Programming Commodore's Magic Voice

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Commodore's new Magic Voice Speech Module gives your 64 the power to talk. Here's a short program that acts as a "speech processor." You type the words and your computer speaks them.

Making your 64 talk to you is a simple matter now. Commodore's Magic Voice Speech Module is easy to use, and it can greatly enhance your programs with educational and entertainment value.

For starters, just plug the Magic Voice cartridge into your 64, hook a wire to your TV or monitor, and turn on the computer. Type SAY and one of the 234 available words, and your 64 is in business.

You can insert any cartridge software into the top-loading slot. Certain games, like Commodore's *Gorf* and *Wizard of Wor*, have some speech routines built in. *Gorf* guffaws (or is it a chortle?) as the game begins, "Ha Ha Ha, Space Cadet." It adds a new dimension to game playing.

Writing Your Own Voice Programs

If you're able to understand and manipulate the PRINT statement, you should have little trouble using SAY.

You can SAY a word directly, as long as you spell it correctly and put it inside quotation marks. Or you can use the word number (the number which represents a word from the available list), which saves some memory if you plan to speak a lot of words in your program. For example, SAY"MILLION" is equivalent to SAY18, because word number 18 is "million."

Besides SAY, the Magic Voice module adds two other new BASIC statements and a new reserved variable. RATE sets the speed of the words spoken. It doesn't make the pitch higher (like a cartoon character) or lower; it makes the words come out faster. VOC is a specialized statement for use with extended vocabularies (which are not yet available as this issue goes to press). And RDY is a variable which keeps track of when the computer has finished one word and is ready to say another.

The manual includes a short program to allow the computer to speak every number from 0 to 999,999,999 when typed from the keyboard. But what if you want a program to speak the other words when they're typed in?

There are several problems that must be solved before a "speech processor" is possible.

Probably the most serious problem is the 234-word limit of the Magic Voice. It's not that it's a strange or useless vocabulary. It does contain most of the most common words. The difficult part is that, unless you've memorized the list of words, it's easy to type a word which the Magic Voice doesn't know. What happens then is the program stops and prints an ?ILLEGAL QUANTITY ERROR message.

In addition, the Magic Voice does not recognize sentences. You have to SAY words one by one. As you type sentences, the program has to watch for individual words. That's simple enough, just GET letters from the keyboard, building up the word until you reach a space (marking the end of a word). Then SAY the word and go back to get the next one.

Finally, there are some homonyms not on the list. We'd want the program to swap between homonyms if one is on the list but its counterpart isn't. For example, if you tried to SAY the words DOWN BY THE SEA, you'd hear the first three. But SEA would result in an illegal quantity error, even though the Magic Voice can say the letter C and the word SEE. Another problem is with alternate spellings, for example GREY (acceptable) versus GRAY (not).

Using Finger Talk

"Finger Talk," the program accompanying this article, addresses some of these quirks.

Our original solution to the first problem

was to include lots of DATA statements to cover 230+ words and various homonyms. The numerous DATA statements contributed to the length of the original program.

Finger Talk was shortened considerably by a slight modification to the error routine. If you look at line 80, you'll see three POKEs. They divert the Magic Voice module's error routine to a harmless section of memory. If you try to say an illegal word, the Magic Voice just ignores it. The program continues, instead of stopping and printing ?ILLEGAL QUANTITY ERROR.

If you own a Magic Voice and plan to write programs for it, you might want to make note of the three POKEs, especially if you plan to SAY words which are INPUT by users.

The second problem, speaking words instead of sentences, is solved with the GET statement, as described above.

Several homonyms have been added. You can see them in the DATA statements toward the end of the program. They are stored in an array. When you type an illegal word which sounds like a legal one, the program trades the two and the equivalent vocabulary word is spoken.

Typing In The Program

Type in Finger Talk and save it. Before you run it, make sure you have the Magic Voice module plugged into your 64. As the program begins, the homonyms are read into memory and the title screen appears.

You are asked two questions. If you want each letter spoken as you type, answer YES to SAY EACH LETTER? For example, if this option is active, you will hear T, H, R, E, E when you press those letters. Press the space bar and you'll hear the word THREE. If you answer no, you'll hear only the word, not the individual letters.

You also choose what RATE the Magic Voice will use, from 1 for the fastest to 10 for the slowest.

After you answer the questions, the main speaking routine begins. If you type a word that's part of the Magic Voice's vocabulary, you'll hear it spoken. If the word isn't available, you don't hear anything. Press RETURN and the whole sentence is spoken.

Finger Talk limits sentences to 80 characters (two screen lines). If you reach the 80th character without pressing RETURN, the computer automatically says the sentence as if RETURN had been pressed.

The f1 key controls the RATE (1–10) from within the program. Each time you press f1, the rate is increased by 1. A single number in the upper left corner tells you the current rate (a zero means rate ten). If you make a typing mistake, you can use the DELete key to correct it. And SHIFT–CLR/HOME clears the screen. It doesn't matter whether you use upper- or lowercase letters; they're converted to lowercase by the program.

One thing to watch for is typing a space while the SHIFT LOCK key is down. Spaces are used to mark the boundaries between words, and the SHIFTed space character is different from a regular space. They look the same on the screen, but have different ASCII values. A SHIFTed space is like a capital space, if you can imagine that. It's best to avoid using SHIFT LOCK when entering words to be spoken.

One other quirk comes from the way words are kept in an array until you press RETURN. If you type a few words and clear the screen (without pressing RETURN), the previous words will be spoken when you finally do press RETURN. The array is active until RETURN is pressed.

Finger Talk demonstrates what the Magic Voice module can do (and gives you something for your friends to "ooh" and "aah" over at parties). It could be useful to teach touch typing to blind people; they'll hear which key they just pressed. And kids who are learning to read could use it to practice.

See program listing on page 197.