

Re: Using garage door remotes as a voting system?

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2005-04/msg01920.html>

- *From:* Mike Harrison <mike@xxxxxxxxxxxxxxxx>
 - *Date:* Sun, 10 Apr 2005 10:32:18 GMT
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On 9 Apr 2005 14:11:45 -0700, "Steve" <popmusic@xxxxxxx> wrote:

>Thanks for the replies. I'd like to do this on as low a budget as
>possible (under \$1000?, under \$500? :-)), and set it up for around 20
>people to begin, with the option to expand. Audience members should be
>able to vote at the same time and shouldn't be counted twice if they
>press the button twice.
>
>There's a keychain transmitter at <http://www.automicro.com.tw/> that is
>"rolling code" which I understand means that it creates a unique code
>every time it's pressed. There's also a shareware program called
>"girder" that I think I could use.

Using keyfob type remotes as-is is not going to work reliably as there will be collisions due to simultaneous transmissions. Although keyfobs usually send repeated codes, the intervals are likely to be the same so it would not help the collision problem.

What you need is for each transmitter to send the data several times at random intervals, over a period of a few seconds.

You need to do some statistics to work out the optimum timings based on packet length, receiver timing requirements and number of users. Each transmitter would have a unique address so the receiver could distinguish each user and ignore the repeats.

I would suggest you look for a keyfob that uses the Microchip RFPic 12F parts, as you could change the firmware to do this, while still having a ready-made RF stage and casing etc.

You would need to write some code at the receiver end, but it would not be especially complicated – it would just log each address received and the data for that address.

Typical data rates for a cheap hardware keyfob would be 1200 baud. You need to send, say, 2 bytes of data (12 bits address, 4 bits vote, 1 byte for error checking, and a few bytes of preamble to let the receiver settle down, so probably about 6–8 bytes total.

This gives a packet length of about 65mS. Even for 20 users, this means that if all timings were optimum it would take 1.3 seconds for all packets to get through. By the time you have enough repeats to get good probability of receiving all of them I would think you are well into tens of seconds if not minutes. This time would also scale nonlinearly with more users.

So you probably want higher performance RF stuff capable of significantly higher baudrates – this is do-able but may need more expensive hardware – 100Kbit RF modules are available, and the extra cost

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is mostly at the receiver so it may be feasible.

I would say you probably want to be using FM, not AM for better data integrity

An alternative would be to have the fobs synchronise into defined timeslots from an external master controller, however this adds the cost of receive hardware to each keyfob.

- **Follow-Ups:**

- ◆ **Re: Using garage door remotes as a voting system?**

- ◆ *From:* bigcat

- **References:**

- ◆ **Using garage door remotes as a voting system?**

- ◆ *From:* Steve

- ◆ **Re: Using garage door remotes as a voting system?**

- ◆ *From:* John Fields

- ◆ **Re: Using garage door remotes as a voting system?**

- ◆ *From:* Steve

- Prev by Date: **TempFET usage?**

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