Utah Deaf Technology

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Over the years, technological changes have impacted the Utah Deaf community. They use a variety of technologies to improve their accessibility needs as well as overcome communication barriers in society at large. Additionally, technological improvements make Deaf and hard of hearing people's life easier and a variety of technologies offer full participation in all aspects of life.

The Evolution of Hearing Aids

The history of hearing aid technology has progressed over the years. The first hearing aid was created in the 17th century. Over the years, hearing aids have changed from ear trumpets to modern hearing aids.

The Growth of Cochlear Implants

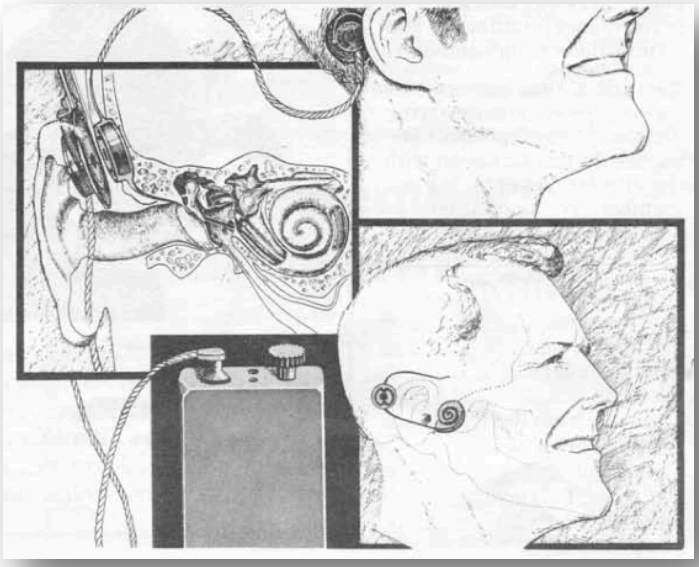
The cochlear implant was first invented in the 1950s. With the spread of cochlear implants in the 1960s, the Utah Association for the Deaf was naturally curious about this technology.

In 1963, the Utah Association for the Deaf (UAD) Convention featured a speaker, Dr. David A. Dolowitz, an otologist at the University of Utah School of Medicine, about the Deafness Research Foundation Temporal Bone Bank. Through its convention, UAD helped publicize the Temporal Bone Bank Program and stood ready to assist people wishing to pledge their temporal bones to help doctors with research which may help others to hear (UAD Bulletin, Spring 1963, p. 4).

The cochlear implant project was first initiated by the Los Angeles Foundation of Otology in early 1960s with the help of a grant from Mr. and Mrs. George S. Eccles. Mr. Eccles was the head of the First Security Bank of Utah. The last time an implant was done was in 1968 (UAD Bulletin, June 1974). It is unknown as to why this was the last time when many people have had implants since then.

At the time, three totally Deaf patients were operated on and some tiny electric wires were implants in their inner ears. These wires led out through the skin behind the ear and were connected to a device that converted sound into small complex electric currents. These electric currents directly stimulated the hearing nerve and produced a sensation of sound (UAD Bulletin, June 1974).

Since that time nothing more had been done except to keep direct contact with these three people who had the implants. They were checked to see if the body accepted the foreign material placed in the inner ear and to watch for signs of rejection. It was found that no such signs of rejection had occurred (UAD Bulletin, June 1974).



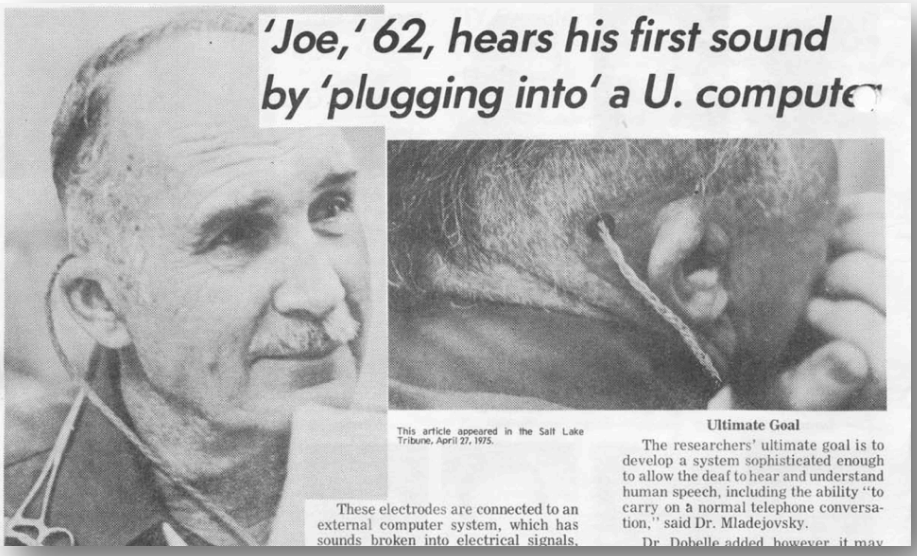
The new cochlear implant
UAD Bulletin, June 1974

Six years later in 1974, a new move to get the cochlear implant project moving, biophysicist, William H. Dobelle, of the University of Utah Institute for Biomedical Engineering, with the cooperation of Dr. Robert G. Sanderson, head of the Utah Services to the Deaf office, contacted Deaf individuals in the Utah community to volunteer to attend the meeting for electrocochleography.

Four Deaf individuals, Dr. Sanderson, Dave Mortensen, Joseph Burnett, and his wife, LaVerne volunteered and were tested by Dr. Derald E. Brackmann to determine who was a candidate for the implant. This was done by measuring the electrical output of the cells of the inner ear and of the hearing nerve. Out of four, only Joseph Burnett, Utah School for the Deaf alumni of 1933 and Gallaudet College alumni of 1937, was found to

have functioning hearing nerves; he became a volunteer candidate for the cochlear implant (UAD Bulletin, June 1974).

Over the years, the technology in cochlear implant had changed. In the electrocochleography, a needle was placed by the doctor through the eardrum onto the bone of the inner ear. The inner ear was then stimulated by sound and the electrical output produced by the cells in the inner ear was measured by the use of a computer. If the cells of the inner ear were dead, there was no record of electrical output from them. In that case the hearing nerve was stimulated directly. If sound was heard, that meant the hearing nerve was functioning (UAD Bulletin, June 1974).


'Joe,' 62, hears his first sound by 'plugging into' a U. compute

This article appeared in the Salt Lake Tribune, April 27, 1975.

These electrodes are connected to an external computer system, which has sounds broken into electrical signals,

Ultimate Goal

The researchers' ultimate goal is to develop a system sophisticated enough to allow the deaf to hear and understand human speech, including the ability "to carry on a normal telephone conversation," said Dr. Mladejovsky.

Dr. Dobelle added, however, it may

Joseph Burnett getting a new cochlear implant
UAD Bulletin, June 1975

This type of implant had been used in eight Deaf patients. Five of these patients wore their cochlear stimulator and obtained considerable benefit from it. Two patients were still waiting for post-surgical healing to take place. One person had no sensation of sound as the result of inducing electrical signals through his implanted device (UAD Bulletin, June 1974).

In 1975, all four Utah Deaf volunteers and their interpreter, Beth Ann Stewart Campbell, took a trip to Los Angeles, California to tour the Ear Research Institute, where

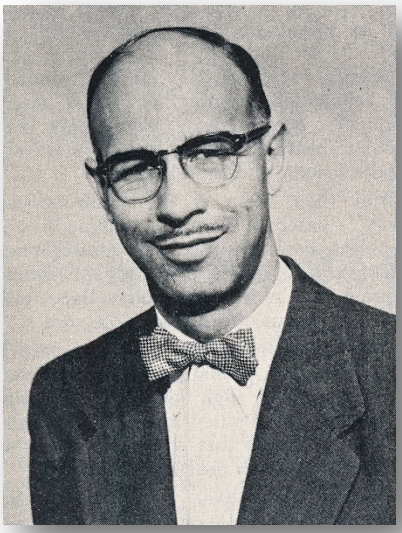
Joseph Burnett, who was 62 years old, got his new cochlear implant. After a period of time, he returned home with wires implanted and began a series of tests with an "electronic ear." These tests were conducted at the Institute for Biomedical Engineering under Dr. Dobelle's direction and the Ear Research Institute (UAD Bulletin, June 1975).

After a successful surgery, Joseph is believed to be the first Deaf person in Utah to get cochlear implant. The University of Utah Biomedical Center and the House Hearing Institute of California partnered to begin the cochlear implant program (Nelson, *The Salt Lake Tribune*, April 27, 1975).

Today, more Deaf children as well as Deaf adults are getting cochlear implants.

The Telecommunication System

Rodney W. Walker, Utah School for the Deaf alumnus of 1933, remembered that before the1960's, Deaf people had to drive to a Deaf or hearing friend's home to see them for business or pleasure. They also relied on neighbors make calls for them. Those who had a telephone at home would ask their children to make calls for them, and these repeated requests sometimes put a strain on the relationship between parents and children (Walker, 2006).

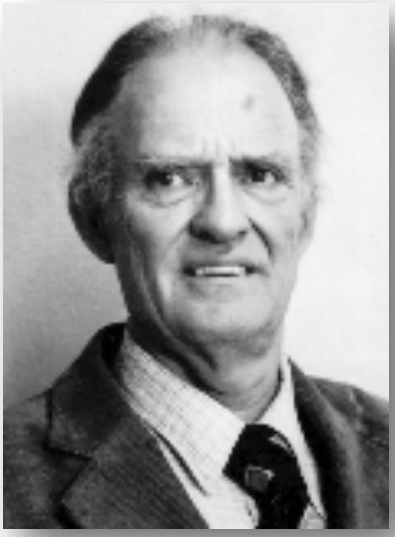


Rodney W. Walker

Although Deaf people lived with these difficulties and inconveniences, they dealt with the challenges for many years until TTY came into the picture in 1964. Robert H. Weitbrecht, a Deaf scientist, and Dr. James C. Marsters, a Deaf orthodontist, invented a way to transmit phone lines through a teletype machine, the same machines used to transmit telegrams. It was known as the Teleprinter Phonetype Units (TTY) for communication over the telephone.

The TTY was first shown in public at the 1964 Alexander Graham Bell Association for the Deaf Conference in Salt Lake City, Utah (Mortensen, *UAD Bulletin*, September 2012). The TTY looked like a large mailbox.

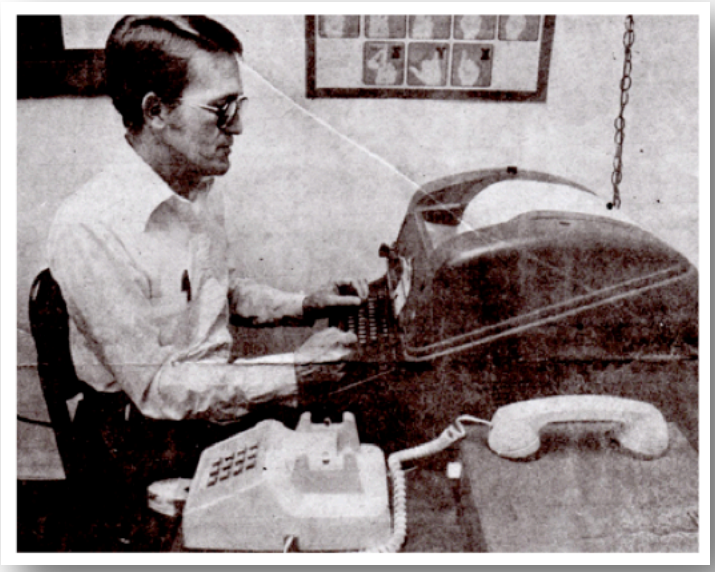
After that, Mr. Weitbrecht and Dr. Marsters set up the first company to market TTYs. TTY had a big impact on the Deaf community. Dennis R. Platt, president of the Utah Association for the Deaf (UAD) noted, "TTY is catching on in many areas in the United States like wildfire" (Platt, UAD Bulletin, Fall 1969). At long last, the advantage to having TTY was tremendous, as it saved Deaf people from depending on neighbors, friends, relatives and their children, on the availability of a car to see other people, and avoided the frustration of not finding people at home.



Dr. Robert H. Weitbrecht, inventor of the first TTY modem
Photo courtesy of the Ultratec, Inc.

However in 1975, W. David Mortensen, known as Dave, president of Utah Association for the Deaf, begged to differ. He reported that the national statistics indicated there was only one TTY to every 530 Deaf persons, or one TTY to every hard of hearing. Utah had a count of 78,626 people with hearing loss; and 10,225 were Deaf; and 2,126 were listed as prevocationally Deaf. Yet, there were 200 TTYs in use in the State of Utah. From the number of TTYs in service, it seemed that not many of the Deaf had or used it. President Mortensen further stated that Deaf persons continued to be penalized by the inaccessibility of telecommunications. A person who is either Deaf or from whom amplification equipment was of little or no value cannot pick up the telephone and make a purchase at a department store. In fact, the Deaf was deprived of all the services available to the hearing, which they took for granted. It was estimated that one out of every two persons in the United States had a telephone (Mortensen, *UAD Bulletin*, October 1975, p. 2).

Additionally, President Mortensen expressed his concern that purchasing a TTY was expensive. The hearing did not have to pay $250-$600 to obtain a telephone of any style to suit their fancy or décor, merely a modest installation fee and a reasonable monthly bill. He questioned, “Why should the Deaf be penalized because they are trying to suit their fancy or décor, but merely to communicate?” Apparently, the telephone company, AT&T and many of its operating companies such as Mountain States Telephone had an obligation to make equipment available to Deaf and other customers at a cost comparable to that which ordinary telephone equipment was made available (Mortensen, *UAD Bulletin*, October 1975, p. 2).



Dave Mortensen at his mailbox TTY
UAD Bulletin, September 2012

F.A. Caligiuri, coordinator of the Deaf Community Relations at the California State University at Northridge, shared a similar frustration as President Mortensen. He said, “To the Deaf person, the telephone is a constant reminder of his handicap and of his dependence upon others for its use. It also stands as an invisible barrier to his vocational advancement, for he has found from sad experience, that in employment he is considered for promotion only to positions which do not require the use of the telephone. It is a psychological barrier to the realization of his full potential. It is ironic that the telephone, which was invented by Alexander Graham Bell to aid his hearing impaired wife is, by itself, entirely useless to the Deaf” (Mortensen, *UAD Bulletin*, October 1975, p. 2).

The telephone company was obligated to comply with the Vocational Rehabilitation of 1973 and the Rehabilitation Act Amendment of 1974. However, these acts provided for the establishment of standards to assure that the physically handicapped will have ready access to, and use of, public buildings constructed by or on behalf of the Federal Government. President Mortensen noticed that telephones were an integral part of public buildings – yet – telephones in public buildings were not accessible to the Deaf (Mortensen, *UAD Bulletin*, October 1975, p. 2).

Mailbox TTY.
UAD Bulletin, September 2012

Between 19070s and 1980s, the large mailbox TTY machines were replaced with portable typewriter size machines, which fit conveniently on a desk or counter (Walker, 2006).

Little by little, the large mailbox machine was gradually replaced with smaller and smaller typewriter size machine which fit conveniently on a desk or counter (Walker, 2006). At the time, the cost of phone bill was high because of the time consumed in typing messages on the TTY. Some typed slowly while others typed speedily according to their skill. The survey indicated that even the fastest typist could not type as fast as one could speak over the phone (Walker, 2006).

Portable TTY
UAD Bulletin September 2012

The Enactment of Hearing Impaired Telecommunication Access Act in Utah

In August 1986, the Utah Deaf Access Coalition, along with other organizations, worked hard getting the Senate Bill 101 passed during the 1987 Legislative session (UAD Bulletin, January 1987). Senate Bill (SB) 101, which was titled, "Hearing Impaired Telecommunication Access Act" was sponsored by Senator Darrell Renstrom (D-Ogden). The purpose of the Hearing Impaired Telecommunication Access Act was to assist Deaf persons gain better access to regular telephone services. The key features of this bill were, as follows:

1. Provide TTYs to any Deaf person who qualifies,
2. Set up a 24 hour central relay system connecting Deaf TTY users with hearing persons,
3. Involve Deaf persons in setting up the program,
4. Begin sometime in 1987 and grow to full service by 1989.

It was the extended Utah Relay permit to continue in 1987 L-R: Gene Stewart, Peter Green, PSC chairman, representative from a blind organization, Lloyd Perkins, Rodney Walker, Tim Funk, Madelaine Perkins (Utah Relay director), Dave Mortensen, Jerry Westburg, Robert Bonnell and Governor Norman Bangeter sitting

The telephone access program would be paid for by a surcharge on every business and home phone line in the state. The money collected would be put in a fund to pay for the purchase, maintenance and distribution of TTYs, and for training and administration (UAD Bulletin, February 1987).

The Establishment of Utah Relay Service

While the Utah Deaf Access Coalition was working toward getting the Senate Bill 101 passed in 1987, W. David Mortensen, president of the Utah Association for the Deaf, along with Board members also worked hard lobbying the legislators, especially with Senator Paul Fordham to help expand the Utah Relay Service.

A proposal was made to the Utah State Legislature to assess each Utah citizen five cents on the phone bill to cover the cost of the phone service for the Deaf. Apparently, President Mortensen was concerned about the higher cost of phone use by a Deaf person using a TTY. He appointed Rodney Walker, a Deaf advocate on the committee working with this proposal, and asked him to evaluate the speed of typing done by different Deaf people using the TTY. Some typed slowly while others typed speedily according to their skills. Mr. Walker completed the survey and showed that even the fastest typist could not type as fast as one could speak over the phone (Walker, 2006).

Madelaine Perkins, Executive Director of the Utah Relay Service

During the demonstration for legislators at the capitol, it was discovered that a skilled typist could not keep up with a person who read a brief message. When the person finished reading, the typist kept on typing. This demonstrated the higher cost of phone use by a Deaf person using a TTY. The demonstration prompted the Utah Legislature to approve three cents per month surcharge on all residential and business telephone lines, referred to as the "Deaf tax." In another word, it was to assess each Utah citizen five cents on the phone bill to cover the cost of this phone service for the Deaf (UAD Bulletin, December 1988).

Signing to permit purchase of TTYs for free distribution in 1988 Governor Norman Bangeter sitting. L-R: Lee Shepherd, Kristi Mortensen, Shanna Mortensen, Donna Lee Westberg, Tim Funk (assisted Dave Mortensen on the Hill), Ben Edwards, Mr. Edwards, Roy Cochran, Senator Darrel Renstrom, D-Ogden (He helped passed the SB 101 bill), Dave Mortensen, Art Valdez and Mae Varley

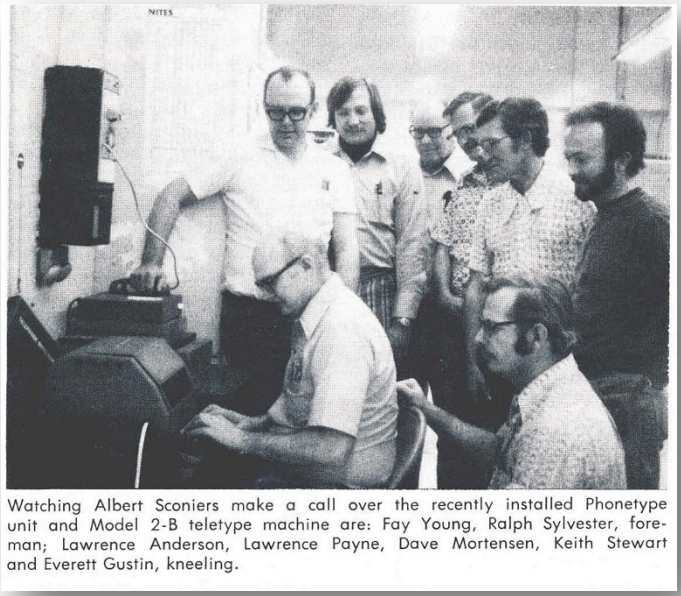
This surcharge paid for a statewide telephone relay system that could be used by Deaf, speech-impaired and hard of hearing persons, so that they could communicate with normal hearing and speaking persons through the conventional phone system. The surcharge also funded distribution of telecommunication devices to persons with low incomes. The devices enabled the Deaf and speech impaired direct access to the phone system (UAD Bulletin, December 1988).

During the legislative session, the Senate voted during its second reading and the SB 101 faced a third reading on January 31, 1987. In order to lobby the senators to pass the third reading, UAD arranged the Telephone Access Rally that attracted 200 Deaf people on January 30. Governor Bangerter addressed the audience in a brief, but

emotional talk. He had previously signed a declaration which named January 30 as Telephone Equal Access Day (UAD Bulletin, March 1987).

UAD continued with their lobbying efforts to get the bill passed through the House of Representatives after the Senate's third reading and then to Governor Bangerter's signature. The Hearing Impaired Telecommunication Access Act was passed 20 minutes before the legislature adjourned in March (UAD Bulletin, July 1987). On May 13, 1987, UAD celebrated by hosting a party (UAD Bulletin, May 1987).

Nine months after SB 101 was passed, countless meetings; negotiations; equipment reviews; not to mention all the paper work; a new era was beginning for the Deaf and hard of hearing in Utah. On December 18, the Utah State Board of Education approved a contract to be used a room at the Utah Community Center for the Deaf (UCCD) and signed the contract with Dr. Judy Ann Buffmire, Executive Director of Rehabilitation and David Mortensen, UAD president (Mortensen, *UAD Bulletin*, January 1988).



Watching Albert Sconiers make a call over the recently installed Phonetype unit and Model 2-B teletype machine are: Fay Young, Ralph Sylvester, foreman; Lawrence Anderson, Lawrence Payne, Dave Mortensen, Keith Stewart and Everett Gustin, kneeling.

UAD Bulletin, December 1973

On October 13, 1987, President Mortensen contracted with the Public Service Commission for the operation of the Utah Relay Service in the state of Utah (Mortensen, UAD Bulletin, November 1987). Madelaine Perkins, CODA and certified interpreter, was appointed by the UAD to take over as the as the program director of the Utah Relay System, housed at the Utah Community Center for the Deaf. The official name of the

phone access relay system was changed to Utah Relay Service (URS) (Mortensen, *UAD Bulletin*, November 1987).

After a long process with negotiation and setting up a statewide phone relay system, the Utah Relay Service opened its service on January 4, 1988 **(**UAD Bulletin, January 1993). The Utah Relay Service operated by the UAD under a contract with the Public Service Commission for 10 years (Sanderson, *UAD Bulletin*, April 1999).

Did You Know?

> In July 1982, a recent survey of TeleCaption decoder owners showed that 38% currently subscribe to cable services. A whopping 85% of viewers not now subscribing indicate that they would subscribe if closed-captioned programming were available. Captioning held two advantages for cable franchises: it's community service and it builds the audience!
>
> At that time, only ABC, NBC, and PBS provided closed captioning – and not very many primetime hours, either. UAD had come a long way since! (UAD Bulletin, July 2002).

W. David Mortensen Receives Consumer Award

On January 19, 1990, W. David Mortensen received a utility consumer achievement award by the Utah State Committee of Consumer Services at its Fifth Annual Utility Consumer Awards Celebration at the State Capitol.

W. David Mortensen

Mr. Mortensen received the award for "strong consumer advocacy." His hard work and contribution to obtaining equal access to phone services were highlighted in an article by the Committee for Consumer Services. The following is an excerpt from that article:

"Dave made sure the telephone is more accessible to the Deaf, the speech impaired and the hard of hearing. In 1986, Dave began organizing support for Legislation making the telephone system more accessible for the hearing and speech impaired.

With the help of Deaf and speech impaired consumers… Dave led the formation of a broad coalition of supporters. The coalition drafted legislation, found a sponsor and successfully lobbied for passage of a telecommunications access law. The law provides for establishment of a relay service and distribution of TTYs to low-income Deaf or speech impaired consumers.

…Dave's leadership has made the telephone accessible to some 15,000 disabled Utah consumers. Thank you, Dave, for making it happen" (UAD Bulletin, February 1990, p. 4).

It's a Matter of Fairness

Since the Utah Relay Service was established, the Deaf relay users had to wait patiently until the operator was available to make the call and they were frustrated for not getting through the calls as the lines were always busy. In 1991, Dr. Robert G. Sanderson commented that the relay system made it possible for Deaf and hearing people to communicate by the telephone/TTY was, in his opinion, was supposed to serve everyone equally. That means equal access for the casual caller as well as the business, a social chat as well as a frantic emergency, a local call, or a long distance call.

Robert G. Sanderson
Photo courtesy of the Gallaudet University Archives

It came to Dr. Sanderson's attention that there were some selfish relay users who wished to tie up limited lines for their own benefit, i.e., to dial once, secure an operator, and demand that the operator make call after call, one after another, even if it takes all day.

He asked the practice of the Utah Relay System for the Deaf to limit a call to "one at a time" – that was, complete one call and hang up, then dial again for the next call. This would permit other people to get their call in without waiting endlessly for a free line. With limited number of telephone lines, it was quite possible for salesman, or a businessman, or several of them, to completely tie up the system and deny access for hundreds, to say nothing of emergencies.

Dr. Sanderson said, "It boiled down to a matter of fairness to all" (Sanderson, *UAD Bulletin*, January 1991).

The Utah Relay Service Celebrates Five-Year Anniversary

The Utah Relay Service (URS) officially went into service on January 4, 1988, though there was no fanfare, hoopla, or ribbon cutting. In looking back in January 1993, Utah Association for the Deaf observed that Utah was a truly pioneer, being the fifth state to provide relay services to the Deaf callers 24 hours, seven days a week.

Dr. Judy Ann Buffmire, Excutive Directior of the Division of Vocational Rehabilitation. Source: The Salt Lake Tribune, August 22, 2011

The following information was gleaned from the past issues of the UAD Bulletin, as quoted from the January 1993 issue of the UAD Bulletin:

> "On December 1987, Dr. Judy Ann Buffmire, Executive Director of the Division of Vocational Rehabilitation, and Dave Mortensen, UAD President, started working on the relay room in the former UCCD [Utah Community Center for the Deaf] in Bountiful and installed equipment.

In January [1988] there were 3,404 calls; 5,269 in February. The URS was handling about 175 calls every day. The Utahns were fast learning telephone etiquette.

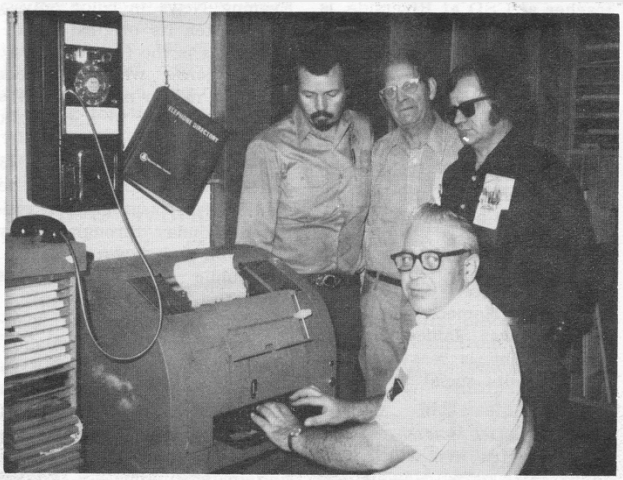
By April, there were problems with equipment intercepting TTY calls. Numbers became letters on the URS computers.

People complained about not getting through as the lines were always busy.

The Deaf callers were educated on using credit cards so they could make long distance calls.

After May 13, the URS would take only one call per person so the URS could serve more callers. Also, the URS limited the calls to only fifteen minutes.

The UAD found that it did not get enough money from the $.03 charge on all telephone lines to hire more operators. By July, the UAD decided to go back to the legislature and ask for a 10-cent cap on the Deaf tax on phone lines. The URS had to keep up with the fast growing use of the relay services and to cut down on the "all lines are busy – please hold" answer.



Ajax Presses is the latest employer to obtain a TTY for its large number of deaf employes. Looking at the set-up is Steven Christensen, Paul Gines, and George Gavros. Jerry Westberg is at the keyboard of the model 15 "mailbox" TTY.

UAD Bulletin, April 1974

After six months, the URS had handled 6800 calls.

In ten months' operation, the relay grew to 8,000 calls a month.

By March 1989, the increase by funding from three cents to a ten-cent cap was approved by the Utah Legislature.

The widely disliked message "Utah Relay. All lines are busy, please hold" became a thing of the past.

After five years, URS had come a long way."

By 1993, the URS was presently funded by a 7-cent surcharge on all telephone bills in the state of Utah. The URS had eleven lines and experienced an increase of 20,000 calls in the first quarter of 1992 over 1991.

The URS was probably the only agency that was handled by an association for the Deaf. Most other state relays were operated by private telephone carriers (UAD Bulletin, January 1993). The URS was operated from 1987 to 1999.

TTYs Springing Up Here and There in Utah

Utah Association for the Deaf noted in the issue of 1992 UAD Bulletin that in Utah, the TTYs were selling like hot pancakes. After the Americans with Disabilities Act was enacted in 1990, many public places were making efforts to provide a range of communication aids for those with hearing or speech impairments.

A new TTY service has been initiated by the Salt Lake City Police department. Deaf persons can call the department when they need help. In the picture above are left to right: Lloyd Perkins, Salt Lake City Commissioner Glen N. Greener, and Chief of Police Dewey J. Fillis. Mr. Perkins donated the teletype unit and the city bought the converter. Chief Fillis said the police have been trained to operate the system. Calls have been relayed, when necessary, to doctors, paramedics and other persons whom deaf families needed in a hurry.

UAD Bulletin, April 1975

The TTY pay phone at Fashion Place Mall in Murray was probably the first known business TTY installed in Utah. Dave Mortensen discovered it at that mall and found that it was easy to use. One simply puts in a quarter at an ordinary pay phone and dials a TTY number. A drawer will slide out with the TTY. The caller simply puts the hook telephone receiver on the TTY device and starts communicating (UAD Bulletin, April 1992).

House Bill 217

The House Bill 217 was passed by the 1994 Legislative Session to raise the phone surcharge cap to 25 cents to fund and improve the Utah Relay System (Mortensen-Nelson, *UAD Bulletin*, March 1994, p. 2; UAD Bulletin, March 1994, p. 2-3).

Deaf Citizen's Day a Big Success

During the 1994 Legislative session in February, the "Deaf Citizens' Day on the Hill" was an outstanding successful event because the State Office building auditorium was packed with approximately 200 people, such as students from American Sign Language and Interpreters in Training classes and also students and their teachers from the Utah School for the Deaf, and many people from the Deaf community. W. David Mortensen, president of the Utah Association for the Deaf noted that Mike Leavitt, Governor of Utah came strolling in, and waving his hand and went among the audience to shake hands with as many as he could. He then spoke to the Deaf community. After Governor Leavitt read the proclamation regarding the Utah Relay Services and signed it. He left, waving and smiling and the audience responded by the familiar waving of hands, indicating applause. It warmed Dave Mortensen, UAD president's heart to see such spirit on the part of the Deaf people (Mortensen, *UAD Bulletin*, February 1994).

STATE OF UTAH

EXECUTIVE DEPARTMENT

DECLARATION

WHEREAS, universal telephone service is accepted as being essential to the American way of life; and

WHEREAS, in 1987 the State of Utah Legislature provided a funding mechanism in the form of a telephone surcharge for the purpose of providing access to universal telephone service to deaf, hard-of-hearing, and speech impaired persons; and

WHEREAS, Section IV of the Americans with Disabilities Act of 1992 mandates the establishment of Telecommunications Relay Service for every state under guidelines established by the Federal Communications Commission; and

WHEREAS, additional funding is required to meet guidelines established by the Federal Communications Commission; and

WHEREAS, the Utah Relay Service was established in January 1988, five years before similar service was mandated by federal law, resulting in increased awareness and exposure of the general public via the Utah Relay Service to American Sign Language and the culture of the deaf, hard-of-hearing and speech impaired persons;

NOW, THEREFORE, I, Michael O. Leavitt, Governor of the State of Utah do hereby declare January 14, 1994, as

DEAF AWARENESS AND APPRECIATION DAY

in Utah, and encourage the citizens of Utah to continue to actively support making telephone service more accessible to the hearing and speech impaired.

Michael O. Leavitt
Governor

The Growth of Utah Relay Service

In 1996, Utah Association for the Deaf was one of only two state associations for the Deaf running relay system and was proud to point out that since 1998 had managed phenomenal growth with remarkably few glitches. For example, in 1988, there were 89,626 calls; and the total number of calls since then number over 2,118,155! Considering that number, there had been very few complaints. UAD owed this in large measure to the skills and dedication of their program director, Madelaine Perkins (Sanderson, *UAD Bulletin*, January 1996).

Utah Relay Service Executive Director Retires

Madelaine Perkins, Executive Director for the Utah Relay Service for the Deaf retired on September 30, 1996 (UAD Bulletin, September 1996).

In 1988, Madelaine had been hired by the Utah Association for the Deaf to get the relay system up and running (UAD Bulletin, September 1996). She had faithfully run the URS operations for eight years for the UAD (Mortensen, UAD Bulletin, October 1996). She brought to the job a long-time understanding of Deafness and Deaf people as a result of her skill in interpreting, marriage to a Deaf person, and her business knowledge gained as an executive secretary for a businessman (UAD Bulletin, September 1996).

Madelaine Perkins, Executive Director of the Utah Relay Service

Madelaine learned on the job because the entire enterprise was completely new to her, and to the phone companies locally as well as nationally (UAD Bulletin, September 1996).

Madelaine had done a remarkable job considering the difficulties she faced, and Deaf people of Utah had benefitted. Utah was, as a result of her efforts, one of only one or two independent relay systems.

The Big Boys – AT&T, MCI, and Sprint – had long coveted Utah's system, but with steady improvement and great sensitive help from the Public Service Commission of Utah, Deaf people had shown that they were capable of handling the business (UAD Bulletin, September 1996).

Dave Mortensen at his mailbox TTY
UAD Bulletin, June 1972

Sprint Takes Over the Utah Relay Service

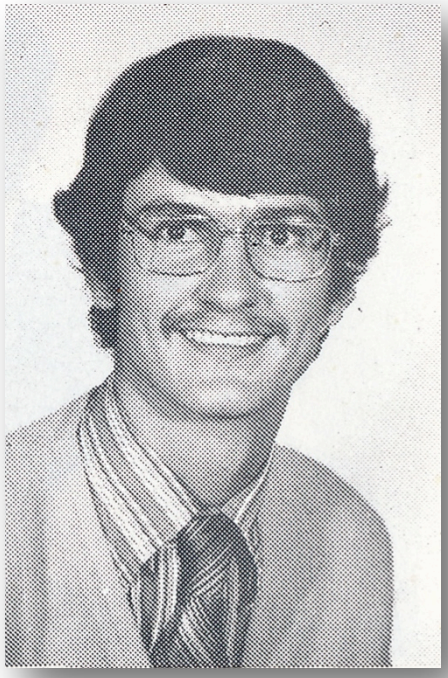
Starting in 1988, the Utah Relay Service had been provided by the Utah Public Service Commission (PSC) through a contract with the Utah Association for the Deaf and as authorized by the State of Utah. The UAD contract was due to expire in 1999. Through competitive bidding, Sprint was ultimately selected and awarded the contracted by the PSC and approved by the State of Utah (UAD Bulletin, February 2000).

After Sprint took over the Utah Relay, it was voted to use the money to establish an interpreter training program at Salt Lake Community College. L-R: Robert Sanderson, Jeff Pollock, Dave Mortensen, Shanna Mortensen, Craig Radford, Robert Kerr, JR Goff, Rep. Spendlove of the Utah House of Representative, who gets it passed with Gov. Jonathan Huntsman's, Jr. sitting

The Utah Relay Service was awarded to Sprint after a bid with by Public Service Commission for the year of 2000. The award of Utah Relay Service to Sprint caused uproar in Deaf community. Dr. Robert G. Sanderson noted that the UAD management team had studied the situation for more than two years and believed the best service to Utah Deaf and hard of hearing, and speech impaired people, will be best served by Hamilton, using Utah workers, instead of Sprint placing all calls in one of its out of state, hard to reach centers (Sanderson, *UAD Bulletin*, April 1999). Apparently, Dr. Sanderson preferred Hamilton over Sprint, but had no control over the Utah Public Service Commission's bidding decision. The Utah Relay Service operated by UAD was closed in 2000. The TTY eventually became obsolete when Sorenson Communication, Inc. came into the picture in 2003.

The Birth of Video Relay Service Industry

When Jonathan Hodson, a Utah Deaf native and former Director of Business Development at Sorenson Communication, Inc., was in Los Angeles Pierce College back in 1981, he was researching the possibility of video data being transmitted through an analog line (Plain Old Telephone System, POTS) using a 28.8 Kilobit modem. Jonathan and his classmate went to see a computer professor and asked him if there was a way that video data could be transmitted through POTS and modems. The professor paused and pondered. He picked up the marker and drew frequency pictures on the white board. He figured and then determined the outcome. He said it is absolute IMPOSSIBLE for video data to be transmitted with that technology.



Jonathon Hodson

Jonathan thought there was must be a way to accomplish this concept so he contacted a friend who was an electronic engineer at IBM in San Jose, California. He explained to him about this concept. He said he would reply with an answer. After a few days, he couldn't find a way to accomplish this.

When Jonathan was visiting his sister Elizabeth and her husband, Jim (James Lee) Sorenson for Thanksgiving dinner at their home in 1994, Jim mentioned that his company was working with Utah State University regarding a video compression technology and that he planned to acquire the technology for his company. Jonathan didn't know exactly what compression was.

In the summer of 1996, the Sorenson Vision, Inc. contacted Jonathan and told him that Jim Sorenson, his father, James LeVoy Sorenson, a well-known Utah billionaire, and his executives, wanted to demonstrate the video-conferencing software to him. At first, he thought, oh, it is video-conferencing stuff and probably will show a very choppy picture with missing frames but at least he'd give it a shot and see their newest technology. Jonathan and his interpreter met with them in California to view their video software. They were able to project the complex and smooth movements of a Deaf person using American Sign Language. Jonathan and his interpreter were amazed!

James LeVoy Sorenson

Jonathan was then hired by the Sorenson Vision as the director of business development and was given the responsibility to market their video software to the Deaf community in fall of 1996. The Sorenson Vision's first product was VisionLink and it was designed with the Deaf in mind. He thought he would have an easy time selling this great product

to people but to his surprise the Deaf community wasn't ready to accept this drastic change in their means of communication. They were accustomed to TTY communication and afraid to lose their skills in English writing. Another other "fear" particularly for women was the idea that they would be seen on video with their unmade hair and so forth.

This did not stop Jonathan from marketing the video software. He introduced the technology to many Deaf organizations, universities with Deaf programs and high profile individuals. It was slowly being accepted that this was the wave of the future; however he kept telling them that this future was available now.

As national Video Relay Service outreach director for Sorenson Media, Jonathan Hodson has helped his company become the No. 1 provider of video-relay call services to the Deaf. Jonathan is shown using VRS to make a telephone call to a hearing consumer. Source: The Salt Lake Tribune, July 14, 2004

In 1998, Jonathan proposed the concept of using the technology to provide video relay interpreting to Sorenson Vision a couple of times and they disregarded this idea. Communication Services for the Deaf (CSD) was introduced to this product and the idea of video relay interpreting. They expressed great interest and started to pursue the video relay concept and accepted it as a part of telecommunication relay service (TRS), subsidized by the Federal Communication Commission.

In 1999, Sorenson EnVision with a built-in voice feature became the second-generation video conferencing product after VisionLink for both Deaf and hearing

markets. Around the same time, the Federal Communications Commission (FCC) approved video relay interpreting to be a part of TRS, later becoming video relay service, known as VRS. CSD and Sprint became partners working to provide VRS. They decided to use the free product Microsoft Netmeeting instead of Sorenson VisionLink.

Ed Bosson, a Texas Relay administrator, had been working to provide VRS to Deaf residents in his state at relatively little expense. Ed, widely considered the father of video relay service, had experimented with video equipment worth thousands of dollars where Deaf callers had to drive to remote sites to use the service. After many months of working with him, they started the first home-based video conferencing system in September 2000. The EnVision product was selected to be on the state voucher list to provide services to Texas Deaf residents, the first state in the nation to take this momentous step.

Several telephone companies that were FCC certified for TRS such as MCI, AT&T, Hamilton, CAC and others began to follow the VRS trend, contracting with interpreting partners. Jonathan presented the EnVision product to Sprint, AT&T, MCI and other telephone companies. They weren't interested in it and again preferred to use the free Microsoft Netmeeting.

Jonathan proposed the video relay concept again to Sorenson Vision (later Sorenson Technology, merging with Sorenson Media) in 2001 and 2002. They were hesitant to accept the concept, even at $9 per minute revenue potential.

In July 2002, at Gallaudet University for the Deaf Way II event, Jonathan and his assistants set up their humble 10x10 booth to demonstrate the EnVision product. He was approached by Communication Services for the Deaf and asked if they could use EnVision in their huge floor exhibit with 14 VRS stations and a huge screen showing the video conferencing connection. He asked them what was wrong with Microsoft Netmeeting. They said it couldn't provide clear motion due to limited bandwidths. EnVision, with its video compression technology, was able to do the job well. Thousands of Deaf attendees witnessed the communication on the huge screen and wondered where they could see the real product. Many came to Jonathan's small booth to purchase the EnVision.

Sorenson Communications Corporate Office.
Courtesy of the Sorenson Communications, Inc

After the event, Jonathan reported to the Sorenson executives the outcome of significant VRS revenue that CSD made during the seven-day event, particularly since the FCC had recently increased the reimbursement rate to $14 per minute. He observed that per-minute pay opened their eyes.

Jonathan again proposed the concept of an integrated EnVision and VRS operation; and to partner with a telephone company. Jim (James Lee) Sorenson expressed warm interest in the proposal. Finally, James told Jonathan, "Prove me wrong, go and find a telephone company." He sent his executives out to research VRS to

determine if it was feasible to build a good business. Jonathan became the point man to gather and synthesize information. Within about two weeks, they reported to Jim that this was the real thing. Jim later sent an email to Jonathan wishing Sorenson had started VRS a long time ago!

At that time, the standalone Sorenson VP-100 videophone was developed. Jonathan went out again to meet with Sprint, MCI, AT&T, Hamilton, CAC and others. Still, they did not express interest in the new technology. They wanted to use Microsoft Netmeeting. Later, ATT sent out a Request Form Program to request bids from vendors to provide VRS. Sorenson Media decided to submit a bid. In 2002, an interpreting agency was selected to be AT&T's partner instead of Sorenson Media because Sorenson Media didn't have any interpreting experience.

Sorenson Media decided to try to get a VRS certificate on their own from the FCC. After many attempts and negotiation with FCC, Sorenson Media finally won a certificate as the first small, non-telephone company to be a VRS provider. Several telephone companies protested because Sorenson Media was primarily a technology company.

Regardless, Sorenson Media implemented VRS in April 2003. The VRS department was growing extremely fast and the company decided to split its operation to create Sorenson Communications, Inc. (SCI) focusing on VRS only. SCI became the nation's largest and fastest growing video relay service provider with over 70,000 Deaf users (Jonathan Hodson, personal communication, November 7, 2009). This company became the first VRS provider to develop a videophone for Deaf people (The Endeavor, Winter 2017).

Sorenson Launches VRS

For years, Jonathan Hodson, as the director of business development at Sorenson Communications, Inc., continuously proposed with little success the concept of video

relay service that he envisioned in the 1990s to Sorenson Vision and other companies. Jonathan was also instrumental over the years in getting Deaf organizations and state relay administrators to be aware of low-cost video-compression technology equipment available to the Deaf community. Thus, Deaf organizations and state relay administrators lobbied Federal Communications Commission to include the video relay service into telecommunications relay service infrastructure (Jonathan Hodson, personal communication, October 27, 2013). His persistent hard work finally paid off in 2003 when Sorenson Communication, Inc. launched a free video relay service (VRS) for the 28 million Deaf and hard of hearing American users. Deaf and hard of hearing users can place video relay calls to family, friends, and business associations through a certified American Sign Language (ASL) interpreter and broadband Internet connection (UAD Bulletin, May 2003). They benefit from the "functionally equivalent" access to the video relay system.

Ronald C. Burdett, Vice President of Community Relations at Sorenson Communications, Inc.
Photo courtesy of the Sorenson Communications, Inc.

Nowadays, the Deaf and hard of hearing users benefit from the "functionally equivalent" access to the video relay system than any other form of relay service. Ronald C. Burdett, also a Utah Deaf native, is currently the vice president of community relations at Sorenson Communication, Inc.

A few months before the 2007 Winter Dealympics held in Utah, the Salt Lake City International Airport became the first airport in the United States to offer Sorenson Communications' free videophone booths for Deaf and hard of hearing travelers. Ronald

Burdett, Deaf and vice president of community relations for Sorenson Communication, Inc. said, “Lots of Deaf from around the world will see this and they'll be so thrilled.” Patrick Nola, president and CEP of Sorensen Communications stated, "This is a historic first for the country. We hope this sets an example for airports across the country” (Welling, *The Deseret News*, November 4, 2006).

Nowadays, the Deaf and hard of hearing users benefit from the “functionally equivalent” access to the video relay system than any other form of relay service. Ronald C. Burdett, also a Utah Deaf native, is currently the vice president of community relations at Sorenson Communication, Inc.

The Development of Closed Captions

Before 1930, the Deaf community enjoyed watching silent movies and some movies with subtitles. When non-talking movies were replaced with talking films in the 1930s, Deaf people were at a disadvantage ever since (Walker, 2006).

Dr. Malcolm J. Norwood
Photo courtesy of the Described and Captioned Media Program

For 30 years, captions were not added to films. Deaf people were left out in the cold (Sanderson, 2004). It was not until June 30, 1960 when the Captioned Films for the Deaf was available under the direction of Dr. Malcolm J. Norwood, who was Deaf and known as a “Father of Closed Captioning.” As the director working for the U.S. Department of Health, Education and Welfare, Dr. Norwood, known as “Mac,” persuaded top-level administrators of the need of Deaf people for education through films with captions (Sanderson, 2004).

Upon approval, Mac developed a nationwide program of captioned films for Deaf people. It created much excitement in the Deaf community. Thousands of Deaf people rented or purchased 16 mm projectors to show the films from the film library supplied by the U.S. Department of Health, Education and Welfare in Washington, D.C. (Sanderson, 2004).

In July 1960, the United Utah Organizations of the Deaf was established to cooperate with local organizations such as Utah Association of the Deaf, Utah Athletic Club of the Deaf, Salt Lake Frats, Ogden Frats, Salt Lake Valley Branch for the Deaf, Ogden Branch for the Deaf, and other organizations among the Deaf in Utah to primarily coordinate dates for each group's activities to avoid any overlapping of meetings and events so that everyone could enjoy watching the films together (Walker, 2006). During a meeting on May 1, 2004, representatives of various organizations voted to dissolve the United Organizations for the Deaf (UAD Bulletin, June 2004).

Actual broadcast of NBC's "Watch Your Child/The Me Too Show." Interpreter Maureen Collins appears in the right hand corner of the TV screen through the program. Captions are broadcast at the beginning of each activity
UAD Bulletin, June 1972

During the 1970s and 1980s, Dr. Norwood's persistence paid off with the creation of the captioning industry that we know today (Feldman, 2008). At the time, TV shows with closed captions became popular, and "this attracted Deaf people away from the captioned film showings at Frat meetings"(Walker, 2006). The Frat continued to hold their meetings, but showing of captioned films gradually stopped.

On October 16, 1990, President George Bush signed a bill called, "The Television Decoder Circuitry Act" into a law. This law mandated that all television sets with screens 13 inches or larger to have built-in closed captions by July 1, 1993 (UAD Bulletin, December 1990). Zenith was the first company to introduce a line of closed captions in late 1991, in time for the Christmas sales. The line included both portable and console models. Closed captions on the new Zeniths were BIG – one can sit clear across a room and still read the lines (Kinney, *UAD Bulletin*, April 1992). By the year 1993, two television manufacturers introduced models with built-in closed caption decoders. They were JVC and Toshiba (UAD Bulletin, July 1993). It was a dream come true to the Deaf and hard of hearing population. They no longer had to buy a captioning decoder. They were finally able to watch TV with closed captions in a hotel room and in the homes of friends and/or family members.

Under federal law, captions are being displayed on TV shows and wide-release movies. Today, Deaf people have the privilege of enjoying watching TV shows and/or movies with captions. Pursued by the Popcorn Coalition and Utah-CAN, more captioned movies were added to Utah theaters. With advanced technology available, more and more ASL films are produced and directed by Deaf directors/producers. Our local Utah film producers are Lance Pickett, R.E.M. Films and Julio Diaz, Bobby Giles and Jim Harper, Eye-Sign Media.

TV Stations

In 1993, UAD got two more TV stations to caption their local news broadcasts. UAD had further work ahead, to get those TV stations to caption their news in "real-time" captioning mode that would allow them to enjoy all comments made on the shows, and it also means that they will come close to equal access, the same that hearing audiences enjoy and hear (Mortensen, *UAD Bulletin*, June 1995).

By the year 1997, Channel 13 Fox, Channel 2 KUTV, and Channel 4 KTVX …all three TV stations for "Real-Time" captioning of the evening news. UAD thanked those

TV stations for being sensitive to their Deaf audiences with the introduction of real time captioning (UAD Bulletin, July 1997, p. 4).

In conclusion, technology has come a long way in the last 100 years. With technological advanced, Deaf and hard of hearing people are given an opportunity to access in the information society that hearing people take for granted. Moreover, the Utah Deaf community finds technology very beneficial which allows them to make communicating both the Deaf world and hearing world more accessible.

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