

Aura: An Elevator-based Ambient Sound System

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Abstract

This paper proposes a system that uses elevator passengers' floor-button selections as inputs to a real-time ambient sound composition.

Aura

An Elevator-based Ambient Sound System

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Imagine a system that transforms the everyday experience of riding an elevator into an act of music-making.

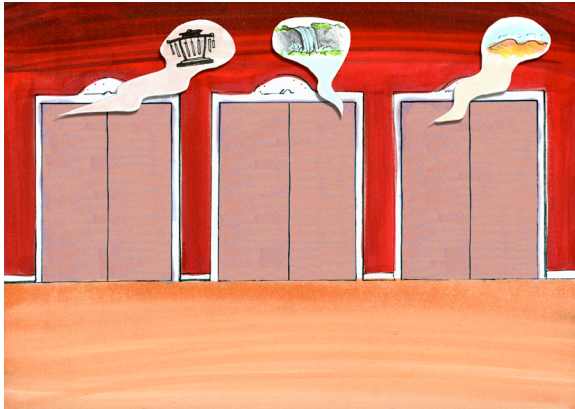
We usually think of elevators as purely functional objects. When functioning well they transport us quietly and reliably from one floor to the next as we navigate a building.



The experience of riding an elevator is, for most of us, time wasted. We may see someone we know and strike up a brief conversation, but more often we stand among strangers waiting for the ride to be over.

What if the experience of riding an elevator were more interesting, even fun?

Elevators are interactive devices. Passengers interact by pressing buttons. Aside from serving as inputs to the elevator control system, these button-pushes can become inputs for an ambient sound system.



In the Aura system, an ambient sound is associated with each of a building's elevators. For example, the sounds may be those heard in an outdoor garden – wind chimes, trickling water, shifting sand.



When a person enters an Aura elevator he hears an ongoing, subtle sound which is characteristic of that elevator. For example, the sound may be that of a continuously running brook.

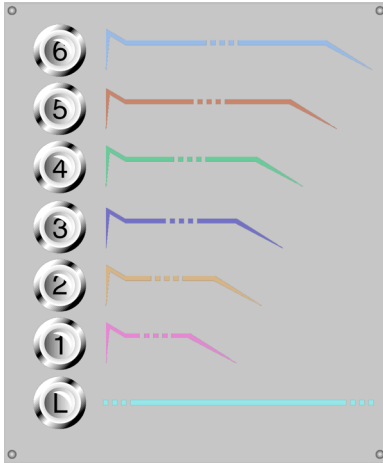




When the passenger presses the button for the floor he wants, a related sound plays, adding to the ambience of the elevator. For example, the sound may embellish that of the running brook by adding the whooshing of an eddy current.



The sound associated with a button-push has three parts. When the button light goes on, an announce sound plays. The announce is followed by a motif that plays as a sustaining loop, until the button light goes off and the track fades out.



Each button is associated with a sound that can embellish the elevator's basic ambience.



If additional people enter the elevator and press buttons for desired floors, sounds associated with those buttons enter the mix.

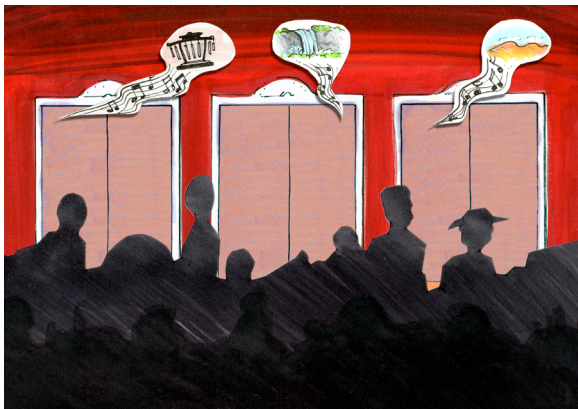
The sounds enter the live mix in whatever order the elevator buttons are pressed.

Each sound plays until the elevator reaches the associated floor. The continuous on-off of sounds supplementing the elevator's basic motif makes for a lively experience.



In a crowded building, ambient compositions form in several elevators at once.

When an elevator arrives at a given floor, that sound gradually fades.



At the same time, the sound comes up in the overall building system.

Outside the elevators, people hear an ambience that combines sounds from all of the elevators.

Maybe the experience of the building becomes reminiscent of an outdoor garden.

In order to achieve such an effect, we must consider Aura as a sound design space as well as an engineering effort.

Here are some design recommendations:

- The sound character should be more abstract than representational.
- The spectrum balance of sustained frequencies should avoid that of the human voice.
- Some extra sounds may be needed, such as flourishes that play as an arrival notice for each elevator. These sounds need not be entered into the mix.
- Announces and flourishes should not be monotonic tones, but short, blended, colorful, pleasing sounds.
- To add interest for people who frequent a building, an automatic shuffle might periodically change sounds associated with each elevator.
- The overall building mix may require strategies for limiting selections from each elevator, in order to keep the ambience sounding clean. It is important that passengers recognize in the overall mix the sounds they contributed while in an elevator.
- Placement of speakers and similar architectural concerns would affect the result.