

Re: Inexperienced and need to find/design 2ch remote control+audio receiver combo

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Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2007-01/msg03334.html>

- *From:* "Frank Raffaeli" <SNIPrf_man_frTHIS@xxxxxxxxxx>
 - *Date:* 20 Jan 2007 15:12:48 -0800
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On Jan 20, 11:44 am, "Steve Bergman" <steve@xxxxxxxx> wrote:

Thank you, Frank, for your helpful post. This all just landed on me the other day, and in addition to the technical matters with which I have little experience, there are the even more daunting legal (FCC) matters with which I am even less familiar. Obviously, no matter how hard I study, there are limits to how much I can learn in a short time, so any pre-processed input from someone who has experience is greatly appreciated.

I **think** I may have found a way to get this project taken on by a professional in this area. It's a tricky business. While Phil has hit upon the "naivety" factor, he missed the "extremely limited resources" part. Here's hoping.

In that case, all I would have to do is create a demo unit for presentation that **does** what we need it to do. It wouldn't have to have the range. It wouldn't have to operate at the frequencies that the end product would. And would not have to have the security. It's the difference between building something that 'works' and designing a 'product'. I feel well up to the former task. The latter scares the hell out of me.

Anyway, I'm still very interested in coming up with the best solution I can, if only to compare it to what actually gets designed assuming that we can get this taken on.

To that end:

1. The target size is about 10x10x3 cm.
2. Battery life needs to be at least a few hours.
3. It needs to have a two channel remote control.
4. The first channel would power up a circuit that flashes a set of

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LED's marquee style.

5. The second channel would operate a small buzzer motor.
6. Independently, monophonic voice quality audio would be transmitted to the device. It would need to be loud enough to be heard and understood by the wearer.
7. All devices would be performing these actions in unison.
8. The channel 1, channel 2 remotes, and the voice, may occur either alone or in combination with each other.
9. All actions would be under manual control. But the operator would be selecting combinations of actions from a menu in a browser based application and executing them that way. He/she would not be pushing a button on an appliance device like with a garage door opener. The audio would be the output of a sound card in the server. It could be reproducing either decoded mp3 or ogg files, or passing through real time voice from the operator.
10. The transmission would be intermittent, not continuous.
11. It is understood that licensing for use of a higher power transmitter and/or use of the particular frequencies used, may be required.
12. I had been considering the possibility of using repeaters, but am not sure what the legal requirements for that might be.
13. The thing about all of this that scares me the most is the security issue. The fact that I need to operate all devices simultaneously, and that the wearers would actually own the devices, taking them home with them, plus the fact that these people are essentially anonymous, makes it virtually impossible to secure this in such a way that someone could not commandeer control of the devices for their own purposes, if even in a limited area. This is particularly worrisome for the audio. The "normal" methods of securing transmissions between pairs of transmitters and receivers don't apply, here, so far as I can see.

In general, I would be interested in advice as to a general strategy to pursue. There is obviously too much for me to learn in a short time. So my current strategy is to find a direction that looks reasonable, and focus my efforts on familiarizing myself with the specifics of that. And, of course, seeing if I can get this project transferred to people who know what they are doing. ;—)

Thanks again for your help,
Steve

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Thanks for the details on the application. I may be oversimplifying, but this sounds like a restaurant pager – flashing lights and a small moter, e.g.:

http://www.jtech.com/products/guest_alert.htm

Do you require two–way communication to the (10x10 cm) device, or is it receive only?

Security: See "rolling code" algorithms, e.g.:

<http://freepatentsonline.com/6956460.html>

Other security methods may be superior. The most reliable ones need 2–way communication.

Is the voice arbitrary or can it be a pre–recorded message? This may ease the agency aproval task.

What is the annual volume? Maybe you could interest someone in a speculative R&D project.

Perhaps for your demo you could use one of the jtech units.

Frank Raffaeli

<http://www.aomwireless.com/>

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