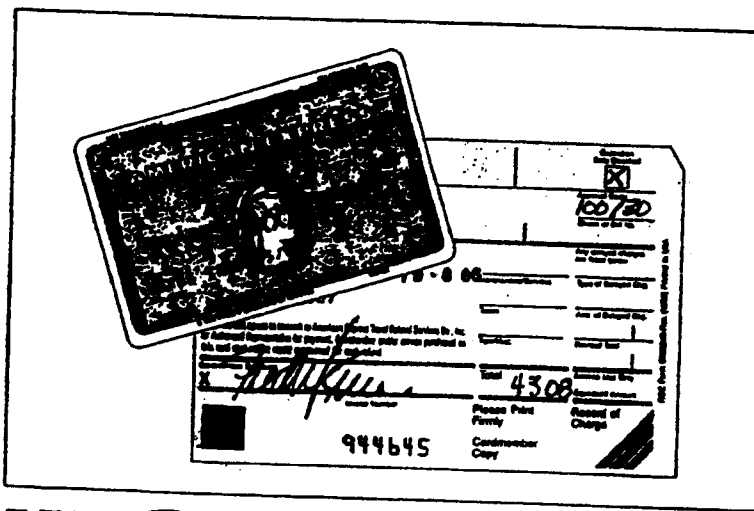# AMERICAN EXPRESS IMPLEMENTS VOICE RESPONSE CREDIT AUTHORIZATION

"The American Express service policy is to never turn down a retail charge without first speaking directly to the merchant or customer. Our goal in implementing a voice processing system was to maintain a highly personalized approach while controlling costs by automating the high percentage of routine authorizations."

O ver the next year American Express and VCT will be implementing some of the latest advances in voice processing to provide the Travel Related Services Division with a rapid and sophisticated information processing system. A 24-line pilot system, currently being installed at the Western Regional Operating Center (WROC), will add voice response capabilities to the current charge authorization procedures. This pilot system, described below, will eventually be expanded to over 260 lines and incorporate voice recognition. The WROC site will serve as the prototype and development center for future centers utilizing voice response and voice recognition.

The project began over a year ago with extensive review of available applications and voice processing equipment. According to Anita Bounds, Manager Voice Processing. "The American Express service policy is to never turn down a retail charge without first speaking directly to the merchant or customer. Our goal in implementing a voice processing system was to maintain a highly personalized approach while controlling costs by automating the high percentage of routine authorizations."

The initial Credit Authorization Service (CAS) Pilot Voice Response System will utilize 24 lines of voice response equipment to automate particular steps and functions of the credit authorization. As represented in the diagram, calls are processed by two methods, as either an interactive transaction involving only the voice response unit or as a relayed call to a CRT operator who keys in pertinent information, after which the voice response unit speaks back the authorization code or transfers the call to an Authorizer.

Merchants or Service Establishments call the Credit Authorization System (CAS) via toll free numbers through Megacom service. The voice response unit receives the call and directs it according to the 800 number. These numbers designate how the voice response unit should handle the call. In one method, the call is directed by the voice response unit to operators

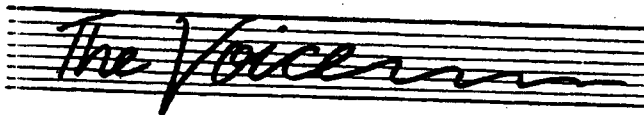# *Commentary*

We were very pleased with your reaction to our first issue of *The Voice*. Responding to your requests and comments, we have added more articles on customer applications and included additional information about the integration and implementation of their voice response applications. This was a very busy quarter for VCT, which saw not only the expansion of our product management and distribution efforts but also the announcement of some very interesting programs and marketing agreements. It is very exciting to be working with companies such as Electronetic Systems Limited in Canada and designing applications for Credit Authorization Services at American Express.

William L. Hutchinson
President
Voice Computer Technologies Corporation

The Voice

Calendar

⠿TRADE SHOWS

VCT participated in 11 trade shows and conferences from October through December. The vast majority of these shows were Regional and State Conferences for the American Association of Collegiate Registrars and Admissions Officers (AACRAO).

October
6-8 League for Innovation in Community Colleges — Assisted Miami-Dade Community College with presentation of telephone registration system
8-10 Louisiana AACRAO Conference
8-10 Speech Tech Office Automation Conference — Co-presentation with American Express on Voice Response Credit Authorization System
26-29 Credit Union National Association
26-28 Upper Midwest AACRAO Conference

November
2-5 Texas AACRAO Conference — Assisted University of Texas at San Antonio with presentation of telephone registration system (*See Page 4*)
2-5 Pacific AACRAO Conference
2-5 Carolinas AACRAO — Assisted Central Piedmont Community College with presentation of telephone registration system
5-7 New England AACRAO Conference
24-26 Florida AACRAO Conference — Participated on a panel discussing the Future of High Tech in Education

December
1-3 Middle State AACRAO Conference

⠿ARTICLES

Watch for upcoming articles on voice response applications for Burlington Northern Railroad in *Railway Age* and for Suffolk County Community College in the *Community, Technical, and Junior College Journal*.

Burlington Northern Railroad has introduced a system called 'Phone-Trace' which enables Burlington Northern customers to use their Touch Tone® phone to access the shipment tracking system in Denver for locating

NEWS RELEASE

SCHOLARSHIP/ENGINEERING GRANT PROGRAM

Effective November 3, 1986, VCT is offering U.S. colleges and universities purchasing VCT voice response systems up to $15,000 to be applied to either the institutions general scholarship fund or the engineering department for research into voice processing. This scholarship program is in addition to VCT's standard educational discount. According to William L. Glass, Vice President of Marketing and Sales, "VCT is committed to the Higher Education market. Not only can we help control expenses and improve administrative efficiency through telephone registration, but we want to show our commitment to the opportunities provided through higher education and we feel this scholarship program will reflect that commitment." Currently VCT has sold ten (10) systems to provide telephone registration to such schools as the University of Texas at San Antonio, Colorado State University and Miami-Dade Community College — the largest community college in the country currently registering over 40,000 students.

VCT ANNOUNCES DISTRIBUTION AGREEMENT WITH ELECTRONETIC SYSTEMS LIMITED

On September 26, 1986, VCT announced completion of an agreement with Electronetic Systems Limited of Canada for distribution of its voice response product line.

Voice response has generated a great deal of interest in the business, financial and educational marketplace in Canada. A distributor of data communications equipment since 1963, Electronetic Systems supplies and distributes modems, multiplexers, network management and control systems, EIA switches and other related equipment. Terms of the agreement give ESL distribution rights and the ability to provide all sales, maintenance and support services for the VCT product line. According to Harvey Pollock, President of Electronetic Systems, "We are pleased to add VCT's voice response equipment to our product offerings. With the sophisticated technology and applications of voice response we can continue to help our customers improve their communications systems."

'PHONE-TRACE' *continued from page 2.*

individual cars and shipments. In this article, Mr. Lonnie Jarrell, Director Customer Information, discusses specifics of system design and telephone/host interface methods.

Suffolk County Community College has recently implemented telephone registration and has been registering students for the Fall quarter. In this article, Dr. Paul Libassi, Associate Dean of Institutional Services, talks about the development of the Suffolk system and some additional applications planned for the future.

CALL FOR PAPERS

AVIOS '87, sponsored by the American Voice I/O Society, will be held at the Radisson Mark Plaza Hotel in Alexandria, Virginia October 6-8. Participation is invited in all areas of verbal man-machine communication. Traditional papers as well as interactive presentations will be considered for inclusion in the program. The intent of the interactive session is to present on-going effort, promoting critical dialogue during task performance, and allowing timely interchange of ideas. Papers should address applications as well as applied research in the application or technology of Voice I/O. One day of the conference will be devoted solely to Voice I/O and Artificial Intelligence Applications.

Deadlines: for Paper Abstracts is February 27, 1987; Interactive Abstracts is March 15, 1987; and camera-ready Manuscripts is June 1, 1987. Papers and a 250-word abstract should be submitted to Mr. Leon Lerman, c/o AVIOS, P.O. Box 60940, Palo Alto, California 94306.

For further information regarding AVIOS '87 and paper topics, please contact either Leon Lerman (408) 742-2539 or Michael Joost (919) 737-7816.

CONGRATULATIONS!!!

Congratulations to Ralph Garcia. Ralph brought in total sales of 180% over quota to make him salesman of the quarter. With over twenty years experience in sales and sales management, he attributes his success to working with his customers to clearly define both their communication and budgetary needs.

Higher Education

TACRAO REPORT:
TOUCH TONE® TELEPHONE REGISTRATION AT THE UNIVERSITY OF TEXAS AT SAN ANTONIO

by Dr. John Brown
Director of Admissions and Registrar
University of Texas at San Antonio

The University of Texas at San Antonio (UTSA) formally presented its Telephone Registration system to the Texas Association of Collegiate Registrars and Admissions Officers (TACRAO) at its recent meeting held in College Station Texas November 2-5.

UTSA conducts registration for its 12,500 students three times a year; permitting enrollment for the Fall Semester in April, June, July and August, for the Spring Semester in November and January, and for the Summer Semester in April and May. Prior to implementation of Telephone Registration, students waited for the opportunity to register through an operator utilizing a CRT terminal and an on-line registration system called ISIS (Integrated Student Information System). In July of this year UTSA enrolled its first students by Touch Tone® Telephone from locations throughout the city of San Antonio and outside the state. UTSA plans to gradually phase out terminal registration, replacing it with the Telephone Registration service.

The Touch Tone® Telephone Computer, VCT Series 2000, interfaces with an IBM 4381 Mainframe through an IBM 7171 controller. This interface is accommodated via a one-to-one correspondence between the host and the Touch Tone® Telephone Computer phone lines. The voice response system also interfaces and utilizes the ISIS on-line registration software currently in use. Ten (10) DID lines, sitting as stations on an AT&T System 85 PABX®, communicate to the Voice Response Unit. To facilitate Touch Tone® Registration four (4) information databases and applications programming

reside on the VCT system.

Before Interacting with the Student Records System Registration Screens of the ISIS system, three pieces of information must be gathered from the caller: the Social Security Number, level (undergraduate or graduate) and term, when more than one semester's registration is active at the same time. This information is keyed by the caller on the telephone key pad and submitted to the system's registration screen. If the student has holds, the voice response system initiates the hold message which indicates the type of hold and the office placing the hold on the student record.

If no holds exist, callers are at course entry level and begin to enter course numbers one at a time and receive immediate verification of the course information entered. A database lookup is made at this time to determine if the course selected requires the entry of an advisor code, and if so, the caller is prompted for the information. After successful entry of the code, or if it is not required, the caller is asked to enter the next course call number or a pound sign (#) if they have no other course selections. This loop of prompting will continue until the student has entered a maximum of 24 semester hours or has entered a pound sign (#) to indicate all course selections have been made. Once these conditions are met all the course call numbers are submitted to the registration screen.

If any errors are returned from the host computer (course cancelled, course closed, corequisite course required, etc.), they are spoken to the caller. A summary of the courses that were accepted and courses rejected is spoken to the caller. After hearing the outcome of this summary, the caller has the option to enroll in the courses accepted and subsequently add the courses to their schedule or to cancel the entire transaction.

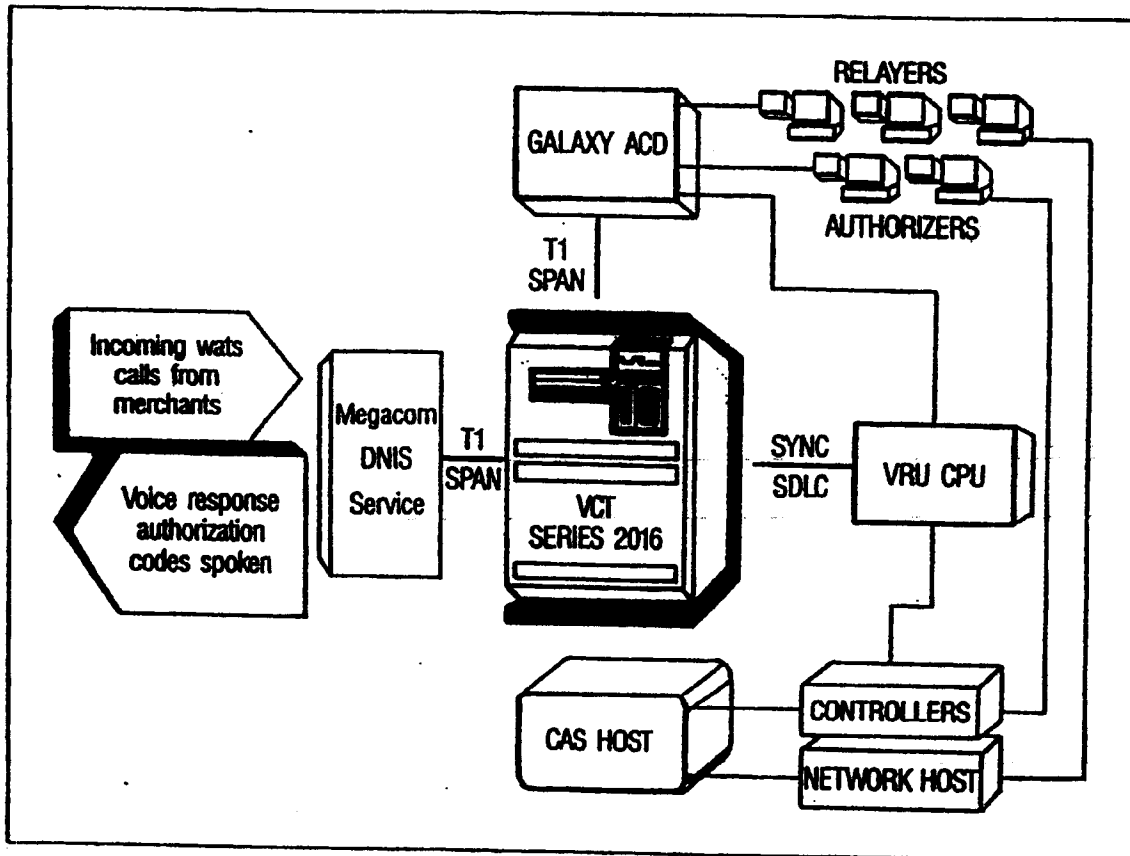called Relayers. The Relayer asks for and keys in the card number, merchant number and amount of purchase. This information is then sent to the host and the Relayer is available to handle the next call. If the host approves the transaction, an authorization code is sent to the voice response unit to be spoken back to the merchant. If the transaction is not approved, the voice response unit transfers the call to an Authorizer. The Authorizer receives the call from the voice response unit and processes the authorization request from the host. In accordance with the American Express policy, he/she

the host. If the purchase amount is approved, the host sends the authorization code to the voice response unit to be spoken back to the caller. If the purchase is not approved, the call is transferred along with the appropriate data to an Authorizer for special handling.

"In order to implement this system it was crucial that we be able to recognize and direct specific 800 numbers according to the DNIS identifiers. The memory capacity and Digital Signal Processing capabilities of VCT's equipment provided the method for doing this", commented Ms. Bounds. "In addition, software supported by Digital Signal Processing (DSP) technology gives us the oppor-

will speak with the merchant and/or the customer before completing authorization or denial of the transaction.

In a second method, specific 800 numbers are handled entirely by the voice response unit. Merchants interact with voice prompts to enter their merchant number, card number and amount of purchase by pressing appropriate keys on their Touch Tone® phones. The voice response unit bypasses the Relayers to communicate directly to

tunity to take advantage of low cost/high volume services such as T1 and Megacom. Future development of this technology will allow us to add voice recognition to existing equipment to further enhance our customer service network at a later date."

NEW FACES:
VCT EXPANDS PRODUCT DEVELOPMENT AND DISTRIBUTION CHANNELS

David Greer
Product Manager

Mr. Greer's previous position as Product Marketing Manager with ITT for the Voice Communications System product line, provides excellent background for directing the development of the VCT line of voice response products. "VCT is undergoing rapid changes in its product development and structure. This is due primarily to the significant technological enhancements coming from our Research and Development department. These enhancements and new developments will allow us to expand our product offerings to accommodate both large and small end users", commented Mr. Greer. According to William L. Glass, Vice President of Marketing and Sales, "This is an exciting time for VCT, we are experiencing both rapid growth in sales and sophistication of our voice response systems. David will play a significant role in defining the expression of these enhancements into new products and applications to enhance the current line of equipment."

Randy Bailey
Manager, Distributor Sales

Previously Southeastern Regional Sales Manager with Northern Telecom, Mr. Bailey brings to VCT over 10 years experience in direct and distributor sales. "My initial objectives," commented Mr. Bailey, "are to support our current distribution base through implementation of sales training programs and standardization of the VAR/OEM distribution program." According to William L. Glass, Vice President of Marketing and Sales, "VCT plans to expand its distribution channels through Distributors, OEMs' and VARS', and Randy Bailey will be leading this effort. Direct sales will still be our primary method of distributing the VCT Series 2000® family of voice response products but these agreements will help support our presence in specific markets."

The voice response component used in the UTSA Telephone Registration system is supported by digitizing voice input on disk. By using this method of voice recording, the responses to the students or users of the systems and prompts can be changed with a simple microphone attached to the system console. In addition, the voice response system uses a programmable interface module. This module can be changed by the user to develop new applications for the system.

The Telephone Registration system also functions as an extension of the on-line student information system. Through its interface with this system, it functions as an input device which gathers and processes registration information and communicates the results of those transactions to students and to authorized users of the student information system. As soon as the student hangs up the phone, a record of the registration is transformed into information for transaction accounting, on-line class rosters, course enrollment summaries, student schedules and bills. Financial aid information; grants, scholarship, loans, etc., entered by the Financial Aid Office, are built into the billing routines. A student can make payment for their registration anytime after the telephone transaction or wait to be billed by the Bursar.

The Telephone Registration system and Student Information system provide several reports that assist in the management and operation of Touch Tone® registration at UTSA. Those reports available on-line and in hard copy that assist in operating the system include:

- Call Disposition Report
- Facilities Utilization Report
- Transaction Journal

Among the information received from these reports are statistics on the number of calls, average time per call, specific information on course selections and system utilization. A Student Course Enrollment Report provides the registration audit trail, giving an electronic record which can be printed up every 24 hours. This procedure allows the Registrar's Office to document each student's registration as well as any subsequent change to that registration.

With the existing ten (10) lines of voice response equipment, UTSA is registering 23-25 students per hour with an average transaction time of 5 minutes. This connection time is expected to drop as students become familiar with using the system and elect to bypass verbal prompts to complete their transactions. Future goals for development of the system may include expansion to 16 lines to service the entire UTSA student body by Fall 1988.