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SUBAUDIBLE CUE TONES FOR DIGITAL ASSISTANT DEVICES

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SUBAUDIBLE CUE TONES FOR DIGITAL ASSISTANT DEVICES

ABSTRACT

A system and method are disclosed for enabling digital assistant devices to distinguish human inputs from non-human voice inputs using subaudible cue tones. The system includes a home assistant device with cue tone recognition that receives cue tones from non-human assistant devices. The cue tones are used to differentiate live, in-person audio input from remote or non-human audio. For example, a television commercial may initiate a tone that communicates with the nearby device to remain non-interactive with the following audio. When devices communicate with one another, a cue tone from each device may also relay inaudibly that certain behaviors associated with a human person will not be triggered in these interactions.

BACKGROUND

At present, home assistant platforms treat all audio input equally, regardless of if it originates from an in-person user or not. A television, radio, or other audio advertisement may trigger voice activation accidentally, or device confusion occurs, when two devices interact with one another in a loop. Subaudible cue tones have long been used in television and radio to "cue" when content has ended and advertisements should begin, and may thus be applicable to home assistant platforms.

DESCRIPTION

A system and method are disclosed for enabling digital assistant devices to distinguish human inputs from non-human voice inputs using subaudible cue tones. The system includes a home assistant device with cue tone recognition that receives cue tones from non-human assistant devices. The home assistant device is configured to control a home appliance as shown in FIG. 1.

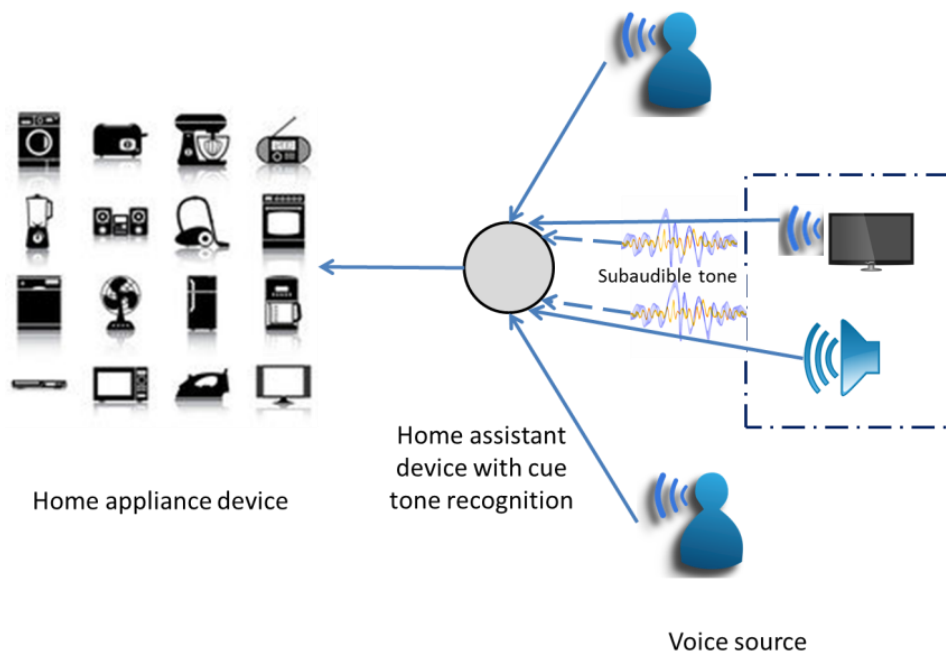


FIG. 1: Digital home assistant device with subaudible cue tone recognition

A home assistant device which incorporates “cue tone recognition” may differentiate live, in-person audio input from remote or non-human audio. For example, a television commercial may initiate a tone that communicates with the nearby device to remain non-interactive with the following audio. Alternatively, the commercial may relay a cue tone that sets the device to a "demo" mode, and prompts live interactivity with the commercial in pre-set, designated ways. When such devices thus communicate with one another, a cue tone from each device may ensure, inaudibly, that certain behaviors associated with a human person will not be triggered (e.g. online ordering, third party interactions, etc.). Alternatively, devices could be programmed to recognize the "voice" of other digital assistant devices via cue tones as a kind of digital fingerprint. Additionally, human intervention may be used to either augment or override the system’s functionality. The home assistant device which incorporates “cue tone recognition” may use standardized sound frequencies for the sub-audible cue tones.

The disclosed system and method enables digital assistant devices to distinguish human

inputs from non-human voice inputs using subaudible cue tones. In this way, accidental triggering and confusion of home assistant devices may be minimized.