Digging Deeper with Jim Kutsch, KY2D

President and CEO of The Seeing Eye, Morristown, New Jersey

BY RICH MOSESON,* W2VU

Here's more from Jim Kutsch on…

Repairing radios and TVs as a kid in Wheeling, West Virginia…

I had … gotten quite a reputation in the neighborhood as a radio and television repair alternative to the high-priced choices. So, many of my neighbors would have a table radio or a TV and they were, of course, all tube type - this was in the 1960s - and I saved my money, went to Lafayette Radio and I bought a tube tester. And I would travel the neighborhood and diagnose table radios and television sets, usually because it was a tube that was burned out. Sometimes it was a capacitor that failed or leaked or whatever. And then I would go and get the parts and fix the person's TV or radio. And everybody thought that was amazing, that an 8th grader, a 9th grader, was doing all this radio repair.

I had many people who would - one of my favorite lines - people would drop radios and televisions off at my house and they would say, "If you can fix this, you can have it." And I always wondered, if I couldn't fix it, did I have to give it back?

The mindset of an experimenter…

(Throughout my life,) the interest in electronics, this sort of experimenter's mentality was an important thing for me, both individually and, it turned out, professionally. It never bothered me to experiment, not to say "You can't do that," but to try to figure out how you can do something, and that became sort of a life philosophy, you know. There's always a way. You just have to find out what it is.

Programming the computer at the University of Illinois to send his output in Morse code to the alarm bell (after first getting it to do code on the printer, using "W"s and back-spaces)…

And so I would sit there and listen to the printer as it would 'burp, burp, burp, bur-burrrp, to send the thing. Later I moved that to the alarm bell on the mainframe, which thrilled - *not* - the IBM engineers, because I would be sitting there and all of sudden the alarm bells would go off, and the engineers - back then, IBM assigned engineers to certain large installations - so they'd come running out of the office, you know,

Jim Kutsch, KY2D, at his desk at The Seeing Eye in Morristown, New Jersey. Like many busy executives, Jim has two computers and two phones on his desk, but the only papers are a stack of W2TSE QSL cards.

"What's going on? We never heard the alarm bells sound like that!" And I'd say, "Don't worry; it's just me, listening to my output for computer science class 204."

Still later, a friend in the electrical engineering department built a little oscillator for me with a headphone that we connected to one of the output leads of the computer, so I could get my Morse code output without ringing the alarm bell and getting everybody else upset about what was going on.

That led, actually, in my Ph.D. work, I designed the first talking computer for blind computer users, and I think that heavily influenced by the fact that I had worked through all of these other solutions along the way (starting with) Morse code; and I had some ... solutions to other things I developed along the way that ultimately led to the talking computer.

CQ: So in a way, you're Siri's grandfather?

KY2D: In a way, I am Siri's grandfather… Yes, I suppose that's true. Not so much Siri … because I wasn't doing the

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Part of the Main House at The Seeing Eye, where offices, dorm rooms and the dining room are located. The two poles at the top of the roof in the center of the photo support wire ham radio antennas.

voice recognition; I was only doing the voice output. I had a keyboard on my computer, but it was voice output.

Teaching computer science students how to build and solder electronic circuits…

When I was teaching computer science classes at West Virginia University, I felt very strongly that computer science majors in the (late) 1970s… need to understand a little bit about the hardware. We shouldn't have just software people. And I found that my knowledge of electronics through ham radio was very important to my understanding of computer science.

So I created and taught an electronics hardware course within the computer science curriculum. We talked about transistor theory, well, we took it all the way back to static electricity and electricity and electrons, but then we went through transistor theory, taught the students to solder - everybody built a little project. Actually, what they built was a logic probe - had a red, yellow and green LED on it, and you could probe a computer circuit with it and tell whether the logic signal you were tracing was logic-high, logic-low - that would be red for high, green for low - or whether it was something that was pulsing, in which case the yellow light would light. So everybody soldered together one of these things and built one of these things as part of this introduction to hardware that forms computers as part of the computer science curriculum.

Using Morse code as part of his work at Bell Labs…

I had lots of things with Morse code output over the years (such as) talking caller ID, (which) I did originally with some Morse code.

One of the projects I worked on at Bell Labs was the very, very early days of talking caller ID for office telephone systems. I was working on PBXs, private branch exchanges for small offices, and this was in '79 and '80, before caller ID was as prevalent as it is today, everywhere. But the idea was, in an office, you could pick up the phone and the phone would tell you through a synthetic voice, "This is Joe calling," and you could decide whether you wanted to talk to Joe or not,

Jim and his Seeing Eye dog, Vegas, at the control console of The Seeing Eye's club station, W2TSE.

based on the talking caller ID. So I did that for a while, but did some stuff with Morse code as a precursor.

The role of technology in his current position at The Seeing Eye…

I consider myself a beta-test junkie. I am very interested and willing to beta-test, especially products that we're trying to make accessible, or that the manufacturer is trying to make accessible, so I have been for many years involved in evaluating and helping with the accessibility of things. So I personally stay involved that way.

We also have access, through our list of graduates, to lots of people who potentially could test some new product or ser-

Historical marker outside the entrance to The Seeing Eye, which is celebrating its 85th anniversary in January 2014.

Statue of The Seeing Eye co-founder Morris Frank and his dog, Buddy, on the main green in downtown Morristown, New Jersey. Seeing Eye students use the town and its businesses as a classroom

vice. We did a very interesting study here at The Seeing Eye of all of the different audible pedestrian crossings. As you travel the United States, there is no one standard for these pedestrian crossings, where you push the button and some of them say, 'Walk light is on." Others make bird sounds. Others give you tones and so on, and there's no standard. So we did a multi-year study and took about 500 individuals who were blind or visually-impaired through studying all the different alternatives to see which one was the better one.

I personally have been involved a lot with pedestrian GPS technology, and we just recently signed an arrangement with Sendero Group where we are naming their iPhone pedestrian GPS app. It's actually called "The Seeing Eye GPS." It's available now in the Apple app store and it's a Sendero Group GPS product (www.senderogroup.com).

When you're driving ... with GPS, it's telling you what's happening in 2 miles or a half a mile, but that's not really relevant as a pedestrian. So as a pedestrian, you want to know what's happening in 50 feet, or 20 feet, and that's what this GPS does. And secondly, it's optimized for a blind user.

The Sendero Group has done many, many talking GPS, talking pedestrian GPS products, custom-made for people who are blind, and they ported their work to the iPhone and then we took the opportunity to brand it The Seeing Eye GPS. So that's an example of where technology comes in, here, and what I do with it personally.

Facilities at The Seeing Eye, including a just-completed major renovation project…

Our main student building that houses the dining room and dormitory was built in 1965, and although some minor additions have been made over the intervening years, we've never gone back for a major upgrade. So, for the last year … we've been doing a complete upgrade to our main building; we call it the Main House.

We've completely redone all of the dorm rooms, all the bathrooms. We've redone all the windows with better insulation. We have a completely new heating and cooling system, new plumbing, all new wiring for phones, internet.

We've had a little bit of WiFi on campus in the past; we now have a very extensive WiFi network. More and more of our students are coming now with laptops, smartphones and other WiFi-enabled devices. Years ago, we had what we called a Tech Center, which

was like a hotel business center. We had a few computers here with speech software on them, that students used. But now, most people are bringing their own and we need better network connectivity.

We completely re-did the kitchens. We put in a new multi-purpose room. We do a lot of public education. We have folks come in, and we talk about blindness and we talk about The Seeing Eye program, so mostly it's upgrades and enhancements through this renovation project.

CQ: And how big is your campus overall?

We actually have three properties. Our main campus sits on 62 acres here in Morristown. We have a breeding center, which is about 10 miles distant. We keep it separate because we want to keep the young pups and their moms away from the traffic of people coming on campus and leaving campus, and all the other dogs coming in and out for health reasons for the young pups.

And then we have a small ... place that we rent downtown, which is a staging area where our dogs are trained and our students are trained. We will take several dogs at a time, or several students at a time, to the downtown training center, and from there, students have a one-at-a-time lesson. A lesson consists of walking somewhere around town. What we're teaching is how to walk and go places with the dog, and so that's what a lesson consists of, and we use that at a starting and ending point. It just makes it more efficient than to have to come back here to the main building, one-at-a-time, with each student. So we vanpool students in to the downtown training center a few at a time, and then they take a lesson ... each at a time.

The origins of The Seeing Eye …

The Seeing Eye was founded by two individuals, Morris Frank and Dorothy Harrison Eustis. Dorothy Harrison Eustis was originally from Philadelphia, but she moved to Switzerland, where she and her husband were breeding German Shepherds for the military and police in the 1920s. Morris Frank was a young blind man from Nashville, Tennessee, who wrote Dorothy a letter and asked her to train a dog for him, and the two of them together founded The Seeing Eye.

One little piece of that story: Dorothy wrote an article for the *Saturday Evening Post* magazine about how the German government was training dogs for blinded veterans of World War I. Dorothy (titled) the article, "The Seeing Eye"(and) published it in the *Saturday Evening Post*.

Morris read it and wrote her a letter, and said, "If I come to Switzerland, will you train a dog for me? And if so, I will help create a school here in the U.S." And so he did go to Switzerland. She did train a dog - and train him - and the two of them together founded The Seeing Eye in January of 1929. This coming January (2014) will be our 85th anniversary.

We were in Nashville, Tennessee for the first couple of years, and in 1931, we moved here to New Jersey, not to this property but actually to Whippany, New Jersey, and then in 1965, moved to this campus.

The relationship between The Seeing Eye and the Town of Morristown, which features a statue of Morris Frank and his dog, Buddy, on the town green…

We are forever indebted to Morristown and surrounding communities. The streets, the shops, the restaurants, the train station, the buses and so on, of Morristown are indeed our classroom. All of our dogs are trained on the streets and in the stores of Morristown; all of our students are trained there after the dogs are trained, and our students go in and out of the various stores as part of their training, and so we have a great relationship with everyone here in Morristown, and they serve as our classroom.

Toward the end of class, all of the dogs and most of the students also have lessons in Manhattan. We go into the city and take a trip on the subway, or take a trip walking through Times Square. The old saying, "If you can make it in New York, you can make it anywhere," definitely to working there with your Seeing Eye dog.

On ham radio and tandem biking…

When one of my sons was in grade school, he got interested in doing a summer bike trip with the church youth group and they were looking for parents to come and help as well. And so he came home from the youth group and said, "Dad, you need to go on this bike trip."

I hadn't ever ridden a bike as a blind person but I went ahead and talked to the guy who was putting together the program for the kids, and we decided that tandem would be a good choice. He had ridden tandem before, so I did go as one of the adult leaders and that's how I got into tandem biking.

But subsequent to that - of course, the public service aspects of ham radio … have to permeate all aspects of a ham's life - so after doing the biking with the youth group, we also were involved in several of the different fund-raising bike things, and Roger was the name of the person that I was riding tandem with. Riding the back seat of a tandem is not too bad for a person that can't see because the front person steers the bike and the back person just has to put energy into it. In fact, the rear position on a tandem is called the "stoker" position, and it's derived from the old coal locomotives where the stoker was the person who just shoveled the coal into the engine. So that's all I have to do in the back of the bike is shovel the coal into the pedals.

But we volunteered to provide radio communications for one of the MS-150s - it was a 150-mile bike ride over two days - 75 miles each day - so I put some gel-cell batteries on the back of our tandem bike and I had a 2-meter radio and built a little J-pole antenna to hang vertically on the back of the bike and so, in addition to providing some of the pedal power on the back of the bike, I was the radio operator, and we got assigned -- one of the worst things - don't take this position if you're asked -- but we were assigned the position of being the "sweep" rider, which meant, on a 75-mile bike trip, we were not allowed to pass anyone because anytime they wanted to know where the end of the group was, they called me on the radio.

We started out, and about two blocks from the starting position for this 75-mile ride, there were three people in front of us -- a woman and then, separately, a man and his daughter, and the daughter was 9 years old, and after going four blocks of a 75-*mile* ride, the father turned to the daughter and said, "Well, dear, you've just ridden longer than you've ever ridden in your life!" And we thought, 'four blocks down, 75 miles to go, this is going to be a REALLY long day" ... and it was.

But we rode the tail end. The gel cells held up for what ended up being almost seven hours of riding - we could have ridden it much faster if we weren't assigned the sweep position - but it was fun. So, rode tandem bikes and of course, coupled ham radio with it.

Ham radio and job-hunting (some solid advice in a mushy economy)…

We all have a list of adjectives. If you write your résumé, you have lots of characteristics, and being a ham radio operator is certainly one of those characteristics, and I definitely would encourage everyone to *put it on the résumé* because, oftentimes, it really makes a difference in finding that job.