

'SpeakEasy' a Connection to Telecommunications History

By Donald Drew

Recent graduate, David Climek, class of '94, assigned to Rome Laboratory as a research engineer and consultant to the U.S. Air Force, is part of a development team working on a project that could revolutionize the cellular telephone industry and have global significance.

In 1989, Climek was appointed to the development team at Rome Lab. The team was charged with finding a solution to one of the military's communication problems. The U.S. Air Force could not easily communicate directly with all other branches of service by using cellular telephones, according to Climek. Each branch of service used a wireless telephone with a different set of standards. If the Air Force needed to contact the Marines and/or Army during a close air support operation, the Air Force operations officer would have to call each command's wired equipment. In turn, that command would call their troop operations in the field using wireless equipment. This was time consuming and subject to communication mistakes.

Climek says, the team's solution was "SpeakEasy," a software system capable of listening for a particular standard in a cellular telephone, recognizing that standard, and reprogramming itself to enable communication with that cellular telephone.

Phase I of the SpeakEasy project was to develop a new radio product that would be compatible with all products using "software defined radio" software. The equipment developed in Phase I was the size of a refrigerator, not very portable.

Once the determination was made that equipment could be built for this project, Phase II began. The ultimate goal of Phase II was to get a PC-sized piece of equipment that could be attached to vehicles and used in the field. That goal was realized and, in fact, during the field testing of SDR, the unit fell to the floor and broke its "motherboard." This is a hard flat surface containing the preprinted circuitry and other components of a computer. The simplicity and ease of repair to the test SDR was observed as a regular PC's motherboard

was used as a replacement part for the damaged board. The test unit was put back in service in a matter of minutes.

From the outset of Phase II it was determined that the open system architecture would be commercialized. None of the technology needed to commercialize SpeakEasy was classified. In fact, the commercialization and use of off-the-shelf replacement parts were encouraged by the military as a way of controlling costs.

To ensure participation in this newly-developed technology, the SDR office at Rome Lab formed an International Standards Committee. Climek said this was done so that professionals in the wireless telephone communications field were, literally, on the same wavelength. The committee is known as the MMITS, and is comprised of 35 to 40 manufacturers and users of cellular equipment.

Degree of Success

In the late 1980s, Climek recognized that the bachelor of technology degree obtained from the State University of Buffalo was not sufficient for what he envisioned for his future. He enrolled in the telecommunications program at SUNY Utica/Rome and graduated with a bachelor of science in 1994. He continued at SUNY Utica/Rome and earned his master of science degree in telecommunications in 1997. Climek has the distinction of being the first graduate of the college's telecommunications master program. He has been employed by Mitre Corporation, a management-consulting firm, for 18 years.

During a class presentation, Climek shared the information about SDR. Eugene Newman, Ph.D., director of the master of science in telecommunications program at SUNY Utica/Rome, expressed an interest in getting involved with the SpeakEasy commercialization. Dr. Newman has since begun a feasibility survey

of the Communications Managers Association in New York City and has developed a web page to survey business users in the New York City area to determine if there is a market for this product, and just how big is that market.

Dr. Newman expects to have the results of his data compiled and a final report submitted by the end of May.

A contract between the SDR office at Rome Lab, Dr. Newman, and SUNY Utica/Rome is expected in the near future. In addition to business users, Dr. Newman will be responsible for the feasibility studies of all law enforcement agencies and civil aviation facilities in New York.

Dr. Newman described SpeakEasy as "someone speaking seven different foreign languages." He also predicted that, "there will be a handheld model by the year 2001." If the team doesn't develop this product, someone else will. This is a global problem he said, someone is going to provide the service.

Dr. Newman is proud of his former student's accomplishments, "Dave and the team have done a wonderful thing. They not only attacked a major problem in the wireless phone industry, but also have come up with a solution to that problem. This will bring national recognition to Climek, Rome Lab, SUNY Utica/Rome and the local area."

Climek says, "This will change people's lives in how they use equipment now available. They will be able to consolidate numerous tasks into one hand held piece of equipment. This project will influence the decision to purchase \$10 to \$12 billion worth of radio/cellular telephone equipment over the next 5 to 10 years."

Donald Drew is a senior studying professional and technical communication at SUNY Utica/Rome, who is working with the college's public relations office as part of his coursework in that bachelor of science degree program.

Governor Designates College Among Semiconductor Sites

On March 4, Governor George E. Pataki announced that SUNY Utica/Rome was among the 13 sites across the state selected by Industrial Design Corporation, a consultant hired to provide a professional evaluation of potential sites, as the best suited for semi-conductor development.

According to the governor, the site on the SUNY Utica/Rome campus has the features most important to the semi-conductor industry and are closest to a ready-to-go condition for development, according to IDC's review.

Over the next four years, semi-conductor industry experts expect as many as 35 micro-chip facilities will be built in the United States to keep pace with changing technology in this rapidly expanding market.

"New York State intends to get its share of that business," Governor Pataki said. "By identifying these sites now and getting them pre-approved, we will be able to offer the semi-conductor industry ready-to-go, shovels-in-the-ground locations. In this rapidly changing industry, these sites will give the industry an extra edge so they can stay a step ahead of their competition around the world.

"Given the unique needs of the industry, it's important to note that New York State has so many sites to offer in so many different regions of the State," the governor said. "That alone makes us more competitive."

Chip Fab '98 was announced last December, and set off a process of evaluating 55 sites around the state as potential locations for "chip fabs." Micro-chip fabrication plants cost upwards of \$2 billion to construct and employ up to 1,000 skilled workers each.

Siting criteria include an appropriately zoned 200 acre parcel with access to major transportation, plenty of water, two power sources, sewer services and access to academic and vocational resources.

The Empire State Development Corporation and the Governor's Office of Regulatory Reform are leading the effort for the state.

Under the Governor's initiative, ESD will match funds up to \$50,000 each with the 13 communities selected to prepare permit applications, site plans and environmental reviews. GORR will provide the communities permit assistance, and, once a manufacturer makes a commitment to build in New York, the permits will be transferred to the company.

The sites selected, after careful evaluation by the site consultant, IDC, include three in the Hudson Valley, two in the Capital Region, two in Central New York, one in the Mohawk Valley, two in Monroe County and three in Western New York.

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