

Re: Voice annunciated test box circuitry

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mirach wrote:

- > *Hello*
- > *I am a repair tech for medical equipment and am needing to make some*
- > *test boxes for simple location of the number of a wire that has been*
- > *cut off in a harnesses with as many as 256 wires in them.*
- >
- > *These harnesses have a plug on one end and the cut-off unlabeled wires*
- > *at the other end . Up untill now I have used what is called a "light*
- > *box" these boxes have a plug to plug the harness into.. 128 or 256leds*
- > *on them and an internal battery and a lead so that when you touch one*
- > *of the wires with the lead one of the leds will light showing which pin*
- > *on the plug is associated with that wire (each wire is then labled)*
- >
- > *Now with what I would like to build.*
- > *Since you have to look at these wires through a microscope it is very*
- > *time consuming to look up from the scope to see the led every time.*
- > *What I would like to do is replace these leds with something that*
- > *announces the number like "21" "102" "128" etc. with a voice this*
- > *would make labeling much faster.*
- > *Does anyone know of a pre-made IC? or EEprom? that would have 128 or so*
- > *individual areas that could store the voice message for the number and*
- > *be random accessed. would it need some sort of special trigger? As im*
- > *sure you can tell my knowlege is limited in this area, I am just*
- > *starting to work on this project and anyones ideas would be greatly*
- > *appreciated.*
- >

You can buy digital voice recorder chips from windbond (<http://tinyurl.com/4y4rp>) that allow you to record some amount of voice. You can cue the voice at any point. Thus, you could record yourself saying 1,2,3.. and then cause the chip to replay the individual digits on command. You control it using SPI from a microcontroller. They go up to 240s of recording time, so you could conceivably record all 256 numbers, but individual digits are probably easier. You can buy them at digikey or futurlec. I'm sure you can also get pre-recorded voices, but I didn't spend the time searching.

As to encoding the data, you could use individual multiplexer chips. However, you could also get 8 octal buffers with high impedance outputs. Tie each input to a corresponding buffer pin, and tie the outputs together into a bus, all bit zeros together, ones together, etc. Then, select the buffer chips one at a time, and read the bits for that buffer in parallel using 8 pins on your microcontroller. Once you have a hit, just program the SPI device to output the proper voice codes. 16 bits on the final device, 8 for input, 8 for output. Plus, of course, the 3 or 4 bits for SPI to control the recorder.

The total part count for this solution would be the voice chip, the microcontroller, the buffers, and such. You could run it off of a 9V battery, or use a set of rechargable batteries, and build a recharger unit for it. Alternately, if it didn't need to be portable, you could run it off of a wall wart. Total cost would be around \$30 for parts, I think, including PCB and enclosure, depending on the cost of the plug. If you were to mass-produce these, you could probably make them for \$10 each.

I'll work up an estimate for 10 if you want... ;)

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Regards,

Robert Monsen

"Your Highness, I have no need of this hypothesis."

- Pierre Laplace (1749-1827), to Napoleon,
on why his works on celestial mechanics make no mention of God.