

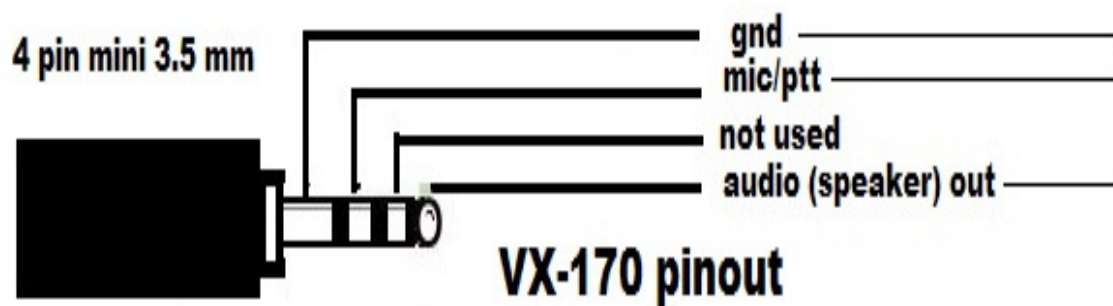
August 2017



Check out how K-LOVE (and now Air1) has grown over the years!
<https://www.youtube.com/watch?v=r2zZa8V53FY&feature=youtu.be>

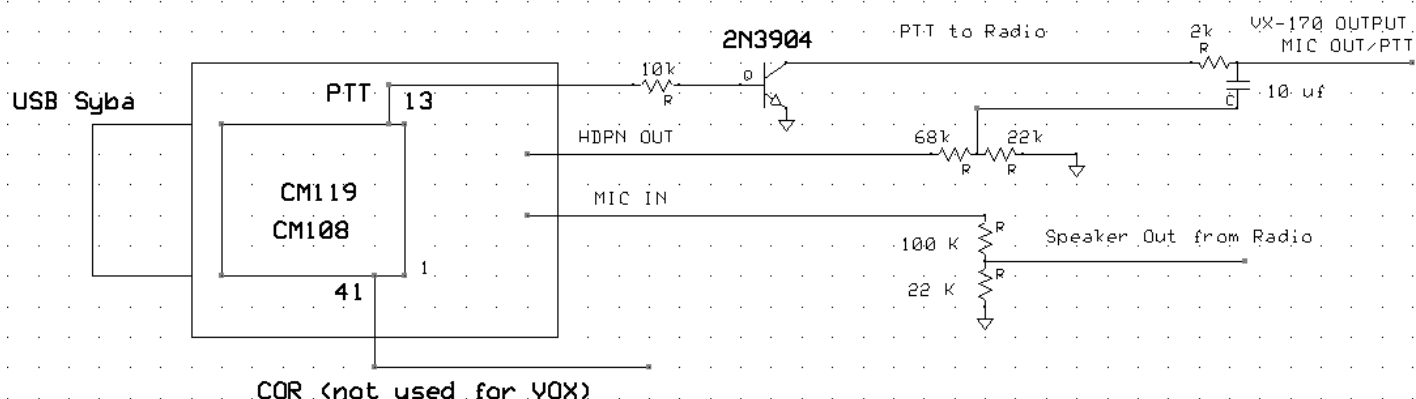
By the way, my new email address is now ke0vh@outlook.com. I have changed it due to some problems with access and my cell phone. Please make a note of it! ☺

Setting up a portable AllStar node for being able to get back into the Denver WØGV repeater and the Denver AllStar Skyhub (Skyler, KDØWHB) is something I have had as a project for this summer. Skyler has been so instrumental in setting up AllStar systems for myself and other folks here in Denver and we really appreciate the time and expertise of this fine young engineer. Skyler has spent a lot of time experimenting and perfecting the software setup and hardware to make all of this work. So one day he and I got together after I had gathered all the parts and he helped me to get my portable simplex node going. I gathered up a Raspberry Pi3, a Syba USB CMedia CM119 Sound adapter, and a Yaesu VX-170, to use as a portable AllStar node (46372) for connecting to the AllStar systems via WiFi. I am planning on using this when on the road thru my iPad hotspot, or in the hotel rooms I stay in thru their WiFi or Ethernet. There are a lot of directions on how to do this available, but Skyler has figured out how to use these (\$5 on Amazon) Syba sound cards instead of buying some of the \$50 or more interfaces available. Very simply done too. The Raspberry Pi3 has on board WiFi so it can connect to the internet. The soundcard is the interface to the radio for the transmit and receive audio, and the PTT to the radio. The VX-170 I had on hand had a proper 4 conductor mini plug along with the interface wiring from an earlier data project. The same line off the radio for mic audio had a capacitor and resistor already attached for the PTT thru the resistor and passing the audio down the line. This speaker mic cable by the way, like just about everything else can be obtained thru Amazon. Many other radios are usable and adaptable to this system. Here soon it will be my intention to do a full "how to" write up on how we setup my node.



This is my schematic for the pinout on the waterproof cable for the Yaesu VX-170. As you can see in the schematic below, I had already installed a capacitor and resistor on the cable from an earlier project for data in and out of the radio, so we incorporated that into the schematic for the Syba USB soundcard interface. Skyler showed me how he had wired up the soundcard for past projects and he did a beautiful job putting the

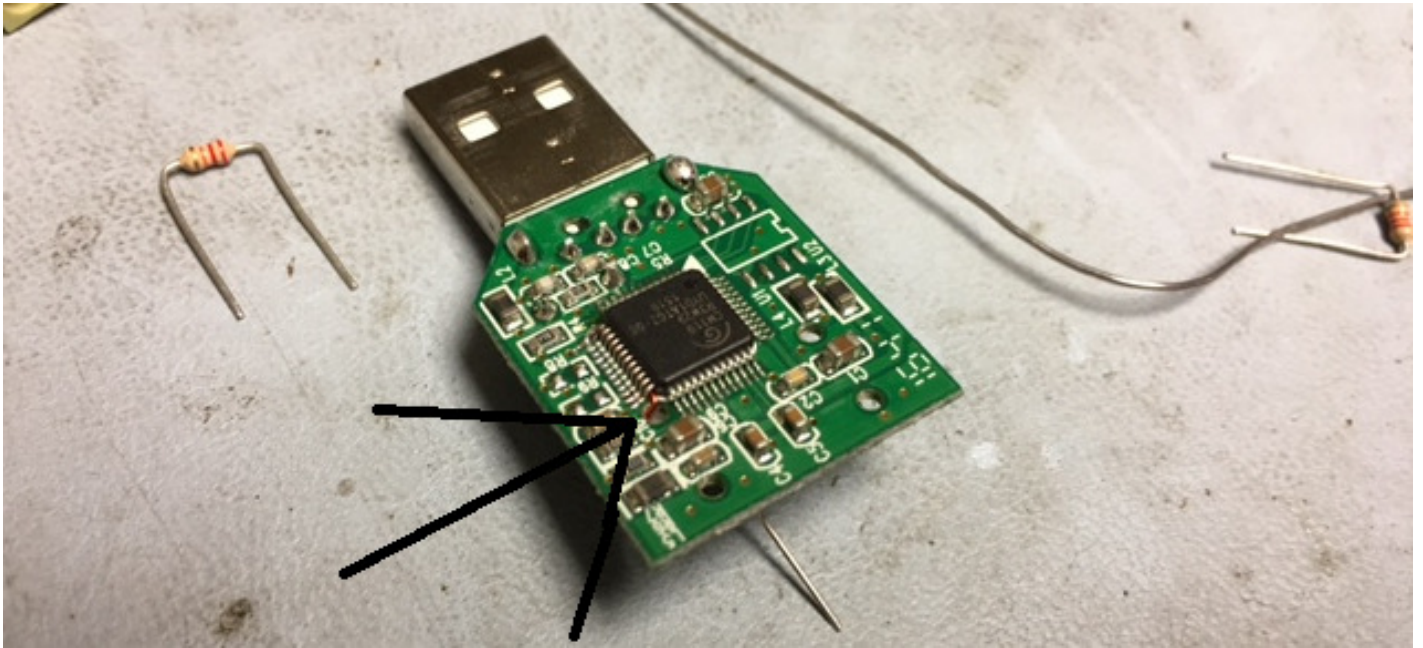
components in and getting them to fit into the case of the Syba as the pictures will show.



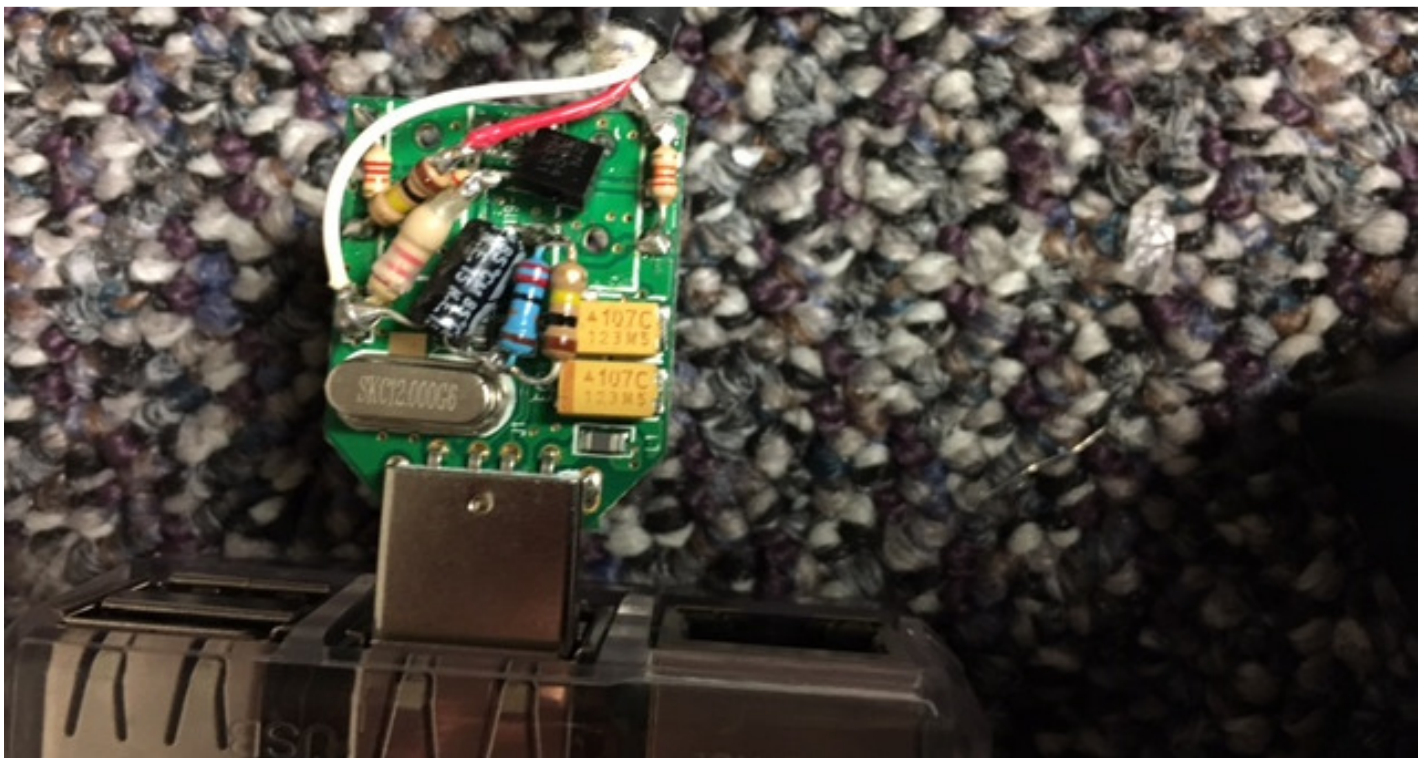
The Schematic for interfacing to the VX-170. This interface should work for most radios, the cap/resistor upper right is for the VX-170 combined mic/PTT line from the radio



\$5.00 soundcard from Amazon. Must be the CM108 or 119 Chip



One of the connections to the Syba USB soundcard, takes a little bit of care in soldering to the pins on the chip

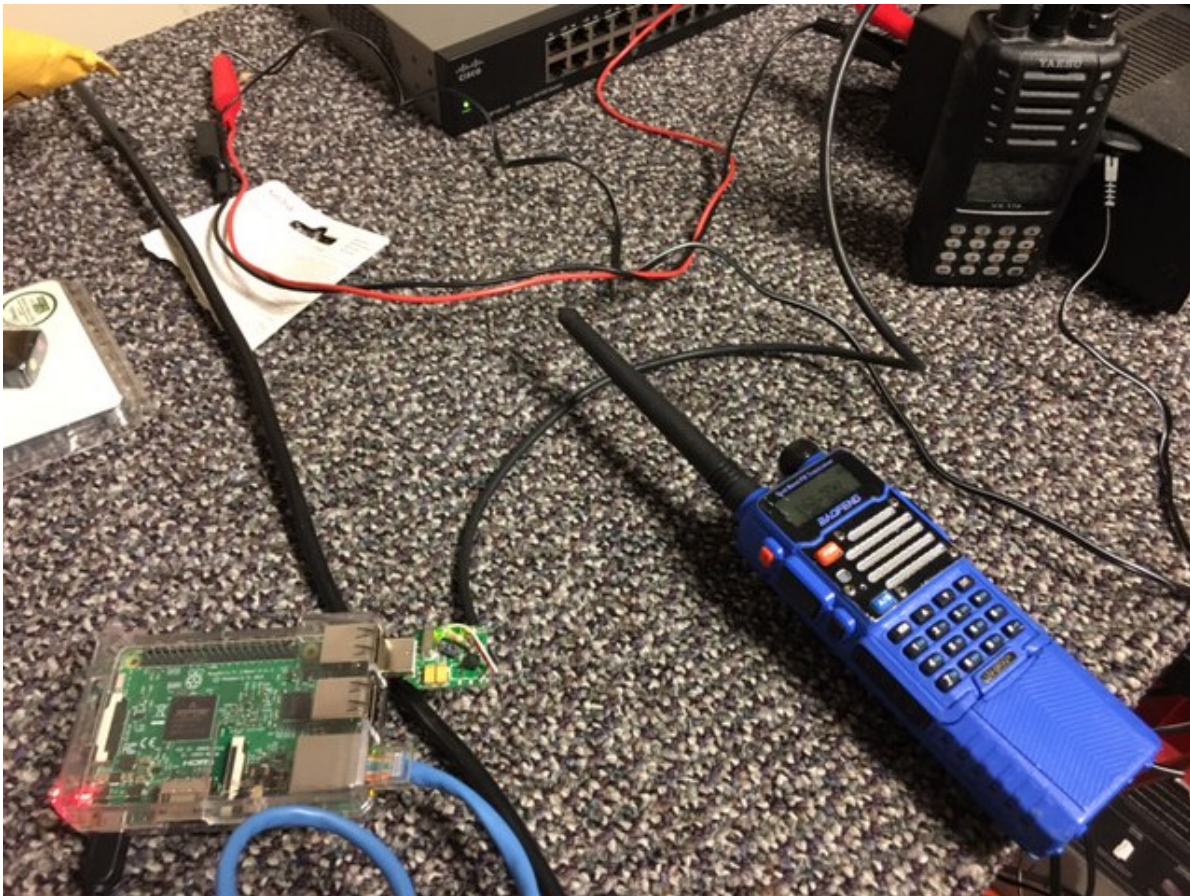


The final component layout all connected to the soundcard and plugged into the Raspberry Pi3



Another view of the soundcard and Pi3

Since the Yaesu VX-170 is a 2 meter radio only, I am using a 2 meter frequency coordinated for using as a simplex repeater node. This also makes powering the easy as you can put 12 volts directly into the battery charging port. I will be including pictures of the setup into a carry case in a later edition of "The Hamshack".



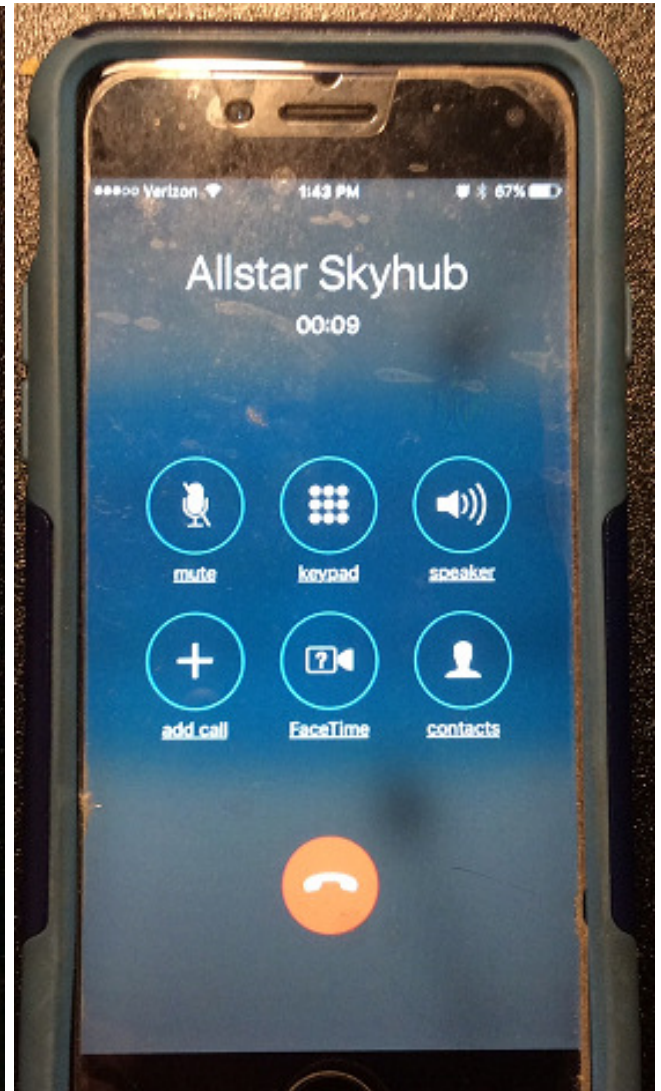
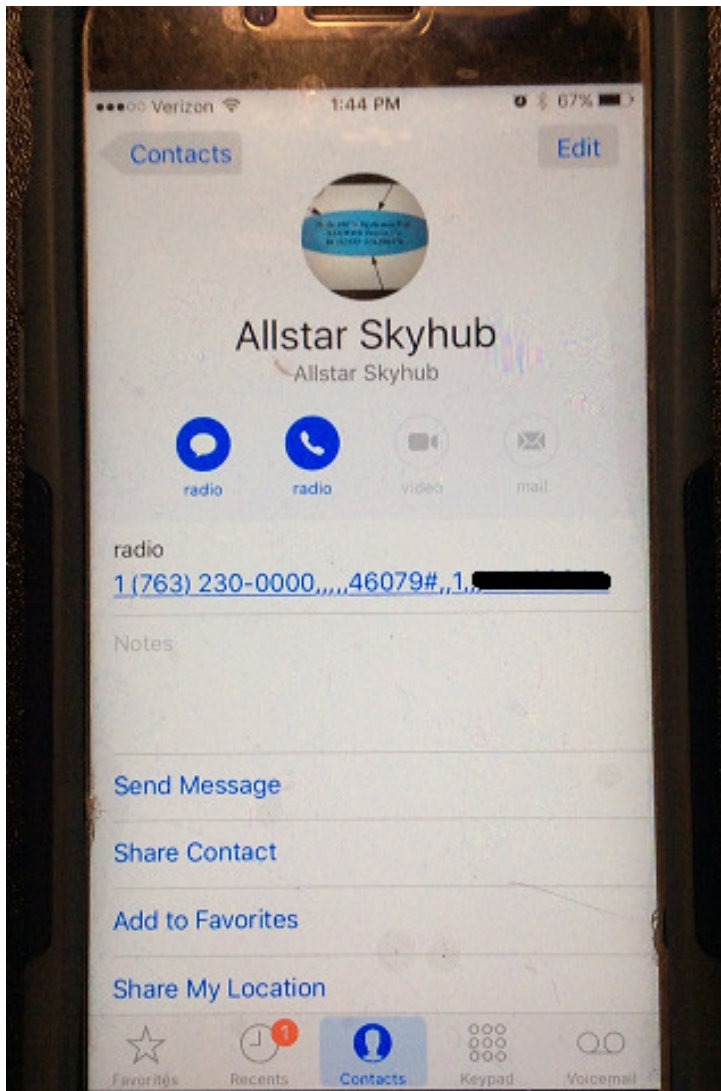
The testing setup, using a Baofeng radio to test into the VX-170



Testing the node on the network at home

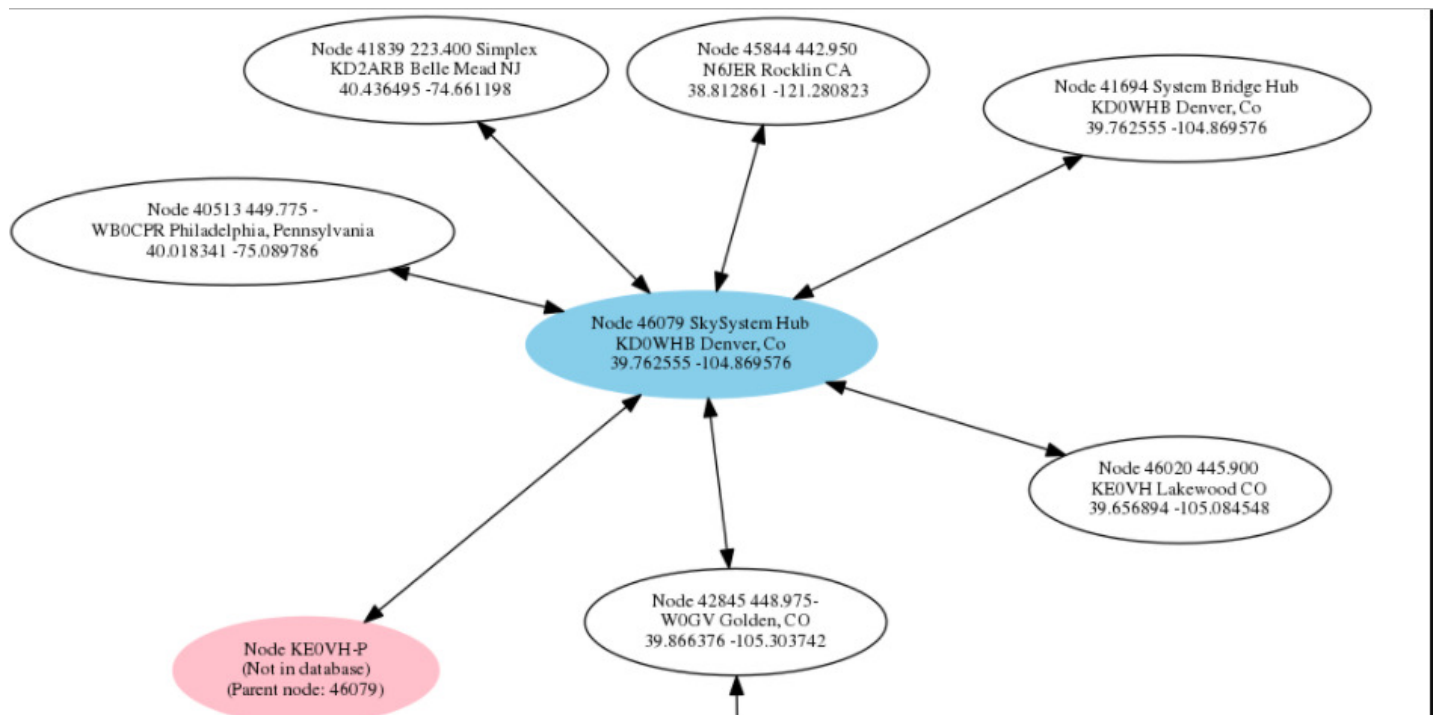
Another way to connect into the AllStar system is thru your cell phone! It is a portal that will connect into whatever AllStar node/repeater you want to dial into. Just think of it as a remote audio link to your radio, repeater, or connection into the AllStar system. I have used this thru my motorcycle helmet blue tooth communicator into my iPhone to

connect into the local Denver repeater or Skyler's Skyhub. Jeremy, N5JER showed me how to set up an automated dialer contact in my phone to one button dial like a regular phone number. When you dial into the phone portal you must tell it what node you wish to connect to, your personal PIN number (given to you when you register with AllStar) and whether or not you want to use VOX or a command to "PTT". You can program this into your cell phone contacts. It is my intention to use this feature to communicate while riding my motorcycle to the Chattanooga Tennessee area in September via interstate to visit my Mom. If you want to be able to do this too, I will be glad to send you a template for a contact for you cell phone. Just send me an email. I will also carry a HT to get into Kenny, K4KR's system there in the Chattanooga/Chickamauga GA area to talk around town there and back to Denver via Kenny's node. By the way, while on the trip I will be beaconing APRS as KE0VH-5 on APRS.fi.



My cellphone dialed into the KDØWHB AllStar hub (Node 46079). You can see part of the automated dialing process, (my pin blocked out) easily done on a cell phone. Once again, just think of it as a "long mic cord" to a radio system!

And below you can see the AllStar connection chart with the phone connected:



To use the phone portal, you must register with AllStar (<https://allstarlink.org/>). You don't have to setup a node or do anything other than register if you want. Then even where there is no coverage by radio, repeater, or AllStar repeater you can get into whatever node you wish. VERY COOL SYSTEM!

And yes, I am actually getting a lot done this summer for K-LOVE/Air1! We have had several ongoing projects that are keeping me very busy. Earlier in the spring my good friend Ken from KUNC radio noticed a broken strut on the tower supporting both his and our Air1 transmitting antenna during a visit. We had a tower crew immediately go up and sure enough, not just one strut but several supports. Buckhorn Mtn is an EXTREMELY windy site and the gusts during storms or just fronts moving in can be of hurricane force! Sure didn't want our transmitting antennas blowing down! So that was a biggie to get done. Again thanks to my guys at Galvanized Endeavors for the great work in getting this site back to specs.



The transmitting antenna on the mountain.

AND, during the inspection of the tower, I had them look for a leak as our line pressure had started to become an issue, making the dehydrator run more than normal. Sure enough, while doing this support work they found this:



Hmmmmmmmmmm, there's the problem!

Turns out the line section had been rubbing against one of the supports all this time, wind had exacerbated the problem, hence the leak! So, on with new sections and the problem is cured!



This fixed it! Thanks again Galvanized Endeavors!

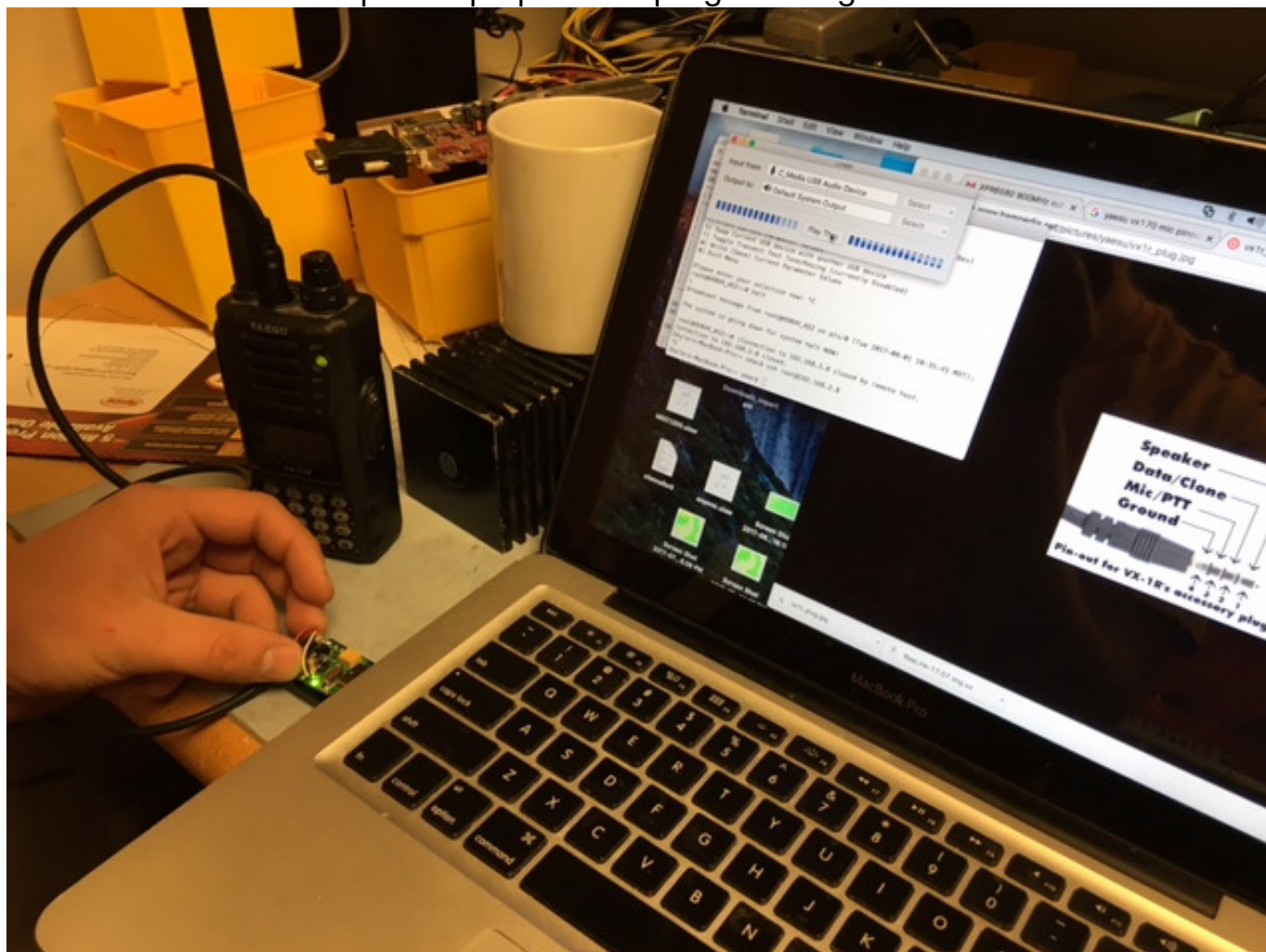
Check out this old electrical panel!



Yes this is still running a radio station!

We were having issues with the top fuse blowing. Seems to be solved after several months now of no problems. Turns out tightening the mounting brackets SEEMED to do the trick. All has been running well since. I have an excellent electrician in Mike Cooper from Colorado Springs has done an excellent job for me on several sites. Including wiring in the Denver Nautel GV-40.

By the way, I forgot to include this picture earlier in the article. Testing the AllStar node setup via laptop before programming the Pi3.



Thanks again Skyler!

SEE back issues of my articles available now! Copy or click these links into your browser to see previous installments:

<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201702Feb.pdf>

<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201703Mar.pdf>

<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201704April.pdf>

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<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201706June.pdf>

<http://www.ke0vh.com/hamshack/archives/TheKE0VHHamshack201707July.pdf>

ONE YEAR AGO:

<http://www.smpte-sbe48.org/wp/2016/08/>

TWO YEARS AGO:

<http://www.smpte-sbe48.org/wp/2015/08/>

THREE YEARS AGO:

<http://www.smpte-sbe48.org/wp/2014/08/>

**I will be adding more to my website archives here soon.
AND**

**Don't forget the SBE Chapter 73' Of The Air
IRLP (and Echolink) Hamnet, every MONDAY EVENING
At 7pm Mountain time (9pm Eastern) for radio discussions, both
Broadcast engineering and amateur radio.**

**Details on how to
join are at <http://www.ke0vh.com/net/net.html>. I hope
You will be able to join us and share your engineering and
Ham exploits! 73' es God Be With You!**

