

## WHATEVER HAPPENED TO THE ELECTRONICS HOBBYIST?

By Louis E. Frenzel

From the March 7, 2007 edition of Electronic Design Update.  
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Electronics used to be one of the greatest hobbies ever. There were literally hundreds of thousands, maybe even millions, of people who used to play around with electronics as an avocation or part-time interest and activity. There were at least a dozen magazines supporting this group and plenty of parts and kits suppliers to keep them happy. Kids learned electricity and electronics in school. As a result, when they ended up getting the bug, they ended up not only adopting electronics as a hobby, but also made it into a career. You don't see too much of that going on anymore. So what the devil happened to the electronic hobbyist?

I started playing around with old radios in junior high and got interested in ham radio. I built the classic crystal radio and was able to hear a couple of local AM stations. My next-door neighbor and I strung a two wire cable we found in a vacant lot between our two houses and used our ear phones to make a simple telephone... by accident. What a thrill. Then my dad gave me his old Hallicrafters S 38 shortwave radio. That really did it. I was hooked. A local police officer gave code and basic electronics lessons to my neighbor and I after school, and we eventually got our novice ham licenses. We built tube transmitters to go with our receivers and had a ball on CW. I eventually went on and learned electronics in college, got a degree, and became

first a technician, then an engineer. And the rest, as they say, is history.

I suspect that my background is similar to many of yours. But that path from hobbyist to engineer is disappearing—if it hasn't already dissolved entirely. The hobby aspect of electronics seems to have gone away and thereby virtually eliminated one of the best sources of new engineers and techs. But why has this happened?

### What Is a Hobbyist?

First, let me clarify what an electronic hobbyist is. I define an electronic hobbyist as someone who enjoys learning more about electronics by building, and in some cases designing, electronic devices. In the days of tubes and discrete transistors and components you could easily build a radio receiver, transmitter, or some other gadget for a few dollars. If you couldn't design it yourself, you could go to one of the many monthly magazines like Popular Electronics, Radio-Electronics, Elementary Electronics, Electronics World, QST, and Nuts & Volts and find a project of interest. And for those who didn't want to venture out too far on their own, there were the kit manufacturers. The king of kits was Heathkit, of course, but there were a bunch of others way back when like Eico and Allied (Knight kits) and a whole slew of smaller ones.

Typical hobbyist projects ranged from

*(Continued on page 4)*

## Field Day Planning— Networking Demo At The Meeting

It's May already. Field Day is next month! Paperwork for the Marlinton Middle School site has been filed and is expected to be approved. Final planning needs to be done real soon.

John, KD8MQ suggested that we would benefit from having all the computers used for logging networked because there would just be one log which had all the info in it. If two different stations were used on the same band at different times, the second station would have the first station's log available. He will give us a demo of some software at the meeting. Hope to see you there.

### De Olde Meeting Announcement

The next meeting of the Alliance ARC will be on Wednesday, May 2<sup>nd</sup>, in conference room 1A on the west end of the Café in the new Alliance Community Hospital. Our meetings begin at 7:30 PM, and are an excellent opportunity for eyeball QSO's. Directions can be found on the K8LTG Repeater (145.370) See you there!

## Officers

### President

Joe Young, KC8TAC  
154 W. Grant St.  
Alliance, OH 44601  
ljyoung@cannet.com

### Vice-President

John Myers, KD8MQ  
510 W. Harrison St.  
Alliance, OH 44601  
john@kd8mq.info  
330-821-5513

### Secretary

Donald R Kingan, AB8KV  
446 West High St.  
Alliance, OH 44601  
dkingan@neo.rr.com  
330-821-5819

### Treasurer

Mary Ann Royer, KB8IVS  
6255 Sandalwood NE  
Canton, OH 44721  
kb8ivs@aol.com  
330-492-0703

### Trustees

Frank Sanor, WA8WHP  
24462 St. Rt. 172  
Minerva, OH 44657  
wa8whp@juno.com  
330-894-2186

George Proudfoot, K3GP  
P.O. Box 343  
Louisville, OH 44641  
k3gp@arrl.net  
330-829-9504

James Lilley, N8XTJ  
67 E. Columbia St.  
Alliance, OH 44601  
330-821-1308

### Editor

Larry Ashburn, KE8VE  
1080 W. Beech St.  
Alliance, OH 44601  
ke8ve@alliancelink.com  
330-821-9808

## Editorial

In case you haven't already heard, the Zero Beat will have a new and improved Editor some-time soon.

Well, he isn't exactly *new*. He's our former award winning editor, the one and only KD8MQ—John E Myers. But he is improved. He will soon be a collage graduate.

I took over for him when things got too hectic because I felt the club really needed a newsletter. When I was in school, I never really enjoyed writing, and never expected to take on a job like this, but I managed to struggle through it. I can't say I didn't have some fun along the way but I will be glad to relinquish the job to such a qualified person. Ha! It will be like having a car lifted off of me!

The very fine article in this month's Zero Beat was sent in by Don, AB8KV. Don acquired permission to print it from the publisher. Thanks Don.

I heard a rumor that Bob, K8RLS was in the hospital after a fall. He provided the calendar as he always does. Hope he is back home and on the mend. Thanks Bob.

Hope to see all of you at the meeting and at **Field Day**.

de KE8VE

## Meetings

The Alliance Amateur Radio Club meets on the First Wednesday of every month, in conference room 1A on the west end of the Café in the new Alliance Community Hospital. Talk-in is on 145.37 @. Meetings begin at 7:30 PM. Visitors are always welcome.

## Nets

Thursday is our "net night," with the following nets on tap:

### Ten meters

CW @ 8PM on 28.400 MHz  
SSB @ 8:30PM on 28.400 MHz

### 2 meters

9 PM on 145.37 MHz

## Internet

If you'd like to check us out on the web, our E-mail address is:

**w8lky@w8lky.org**

## Newsletter Information

The Zero Beat is a publication of the Alliance Amateur Radio Club, P.O. Box 3344, Alliance, OH 44601

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You can submit material to the Zero Beat either electronically, to ke8ve@alliancelink.com, in person, or via snail mail. I can read most word processor formats, but prefer your files to be in straight text, E-mail, or Microsoft Word format.

## April Minutes

### ALLIANCE AMATEUR RADIO CLUB

**April 4, 2007**

The regular meeting of the Alliance Amateur Radio Club was held at the Alliance Community Hospital on April 4, 2007 at 7:30 PM with club president Joe Young, KC8TAC presiding. The Pledge of Allegiance was recited, followed by introductions. There were 17 members present.

Before proceeding with the usual meeting agenda, president Joe announced that Dave Glass, W8UKQ had become a silent key the previous evening. Joe then led the club in a moment of silence for him. Dave, N8NLZ announced the tentative calling hour and funeral times and place.

For the secretary's report Don, AB8KV noted that the March minutes were in the newsletter, and the club's annual insurance bill had arrived. The secretary's report was approved on a motion from Howard, K8DXR and seconded by Jim, N8XTJ.

Mary Ann, KB8IVS gave the treasurer's report. She also reminded the club that annual dues were now due. The treasurer's report and a proposal to pay the insurance bill was accepted on a motion by Howard, K8DXR and seconded by Jim,

K8LTG.

#### Old business:

---Don, K8OMO reported that as yet he had been unable to contact the appropriate hospital personnel about installation of the club repeater, the Homeland Security radio and the associated antennas.

---Joe then addressed the issue of the location for Field Day 2007, asking for the latest information from those who had volunteered to make various inquiries.

(1) Dianna Ashburn reported that she had talked to the City school maintenance foreman about the use of the Castle grounds and the question was taken up by the Board of Education. The response was that the club could use the property with a number of stipulations. Among them:

-Proof of insurance had to be presented.

-No smoking was allowed.

-There were to be no divots or other damage whatever to the grass or the blacktop.

The general feeling among the club members was that the stipulations were such that the location was not conducive to the setup requirements and activities for Field Day. Since the Castle had been first choice among Board of Education properties, no further inquiry was made regarding any use of Alliance Middle School.

(2) John, KD8MQ then reported that he had contacted Kim Cox,

the parks superintendent about use of Silver Park and the Jaycee pavilion. Her response was that the club could use the park and that overnight stays were ok, but that no pavilions were available for the Field Day weekend.

John further noted that Camp Rodman was a possibility but that its use was highly dependent upon how wet the spring and early summer might be. This was due to the need to preserve the driving path and grounds from damage due to vehicles.

(3) After some further discussion, a motion was then made by Don, K8OMO to return to Marlinton Middle School this year for Field Day. It was seconded by Smitty, KC8TJQ. However, the motion was tabled until the next meeting to allow time to obtain the actual permission from Marlinton Schools to locate there again.

---John, KD8MQ discussed the potential use of networking software for Field Day. He felt the advantages outweighed any potential disadvantages, and would allow wireless networking from any computer which could accept a wireless card or adapter. He stated that he would bring the software and networking hardware to the next meeting so that it could be demonstrated and everyone interested could try it out and see how it works.

---President Joe then ad-

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a few simple parts to really elaborate complete pieces of equipment like a power supply, audio amplifier, communications receiver, or photo timer. When ICs came along in the 1970s, experimenting really took off. You could build even more elaborate devices with better performance, thanks to op amps and digital ICs. Experimenters went wild. At least 108 projects were based on the 555 IC timer. Later in the 1970s, the microprocessor came along and the personal computer kit came on the market. That set off a whole new wave of experimenting and started a whole new industry. Another batch of magazines like *Byte*, *Interface Age*, *Kilobaud*, *Creative Computing* and a few others offered lots of projects to build and ushered in a whole new dimension...software and programming. Many electronic hobbyists became computer hobbyists—what we called hackers back then. There were all sorts of electronic hobbyists. Hams probably dominated the category as they were a serious bunch simply because you had to get an FCC license to play in that arena. They built their own transmitters, receivers, antennas, keyers, test equipment, and lots of other accessories. There were also audio hobbyists who dabbled in hi-fi and stereo equipment, speakers, etc. Radio-controlled airplanes and boats were also popular. And one unique category of electronics hobbyists was that bunch who could fix not only their own TV sets, but their neighbor's as well. Take the tubes down to the drug store, test them, buy new ones, and away you go. And I suppose you could put Cbers into this category...the breaker, breaker...10-4 good buddy crowd.

In short, electronic hobbyists built things either from scratch, from plans, or a kit. They made accessories, gadgets, toys, and all sorts of other entertaining things. It was a satisfying process to see what you made actually work or solve some useful problem.

And you learned a little more each time you did it.

## So What Happened to the Hobbyist?

The hobbyist has not disappeared entirely. But the ranks have thinned considerably. I suspect that today there are probably less than a quarter of the hobbyists there used to be. My best guess is that the hobby era peaked sometime in the 1980s. Most of the magazines died out by the early 1990s—the same time most of the kit companies started to fade away. The demise of those businesses directly affected the number of current and future hobbyists and engineers.

The number one reason why the electronic hobbyist has declined in number is...the integrated circuit. If you are not buying this, consider the following. In the beginning, ICs made electronic hobbying fun and productive. You could build ever larger and more complex things without extensive knowledge. But ICs, on their way to fulfilling Moore's law over the years, got smaller in size (but with larger transistor counts). Digital speeds increased from a few MHz to over hundreds of MHz and today many GHz. Analog circuits also got higher performance and operated at higher frequencies. Packages got smaller and the ICs with pins for through-hole PC boards (PCBs) have evaporated. Surface mount ICs are the norm today, as are surface mount discretes that are about the size of a piece of rice.

Have you ever tried to breadboard a circuit or build a project with surface mount parts? Fun isn't it? You need tweezers, a magnifying glass, and a tiny heat-controlled soldering iron. And with pin spacings of a mm or less, it is easy to short out a few pins or miss a pin entirely. And how do you solder a ball grid array IC? Yes, there are ways to breadboard with these parts. Neal Greenberg of SchmartBOARD sent me a few samples of their breadboard products that really facilitate the soldering

of surface mount parts for experimentation. ([www.schmartboard.com](http://www.schmartboard.com).) This size and build problem was foremost in killing home built projects. Even today, the few electronic experimenters still around routinely use many of the parts from yesteryear with pins that can be soldered or plugged into breadboarding sockets. Why are there so many 555 timers, 741 op amps, and 7400 TTL projects even today when in real modern electronic products these parts have disappeared long ago?

Another problem is that as ICs got larger in scale (not size), it became more complex to make a product. Instead of simple projects you could build whole systems. That left many of the novices in the dust, as there were few real engineering types willing build the big systems.

Another factor was the emergence of massive cheap off-shore manufacturing. This meant you could buy ready-built products cheaper than you could buy the parts and build one yourself. A good example is a power supply. Even a complex switch mode supply for a PC cost less than \$30 bucks. Why bother with building your own? Lots of products turned out like this, especially computer-related boards and modules. No wonder the kit companies went away.

One other problem is test equipment. At one time you could test what you built with a volt-ohmmeter and maybe a cheap 5 MHz single channel scope. Signal generators, power/SWR meters and counters were pretty inexpensive and you could even build your own. But today, you need a scope with a bandwidth of up to 1 GHz, a logic analyzer, and maybe even an AWG. With typical prices over \$10k each, what hobbyist could afford them?

Anyway, you get the picture.

But the large scale ICs had another affect. It allowed manufacturers to create whole new families of exciting and useful products like cell phones,

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MP3 players, DVDs, and laptop computers. How do you get a 10-year-old kid excited about receiving an AM radio station on a crystal radio if he already has his own cell phone, MP3 player, and TV set? Booooooring... Although if you can get a 10-year-old to build a crystal set, I have found that the "Eureka effect" of having made something yourself that actually works, simple as it is, still yields a positive, confidence-building end result.

## Where Are We Today?

Yes there are still some of the electronic hobbyists I described active today. Their nature has changed considerably, but they still like to build small projects with older parts. And there are a few kit companies still out there to serve them (Ramsey, Elenco, Kelvin, Jameco, and a few others). There seems to be three distinct concentrations of hobbyist: amateur radio hams, those who like robots, and the new breed of hobbyist that builds projects with embedded controllers. The hams are a big category. There are about 650,000 hams in the U.S. and about 3 million worldwide according to Allen Pitts of the American Radio Relay League (ARRL), the national association for ham radio. Of those 650,000, I suspect that over half are what we generally refer to as "appliance operators." These are the hams who buy all their commercial gear and really don't get into building equipment. The remainder are indeed true hobbyists, as they do build, design, experiment, and get involved at a greater depth with the equipment. The ARRL's publications (QST and QEX) are probably the best electronic hobbyist magazines available. ([www.arrl.org](http://www.arrl.org))

The robot crowd has been around for a few years. It all started back in the 1980s with a robot interest group spinning off from the computer hobbyists. Then the Heathkit Hero robot came along and created a stir that has grown year after year. The Battle Bots

competitions on TV also turned many on to this hobby of building and playing around with robots. There are lots of kits available, many of which are used as teaching platforms in some colleges. The Lego robot platform is a super product that is a toy and a serious learning tool. The robot guys even have their own magazine, Servo.

The embedded controller bunch is a growing category that attracted some of the older hardware crowd, but also a new batch of hobbyists who are more akin to programmers than electronic engineers. Since every electronic product has an embedded controller today, it makes sense for hobbyists to pursue such projects. There are tons of cheap development boards, kits, and other stuff to make things interesting. The premier magazine serving this group is Circuit Cellar. Nuts & Volts magazine, about the only surviving generic electronic experimenter magazine, also covers embedded controller projects.

## The "Systems" Hobbyist

There is also what appears to be another kind of electronic hobbyist emerging. This is what I refer to as a systems hobbyist. Systems hobbyists buy and experiment with every electronic gadget. They might be fascinated with FRS (family radio service) two-way radios for example. They have surround sound audio systems and were probably the first in their neighborhood to get the big screen HDTV, TiVo, satellite TV dish, and all the other related stuff. Or they do shortwave listening or experiment with the new HD, XM, or Sirius satellite radios to their car. These people also do geocaching with their GPS receivers and install 400-W stereo systems in their trucks. Others hook up their MP3 players to their stereo systems. Some install their own home security systems. PC gamers are in this category with their hyped up super computer-level PCs with graphics that will blow you away. Anyway, they are the non-ham equivalent to an appliance operator. They work strictly at the system level, but still need a general un-

derstanding about what goes on inside these devices. They connect stuff together and make it work. They hang around at Best Buy and Circuit City rather than Radio Shack. It is fun stuff. Yikes, what I just described is all the rest of us. The consumer electronics person.

Consumers are more enamored of their electronic devices than ever before. The whole consumer electronics space has grown horrendously over the years. And we all own more electronic products than ever. I guess that does make us all electronic hobbyists of a sort.

Am I an experimenter? I actually am. I have a bench with test equipment, breadboards, and mostly older used stuff (100 MHz analog scope, etc.) and some power supplies and odds and ends of ham test equipment like a counter, signal generator, power/SWR meter, etc. And I have several PIC and 68HC11 embedded controller development kits I use for the programming, mostly still in assembler (I hate C.) I have been playing around with some of the many ISM wireless modules lately. Really cool how cheap and easy it is to make almost anything wireless. And like in ham radio, the experimenting possibilities with antennas are limitless. I just put up a G5RV antenna, but ended up needing an automatic antenna tuner to get it to work. Endless fun.

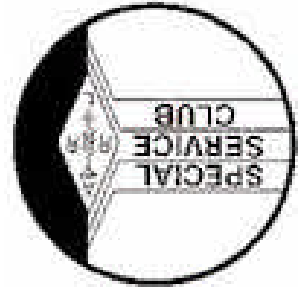
Electronics has evolved and so, as a result, has the hobbyist. So perhaps the whole electronic hobby thing didn't really go away, it just changed. It is different now because the way we design, build, and make electronic equipment just does not make it practical to work at the component level. We don't fix much of our electronic equipment anyway. We just throw it away and get new and better ones. Aren't we all just looking for our cell phone to fail or get lost so we can get a cool new smart phone?

# May 2007

*Birthday Greetings to: WA8VHH*

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<p style="text-align: center; font-size: 2em; color: red;">13</p> <p>50 MHz Spring Sprint</p> <p>CQ-M International DX Contest CUYAHOGA ARS VE, INDEPENDENCE</p> <p>EACW International Contest FieldHell Spring Sprint</p> <p>FISTS Spring Sprint</p> <p>Mid-Atlantic QSO Party</p> <p>VK/Trans-Tasman 80m Contest, Phone</p> <p>VOLTA WW RTTY Contest</p>	<p style="text-align: center; font-size: 2em; color: red;">14</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Columbiana Cty. Train. Net 8pm</div>	<p style="text-align: center; font-size: 2em; color: red;">15</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Canton ARES Net 7pm 147.12</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">N, Col. Cty Net 9pm 147.255</div>	<p style="text-align: center; font-size: 2em; color: red;">16</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Carroll Cty Net 0100 UTC 147.075</div>	<p style="text-align: center; font-size: 2em; color: red;">17</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">AARC Nets 8:00, 8:30, 9:00</div>	<p style="text-align: center; font-size: 2em; color: red;">18</p> <p style="color: blue; font-weight: bold;">Dayton Hamven- tion, Dayton</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Massillon Net 147.18 8pm</div> <p>NAQCC Straight Key/Bug Sprint</p> <p>RSGB 80m Club Championship, CW</p>	<p style="text-align: center; font-size: 2em; color: red;">19</p> <p style="color: blue; font-weight: bold;">Dayton Hamvention, Dayton</p> <p>NCCC Sprint Ladder</p>																																											
<p style="text-align: center; font-size: 2em; color: red;">20</p> <p>Baltic Contest</p> <p style="color: blue; font-weight: bold;">Dayton Hamvention, Dayton</p> <p>EU PSK DX Contest</p> <p>His Maj. King of Spain Contest, CW</p> <p>Manchester Mineira All America Contest</p> <p>Portuguese Navy Day Contest, CW/SSB</p> <p>Portuguese Navy Day Contest, PSK31</p> <p>US Counties QSO Party, SSB</p>	<p style="text-align: center; font-size: 2em; color: red;">21</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Columbiana Cty. Train. Net 8pm</div>	<p style="text-align: center; font-size: 2em; color: red;">22</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Canton ARES Net 7pm 147.12</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">N, Col. Cty Net 9pm 147.255</div> <p>Run for the Bacon QRP Contest</p>	<p style="text-align: center; font-size: 2em; color: red;">23</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Carroll Cty Net 0100 UTC 147.075</div>	<p style="text-align: center; font-size: 2em; color: red;">24</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">AARC Nets 8:00, 8:30, 9:00</div> <p style="color: green; font-weight: bold;">MAHONING VALLEY ARA VE, YOUNGSTO- WN</p>	<p style="text-align: center; font-size: 2em; color: red;">25</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Massillon Net 147.18 8pm</div> <p>QRP Minim- al Art Session</p>	<p style="text-align: center; font-size: 2em; color: red;">26</p>																																											
<p style="text-align: center; font-size: 2em; color: red;">27</p> <p>CQ WW WPX Cont- est, CW</p> <p>VK/Trans-Tasman 80m Contest, CW</p> <p style="color: green; font-weight: bold;">WARREN ARA VE, NEWTON FALLS</p>	<p style="text-align: center; font-size: 2em; color: red;">28</p> <p>ARCI Hootowl Sprint</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Columbiana Cty. Train. Net 8pm</div> <p>MI QRP Memori- al Day CW</p> <p>Sprint</p>	<p style="text-align: center; font-size: 2em; color: red;">29</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Canton ARES Net 7pm 147.12</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Homeland Security Net 7:30pm 147.51 SIMPLEX</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">N, Col. Cty Net 9pm 147.255</div>	<p style="text-align: center; font-size: 2em; color: red;">30</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Carroll Cty Net 0100 UTC 147.075</div>	<p style="text-align: center; font-size: 2em; color: red;">31</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">AARC Nets 8:00, 8:30, 9:00</div>	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">June</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <th>S</th><th>M</th><th>T</th><th>W</th><th>T</th><th>F</th><th>S</th> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td>1 2</td> </tr> <tr> <td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> <tr> <td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td> </tr> <tr> <td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td> </tr> </table> </div>	S	M	T	W	T	F	S							1 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
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*When all else fails...Amateur Radio*



Alliance Amateur Radio Club  
P. O. Box 3344  
Alliance, OH 44601

## April Minutes, cont.

*(Continued from page 3)*

dressed the issue of the location for this year's club Christmas Party.

Don, K8OMO brought a menu from Pancho's and reported that the restaurant stated anything could be ordered from the menu for the Party. The prices were as found on the menu plus \$4 to cover the gratuity.

John, KD8MQ contacted the relevant person at his church about hosting the Party. There was interest, but as of the meeting, he had not received any further responses.

Don then further noted that he had talked to Vine Street Methodist, and they had told him that they could host the Party, only needing to know ahead of time how many would be coming.

President Joe then tabled further discussion on the subject until the next meeting, allowing more time for information from John and others.

New business:

---Jack, W8WEN discussed the particulars and advantages of a certain type of circular quad antenna. The antenna promised multi-band operation without complex matching systems.

---President Joe made a motion for the club to send flowers for Dave's funeral, or perhaps a donation to an organization if specifically requested by the family. The motion was seconded by Jack, W8WEN and passed on a voice vote.

---Joe reminded the club about the Cuyahoga Falls hamfest on April 15, and also the Dayton Hamvention coming up on May 18-20.

---The meeting was then adjourned at 8:35 PM on a motion by Smitty, KC8TJQ and seconded by Dave, N8NLZ.

Minutes respectfully submitted by Don, AB8KV, secretary.