preferences (Lee et al., 2022).

Multimedia sharing is a pivotal feature in social networking tools, enhancing user interaction through the exchange of rich media content. Recent advancements in compression technologies and network infrastructure have facilitated efficient multimedia sharing. The High Efficiency Video Coding (HEVC) standard, for instance, enables high-resolution video sharing with reduced file sizes, which enhances the user experience without compromising quality (Sullivan et al., 2019). Platforms such as Instagram and Snapchat have leveraged these technologies to provide seamless multimedia sharing experiences, using sophisticated algorithms to optimize media compression and transmission (Pereira et al., 2020).

The demand for high-quality multimedia content has driven innovations in both hardware and software. Modern smartphones, equipped with advanced cameras and processing capabilities, support high-quality media capture and



playback (Kim & Lee, 2021). Furthermore, cloudbased services and Content Delivery Networks (CDNs) play a crucial role in ensuring efficient and reliable multimedia delivery, enhancing user satisfaction (Johnson & Evans, 2021).

Real-time communication features, such as messaging, voice, and video calls, are integral to social networking tools. The development and integration of these features rely heavily on technologies like WebRTC (Web Real-Time Communication), which facilitates peer-to-peer communication directly within web browsers (Burnett & Seaman, 2019). This technology has been instrumental in the success of platforms like Google Meet and Zoom, which offer reliable, high-quality real-time communication capabilities.

Protocols such as the Extensible Messaging and Presence Protocol (XMPP) and the Message Queuing Telemetry Transport (MQTT) are commonly used to support real-time messaging applications. These protocols ensure swift and reliable message delivery, which is crucial for maintaining the immediacy of communication (Banks & Gupta, 2018). Additionally, the integration of end-to-end encryption technologies, such as the Signal Protocol, enhances the security and privacy of real-time communications (Marlinspike & Perrin, 2020).

### III. THEORETICAL BACKGROUND

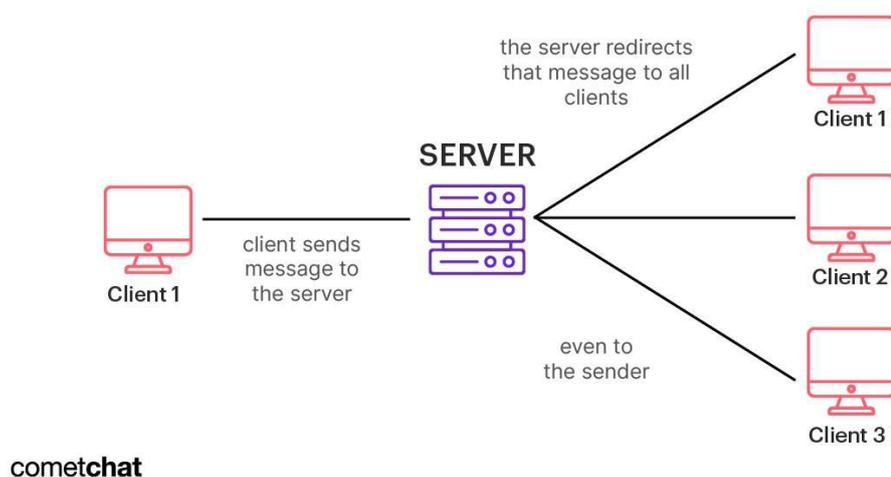
#### 3.1 PROBLEM IDENTIFICATION

- In the existing system, users commonly rely on text-based chat or external third-party applications like WhatsApp, Messenger, or email attachments to share video messages. These platforms may not offer real-time delivery or efficient handling of short video communications within custom environments such as colleges or offices. Many systems lack integrated video capturing features, requiring users to record video separately and upload manually. Furthermore, traditional systems may face challenges in file size limits, upload delays, privacy concerns, and dependency on external servers. There is no dedicated system that allows seamless, real-time video messaging built specifically using PHP for institutional or custom platforms.

#### 3.2 PROBLEM SOLVING

- The proposed **Real-Time PHP Video Messaging System** enables users to record video directly through their device camera using WebRTC and send it instantly to another user. The video message is compressed, securely stored on the server, and delivered in real-time using AJAX or WebSocket-based push notifications. Users can play the received video immediately without refreshing the page. The system supports chat threads, secure authentication, video encryption, and message history. By integrating everything inside a custom PHP-based application, the platform provides complete control over storage, privacy, and user access. This real-time system enhances communication efficiency, reduces dependency on third-party apps, and makes video-based communication both seamless and fast.

#### 3.3 SYSTEM ARCHITECTURE





#### IV. SYSTEM IMPLEMENTATION

##### 4.1. MODULE:

1. User Authentication Module
2. Video Recording Module (WebRTC)
3. Video Upload & Compression Module
4. Real-Time Messaging Module
5. Video Playback Module
6. Chat Thread / Conversation Module
7. Notification Module
8. Admin Module

##### 4.2 MODULE DESCRIPTION:

###### 1. User Authentication Module

Handles user login, registration, and session security.

###### 2. Video Recording Module (WebRTC)

Enables users to capture short video messages using device camera.

###### 3. Video Upload & Compression Module

Reduces video size using FFmpeg or server-side compression, stores file securely in the server.

###### 4. Real-Time Messaging Module

Uses AJAX/WebSockets to send video messages instantly without page reload.

###### 5. Video Playback Module

Allows receiver to play videos directly through HTML5 player.

###### 6. Chat Thread / Conversation Module

Organizes messages into conversation format between users.

###### 7. Notification Module

Displays real-time alerts when a new video message is received.

###### 8. Admin Module

Manages users, storage, and system activity logs.

#### V. CONCLUSION

The Real-Time PHP Video Messaging System enables fast and interactive communication by allowing users to record and send video messages instantly. The system overcomes limitations of traditional messaging by integrating WebRTC for capturing video, PHP for backend processing, and AJAX/WebSockets for real-time updates. It provides a user-friendly interface with secure data handling, making it suitable for educational institutions, workplaces, and social platforms. Its architecture ensures quick delivery, reliability, privacy, and easy scalability.

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