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EEL 5666: Intelligent Machines Design Laboratory

Special "Sensor" Report

Product: Voice Record/Playback Chip
Specific Part Used: ISD2590 Single-Chip Voice Record/Playback Device
Obtained From: Jameco Electronics (www.jameco.com)
Price: Approx $9.00
Part Details (As provided by Jameco and the manufacturer):

IC,ISD2590VOICE CHIP,UBP2.3KHZ

Jameco #120660
Mfg Ref # ISD2590

Single-Chip Voice Record/Playback Device

90 Second Durations (28-pin DIP)

- Easy-to-use single-chip voice recording and playback
- Manual switch or microprocessor controllable
- Directly cascadable for longer durations
- Fully addressable to handle multiple messages
- Zero-power message storage - eliminates battery backup circuits
- Single voltage operation: +5V (4.5V to 5.5V operating range)
- Automatic power-down (push-button mode)
- Playback can be edge or level-activated
- On-chip clock source
- 1 µA standby current (typical)
- 100k record cycles (typical)
- 100-year message retention (typical)
- On-chip automatic gain control (AGC)
- Dual-In-line Package

Personal Experience:

I'm very satisfied with this device. I was easy to interface and performed as specified in the data sheets. The great thing about this device is that it can function by itself (without any extra processor). It can also be controlled by a microprocessor, which adds extra functionality. I took advantage of the device's "push-button" mode, which allows it to work independently of a processor. The data sheets provide a complete wiring diagram for this mode, which makes it easy to get the circuit working. I wired it up in this fashion just to make sure I could get it working. After getting the device to function in the "push-button" mode I realized that "interfacing" it with my processor would not be hard, especially since I didn't have to worry about message addressing. For my project, all I needed my robot to do was to repeat the same "recordings" in order every time the robot demoed. The playback messages corresponded to the phase of the demo the robot was currently in. So to have the processor "control" the chip when necessary, I connected output pins of the microprocessor to the "start/pause" and "stop/reset" ports of the voice chip. This way I could simulate the "pressing" of the buttons in "push-button" mode by using signals from the processor. Every time, "start" is pressed, the chip automatically increments to the next stored message. Therefore, I sent the "start" signal (low) from the processor to the pin 23 on the chip when necessary and the "reset" signal (high) to pin 24 on the chip at the beginning of the demos.

The only "slight" negative about this chip is that some of the diagrams in the data sheet are confusing. This only means that you have to make very sure you're doing the wiring exactly as specified.

Overall, the chip worked great and I highly recommend it to anyone else needing to do voice recording/playback.