Video Bubbles

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Abstract

Here, I present a method for displaying multiple live video feeds at once for the purpose of teleconferencing. The feeds are displayed in metaphorical bubbles, and displayed as such. When a user speaks, his bubble will increase in size and rise. Silent users will see their bubbles stay at the bottom of the screen.

1 Motivation

Video conferencing is a very popular way of communicating for meetings these days. However, it is rarely used for conversations between people with more than 2 cameras. Part of the reason for this is because it is difficult to fit many videos on the screen at once, and even if the videos are well placed, it is often not clear which video to look at. This visualization attempts to manage live video chat by sizing and placing the videos relative to qualities of the audio.

2 Metaphor

The metaphor for this visualization is loosely based on bubbles under the sea. Each user will have a small video bubble at the bottom of the screen initially. As the user starts talking, his bubble will fill up with air, making it larger. Also, as the bubble fills up with air, it will start floating upwards, toward the surface.

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3 Implementation

The visualization will most likely be based on some existing video chat framework. Often individual audio feeds cannot be demultiplexed on the client side. However, since only periodic data is necessary to know whether the user is speaking or not, this can be built into the visualization software over instant message, a central server, or simply UDP. The visualization only needs to know when a user is speaking or not. If the user is speaking, then the bubble will increase by a quantum amount. If the user is not speaking, the bubble will deflate by an exponential...
amount. Only a boolean value is necessary approximately once every second. For responses less than a second, the video will most likely not be useful anyway. The bubbles will stop at the baseline size at the bottom of the screen when they get to small, and will reach a maximum size if they hit the surface.

4 About Bubbles

Clearly, this is not how bubbles work, but for this visualization just go with it, okay?