ph Votrax

Votrax

Votrax makes the speech synthesis kit for under $ 1K

by John McDaniel, April 26, 1976
Dear Jim:

This letter is to confirm our conversation with regard to the VOTRAX Synthesizer Kit which we had discussed.

As I indicated in our conversation, VOTRAX was not aware of the computer hobbyist market, and therefore had not addressed itself to providing anything for that community.

As a result of preliminary investigation. I am pleased to relate to you that we could provide a VOTRAX Synthesizer in a kit form for a price not to exceed $1000. However, we require more information as to the specifications of the kit and the size of market potential, before we can commit to this price. Our quotation on a minimum order and delivery would be contingent on receiving this data.

Based on the text of your announcement in Dr. Dobb's Journal [Volume 1, Number 3, page 12], I believe that I have mislead you with regard to the size of the VOTRAX market. Your inference was that the VOTRAX market is not very large at present. This is not correct and, I am afraid, would tend to mislead your readers as to the impact the hobbyist market would have. This is not to say, however, that we're not interested in providing something for those users.

I hope that this information will be of benefit to you. I look forward to meeting with you again at the Home-Brew Computer Club Meeting. If I can be of further service, please don't hesitate to contact me.

Sincerely, John H. McDaniel 4340 Campus Dr., No.212, Regional Sales Manager Newport Beach CA 92660, Vocal Interface Division (714) 557-9181

BASIC SYNTHESIZER INTERFACE SPECIFICATIONS GENERAL DESCRIPTION

The synthesizer requires 8 parallel data bits on its input pins in order to operate. Of these 8 bits, 6 are used for phoneme slection and 2 are used for inflection level selection.

The synthesizer provides a clock output which must be used to time the input data. Data should only be presented or changed on the positive transition of this clock. Also provided is a status indicator (zero decode), which signals the presence of input data. This is useful when the synthesizer is operated from a buffer memory interface. All signals are TTL signal levels. except audio output. Pin Description, Conn. 6, (Front Mother Board)

Connector

Pin No. Function; Description; See Signal Function
4 Data In, Inflection MSB 1 TTL load, Neg. True A
5 Data In, Inflection LSB 1 TTL load, Neg. True A

6 Data In, Phoneme MSB 1 UL load, Neg. True A
7 Data In, Phoneme 1 UL load, Neg. True A
8 Data In. Phoneme 1 TTL load, Neg. True A
9 Data In, Phoneme 1 UL load, Neg. True A
10 Data in, Phoneme 1 UL load, Neg. True A
11 Data In, Phoneme LSB 1 TTL load, Neg. True A
2 Output, Phoneme Clock 2 TTL loads, Neg. Pulse B
3 Output, Zero Decode 2 TTL loads, Pos. Ture C
13 Output, Audio Control Ext. 50K Vol. Con. Wiper D
15 Output, Audio Ground Audio Return D
1 and 10 Output, +5 VDC Interface Supply E
S Output, + 12 VDC Interface Supply E
P Output, - 12 Interface Supply E
A and N Ground Signal Return E

SIGNAL FUNCTION DESCRIPTION

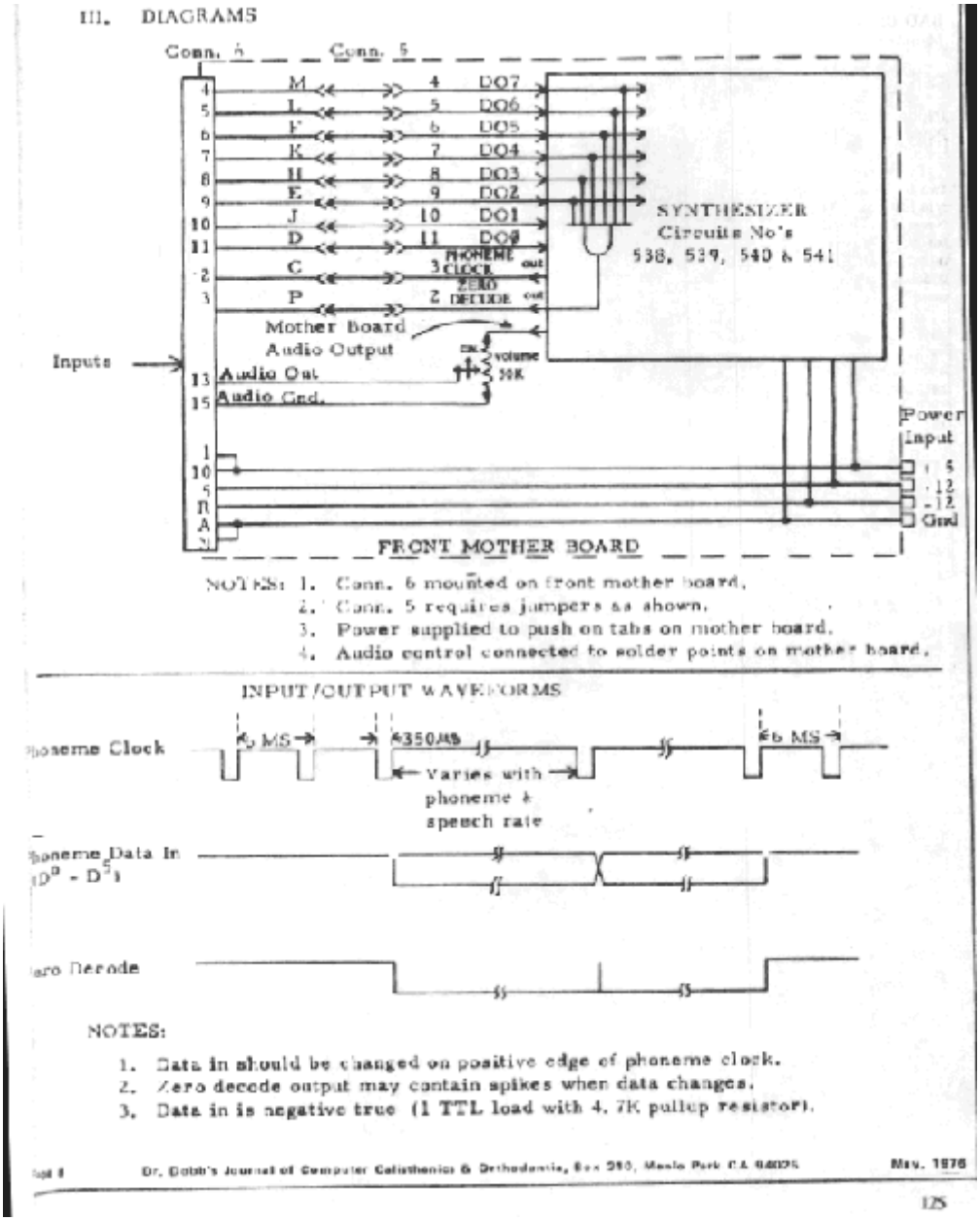
A. Data In (Pins 1-11) Six bit phoneme code and 2 bit inflection code inputs. All phoneme inputs high are Null code causing no output condition.

B. Phoneme Clock Output (Pin 2) Provides internal timing of synthesizer and must be used to control dat. input. Data should only be presented or changed on the positive edge of this signal. When all phoneme data inputs are high, this clock runs with a period of 6 milliseconds. When data input is present, the period lengthens, depending on speech rate and the particular phoneme.

C. Zero Decode Output (Pin 3) This signal indicates the status of data by a high signal in absence of data and low signal when any phoneme data input is low.

D. Audio Control Output (Pins 13 and 15) 1-2 volt rnaximum audio signal from 50K external volume control, Additional external audio amplifier required to drive speaker.

E. Power Supply Voltages. The basic synthesizer requires the following power:
+5 VDC regulated @ 120 MA
+12 VDC regulated @ 160 MA
-12 VDC regulated @ 200 MA
Pins A and N should be used for power supply returns, and Pin 15 for external audio amplifier ground return.



IT CAN TALK...BUT CAN IT SING?

Votrax is proposing making the guts of this English language synthesizer system available in kit form for $IK. More details, next issue.

Note that the system described below is a turn-key, off-the-shelf item that has been on the market for several years.

The VOTRAX Model VS-6 is a new departure in voice response technology. This unique system combines low unit cost, unlimited vocabulary, operational simplicity and low data requirements to provide the ultimate in flexibility and cost effectiveness. The price of the VS-6 with parallel buffered interface is $3605 in single-unit quantity. Purchase prices are discounted for quantity buys starting at two units. Maximum discount is over 50%.

The VS-6 is programmed to speak based on phonetic coding principles. Each eight~it command word selects one of 61 phonemes (sounds) and one of four levels of inflection (pitch). Utterances are spelled phonetically to produce all combinations of words and phrases required by the application. Since words and phrases are stored in the form of digital information in some storage medium. such as magnetic disc or solid-state memory, there is virtually no limitation as to the amount of vocabulary VOTRAX can produce. One well-known computer services company reports a vocabulary in excess of 300,000 words. The value of unlimited

vocabulary is that the same low-cost VOTRAX unit can be used for any and all applications.
The use of phonetic coding in the VOTRAX VS-6 permits the production of speech at uniquely low data rates. A rule of thumb indicates that the number of phonemes per word is approximately equal to the number of letters per word. At eight data bits per phoneme command, VOTRAX can achieve continuous speech from input as low as 150 bps.
The VOTRAX VS-6 was developed to fit into a wide variety of applications and physical environments. A complete range of interface types and options makes VOTRAX compatible with virtually all computers, from the largest business mainframes to the smallest microprocessors. The small amount of data and limited controls required to drive VOTRAX permit installation at almost any point in a communications network: host computer, communications concentrator, communications multiplexor, or computer terminal. Data rates of 110 to 9600 bps also allow VOTRAX to fit in with a minimum of change to existing systems. Operating temperature and humidity specification. are such that specially conditioned environments are not required. Applications include: Computer Timesharing, Education, Handicapped Aids, Instrumentation, Manufacturing, MIlitary and Training Simulators.

Electrical input Power Requirements 115 VAC +10%, 47-420 Hz, 0.25 Amps Input Power Fuse 3AG - 1/2 Amp, 125 Volts Audio Output 100-5000 Hz. 6 Volts Peak, Nominal Audio Output Drive Capability 0.5 Watts into an 8 Ohm load Environmental Operating Temperature 0 C. to 50 C. Storage Temperature - 20 C. to 70 C. Operating Humidity 0 to 95% with no condensation
Command Word 6-bits: 64 selections available, Includes phonemes, pauses and control functions 2bits: 4 levels of inflection available

If you are interested in having this available in $1 K kits, write to: John McDaniel, Vocal Interface Div., 4340 Campus Dr., Suite 212, Newport Beach CA 92660, (714) 557-9181
Dr. Dobb's Journal of Computer Calisthenics and Orthodontia, Box 310. Menlo Park CA 94025 March, 1976

COMPUTERS THAT TALK - UPDATE

Jim Day had an article in the most recent issue of PCC discussing the use of a Votrax machine to allow a computer to synthesize speech [article is reprinted, herein]. In the article, he indicated that the machine, essentially a solid-state phoneme generator, was priced at about $3500 for a basic system ... a bit high for most hobbyists budget. (Phonemes are the basic components that make up spoken words.)
Well, we just fmished talking to the west coast rep for Votrax for about an hour and a half, and have some exciting possibilities to report!
Votrax is currently selling relatively few of their systems. It would be easy for the computer hobbyist community to significatitly increase their sales (and, presumably, thereby drive the price per unit significantly downward). And, the rep didn't even know the hobbyist market existed; he does now.
First of all, the price that Jim quoted was for a turnkey system; (one that includes two 25-pin interconnect boards, an 80-byte buffer for the incoming phoneme

codes, an amplifier, and a power supply. Such a configuration is usually expected and demanded by the commerical and industrial users. However, it's a different matter with computer hobbyists. Hobbyists are accustomed to using breadboarding, can supply their own buffering via their system's memory, invariably have the ability to input to a hi fi amp, and usually can find super-cheap power supplies.

Assuming this, all that one really needs to purchase are the four phoneme generator boards, and have access to the interface engineering specifications and schematics. These are available for under $2K in small quantities; $1800 @ in groups of ten, and $1600 @ in groups of fifty.

Would you rather have a $1600 hardcopy device or the ability to generate English speech, including inflection? Since the Votrax equipment is based on phoneme generation, the vocabulary is essentially unlimited. Further, since the generators are entirely electronic, the equipment has much greater reliability than electro-mechanical equipment. Also, the Votrax equipment and circuitry has been in the field for about half a decade, now, and is thoroughly debugged.

If you would like for Votrax equipment to become available to the hobbyist community: (I) Write to John McDaniel, Votrax, 4340 Campus Dr., No.212 Newport Beach, Ca. 92660; tell him that you would like for your computer to be able to talk to you, and indicate how much you would be willing to pay for that facility. Give him correspondence to support him when he approaches Votrax management. Make him and them aware of their untapped potential market for stripped-down systems in the hobbyist community. (2) Tell the owners of your local computer store about Votrax and encourage them to contact Mr. McDaniel.