

Networks: Optional Project Proposal

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1 Idea: Video chatting app using TCP

We want to create a video chat app using the TCP protocol for communication, the main component of the app would be the video call function using a peer-to-peer TCP connection.

2 Project challenges

As of now, we are presented with the following challenges:

- Choosing the appropriate encoding for the audio and video.
- Chunking the audio and video stream to send it over the network.
- Adjusting the bitrate of the audio and the video in real-time, to accommodate for a slow connection.
- Dealing with long video latencies.

3 First prototype

Our first prototype would be a desktop app with a GUI, the video calling would be *purely peer-to-peer*, so clients should exchange IP addresses beforehand in order to make a call. We are planning to use *the C programming language for programming the sockets, and Java or Kotlin for the UI component and video processing*. We expect to have a working prototype within **3 weeks**. Depending on the pace of the project, we might be able to add features such as a text chat, and a server to store user data and IP addresses.