Web technology based pieces driven by operation data transmitted from audience's smartphones

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Background

A merely perfect live performance of an electronic piece does not necessarily give 'live' impression due to the high (sometimes too high) degree of abstraction in electronic instrument performance (e.g., just one pressing of a button plays a complete portion of a tune).

Excellent expression of a performer is possible if the instruments used in the performance are elaborate enough, and it can give the audience a feeling of 'live'. Another possibility of letting audience feel it live is to allow the audience to participate in the piece in real time.

Recent penetration of smartphones has made audience participation in live electronics pieces easily possible. The author of this article has published a piece utilizing the data from the audience to a computer for sound generation as well as and a revised version of the piece that additionally includes the feedback from the computer to the audience devices.

I. First piece at Csound Conference 2013

The piece "Audience's Smartphone Jam Session" [1] that was played at Csound Conference 2013 in Boston is consisted of the data transmitted from audience by using their own smartphones or tablets in the concert venue in real time.

The system for the piece uses a WiFi router for accepting connection from each participant, and a Linux laptop that runs Csound and lighttpd. It uses only the local network and needs no Internet connection.

What participants have to do is to find the WiFi access point, connect their smartphones to it and go to the Web page where they can specify and transmit x-y data by touching a rectangle area. By performing asynchronous

JavaScript data transmissions from the smartphone browsers, OSC (Open Sound Control) messages are generated by a PHP script to control Csound [2].
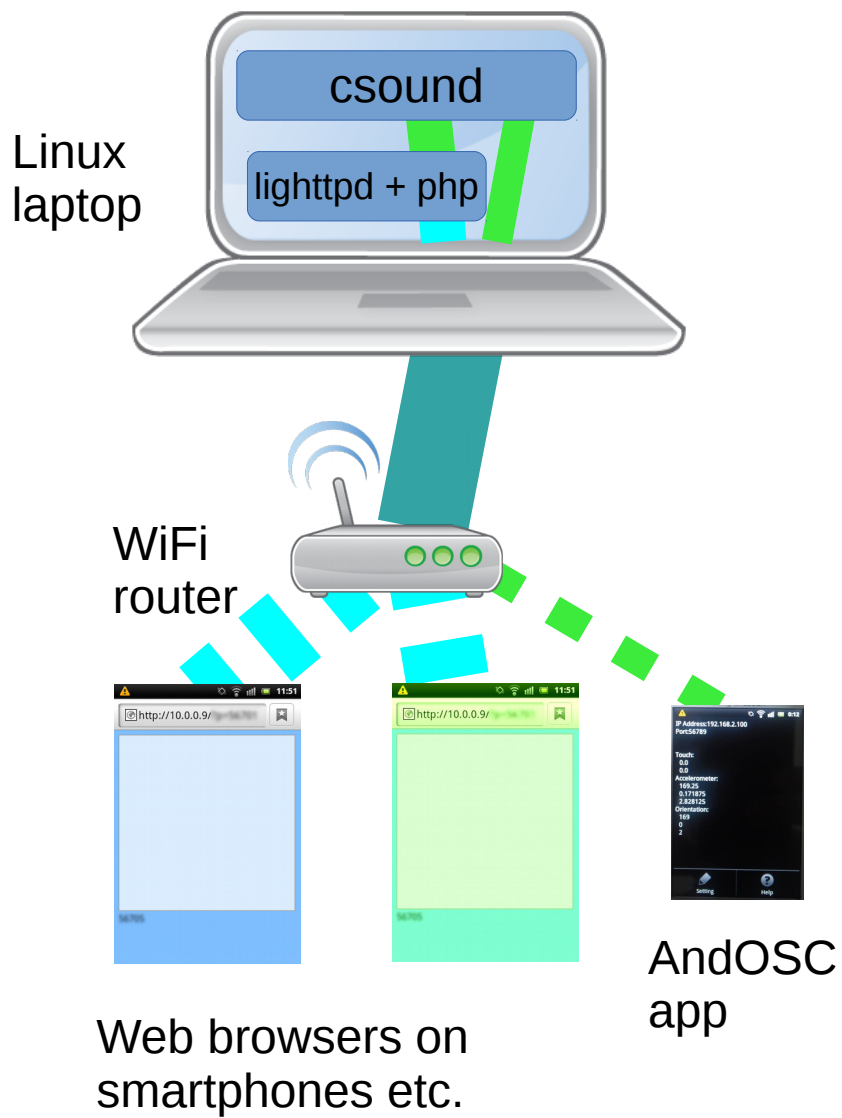

Fig. 1 System configuration for the piece

II. Revised version of the piece at WAC2014

The revised version of the piece released at Csound Conference 2013 was performed at WAC2014 [3] in Paris. The revised piece is accompanied with audio feedback to audience. The system was revised to include sound generation by HTML5 Web Audio API at each participant's smartphone individually. The volume of the smarphone sound is controllable on the Linux laptop. All the smartphones at a time, or selected one or two smartphones can be separately controlled via a Web browser. Using this configuration, a piece for and by audience is able to be performed if many of them have smartphones or some Wifi-enabled devices with them at the venue [4].
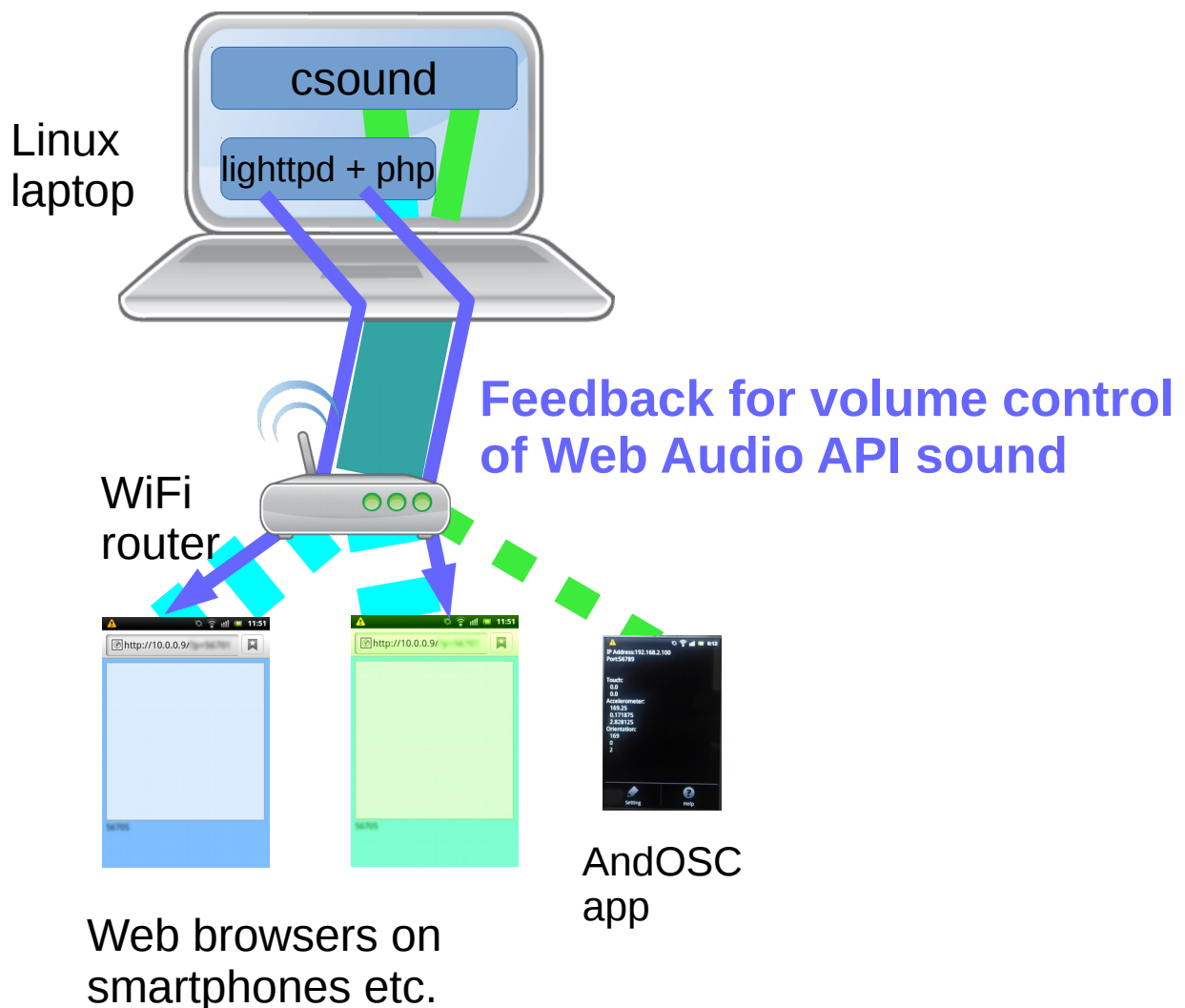
Fig. 2 System configuration for the revised piece

References

[1] Kita Toshihiro, "Audience's Smartphone Jam Session (excerpt)" at Concert6, 2nd International Csound Conference, Boston, October 27th, 2013.

http://www.youtube.com/watch?v=J12iOcZkI6I

[2] System configuration for "Audience's Smartphone Jam Session", an audience-driven interactive piece requiring no dedicated apps, Publication of Japanese Society for Sonic Art, Vol.5 No.3, pp.12–14 (2013.12)

http://data.jssa.info/paper/2013v05n03/3.Kita.pdf

[3] Kita Toshihiro, "Smartphone Jam Session with Audience" at Web Audio Gigs #2, 1st Web Audio Conference (WAC2014, http://wac.ircam.fr/), Paris, January 27, 2015

http://wac.ircam.fr/program.html

[4] "EMSAN/JSSA Day 2015 5th Presentation Toshihiro KITA, in Gifu, Japan, September 11th, 2015.

https://www.youtube.com/watch?v=fACZKhsxXZ0