

## NEW FROM CEC

Need a few well-chosen words for your new "speaking" product? Need to update or restructure the product's vocabulary as its applications grow?

Until recently, it was necessary for product designers to plan a lengthy and often costly process involving major equipment commitments to handle any synthetic speech vocabulary encoding, but all that has changed with the advent of a lower cost alternative from TI.

A NEW, PORTABLE system now available from TI's Corporate Engineering Center (CEC) can free designers and builders who work in the burgeoning area of products that talk from dependence on specialized synthetic speech laboratories outside their own workshop to build vocabulary and program the EPROM (Erasable Programmable Read-Only Memory) chips for their products.

CEC's Portable Analysis/Synthesis System (PASS) emerged last August as a working prototype, according to Gene Helms and Steve Petersen, members of the

technical staff in CEC who are the designers of the new speech-generation system. A preproduction system delivered in December went to a branch of DSG (Digital Systems Group) in Dallas for experimental work, and the first production system was shipped in January to TI's Speech PCC in Midland/Odessa, Texas.

By the end of March, Gene says, CEC had shipped some 25 production units, mostly on orders received from activities within TI but some on test market orders received from external customers.

"ANYBODY WHO IS building products using synthetic speech, or who is thinking about building such products, is a potential customer," according to Gene.

For what it would cost to have a moderate-sized vocabulary encoded once, organizations working on speaking products can now have their own LPC (Linear Predictive Coding) encoding equipment.

Since speech quality is a very subjective matter (TI DallasSite, March 1981), professional-

## When products need TI synthetic speech, it comes to 'PASS'

sounding results will take some work and experience to achieve — but PASS users have the considerable advantage of "instantaneous" feedback so they can hear how close they are coming to the speech quality they want. "It works a little like biofeedback," Gene comments. "We see speakers altering their speaking patterns after a few minutes of using PASS to obtain more optimal performance. The 'instantaneous' feedback adds a valuable dimension to the speech encoding process."

PASS is a TM990-based system capable of creating TI-developed LPC speech parameters and generating synthetic speech from them. The basic unit is comprised of a TM990/101 MA-3 CPU board, a TM990/201-43 memory board, a PASS speech analysis board, and a speech output board — all chassis-mounted with power supply, microphone, and speaker in an 18-by-16-by-9-inch metal case.

THE SYSTEM WEIGHS less than 30 pounds, is fully portable, and

was designed to fit under a commercial airline seat. The chassis has eight slots and therefore readily accommodates both versions of the speech output boards (S1xx or S2xx), a TM990/302 EPROM programmer, and any other similar type of extended capability such as a floppy disk controller.

With PASS, Gene and Steve point out, TI internal as well as external customers can now have the added advantage of maintaining complete confidentiality while developing a product, since they can use the system in-house to prototype their own speech vocabulary for use with TI speech synthesizers. And, if the product is to have a dynamic rather than a fixed vocabulary, updates can be made quickly and inexpensively.

Significant to product developers are the capabilities of

PASS for interactive speech development, its capability for editing speech to enhance individual words in the vocabulary, its capability for loading edited speech directly into an EPROM chip, and its capability for interfacing with a variety of different computers. Since PASS has a standard computer interface, Gene points out, "It can look like a front-end speech processor to a host system."

PASS is capable of operating in three modes:

- As a front-end peripheral for interfacing with a host system,
- As a standalone unit linked directly to a standard scrolling terminal,
- And as a demonstration unit used with a microphone to record and play back through the self-contained speech synthesizer.

For additional information on PASS and its applications, or to place an order, call Gene Helms in Dallas, 995-2553, or send an MSG to him at terminal address SPEK.



WHAT'S THE GOOD WORD? — Designed and built in the Corporate Engineering Center, TI's new Portable Analysis/Synthesis System (PASS) equips makers of products using synthetic speech to program their own vocabularies. In top photo, PASS designers and developers Gene Helms (with mike) and Steve Petersen (at keyboard) demonstrate how system users can edit a spoken word to get just the speech quality desired... and then (bottom photo) program their own EPROMs for their product's speech board. PASS, self-contained (terminal not included) in the metal carrying case in background, is now available to product designers in TI and is being test-marketed to external customers as well.

