Bookshelf AllStar/EchoLink Node – K3KDX

When I first put together my Allstar/Echolink node, although functional, it was an unsightly tangle of wires and connections on my desk – it looked like a "project". I wanted to organize it in such a way that it was out of the way of the regular shack gear, clean in appearance, and functional. So…I decided to build a housing for the major components and put it on the bookshelf above my computer monitors – out of the way, but accessible from my desk seat. It's a bit much for a small simplex Allstar/Echolink node, but it works well and I'm happy with the way it looks and integrates with the shack.

Instead of building a full enclosure, I built a bottom and front facing out of some scrap wood, and I slide everything in and out of the shelf as necessary; the "top" of the housing is the shelf above it. So far, it's been a "set it and forget it" installation; out of the way and not an unsightly mess on the desk. I connected an alarmed temp gauge and a fan controller for the two 80mm fans that I installed.

All in all, it took a few hours over a weekend. The hardest part was measuring and cutting the holes with the Dremel so that everything lined up when assembled. I spray painted the facing with a textured black paint that looks like powder-coated metal. I've been happy with it, it works well, and now it isn't a messy distraction on my desk. It's no engineering marvel, but it was a fun project to house all the Allstar node components….

Following are a few pictures as I was putting everything together. Please note that these were as I was fitting, wiring, and soldering – so not all the connections are shown completed – such as the RIM, the temp probe, the antenna, etc.

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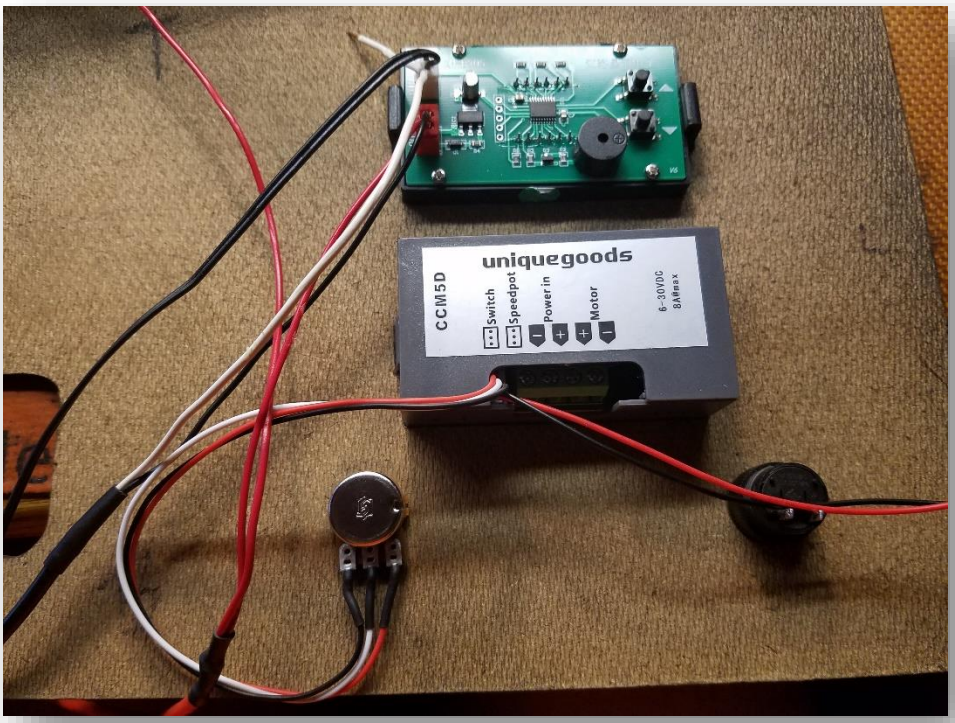

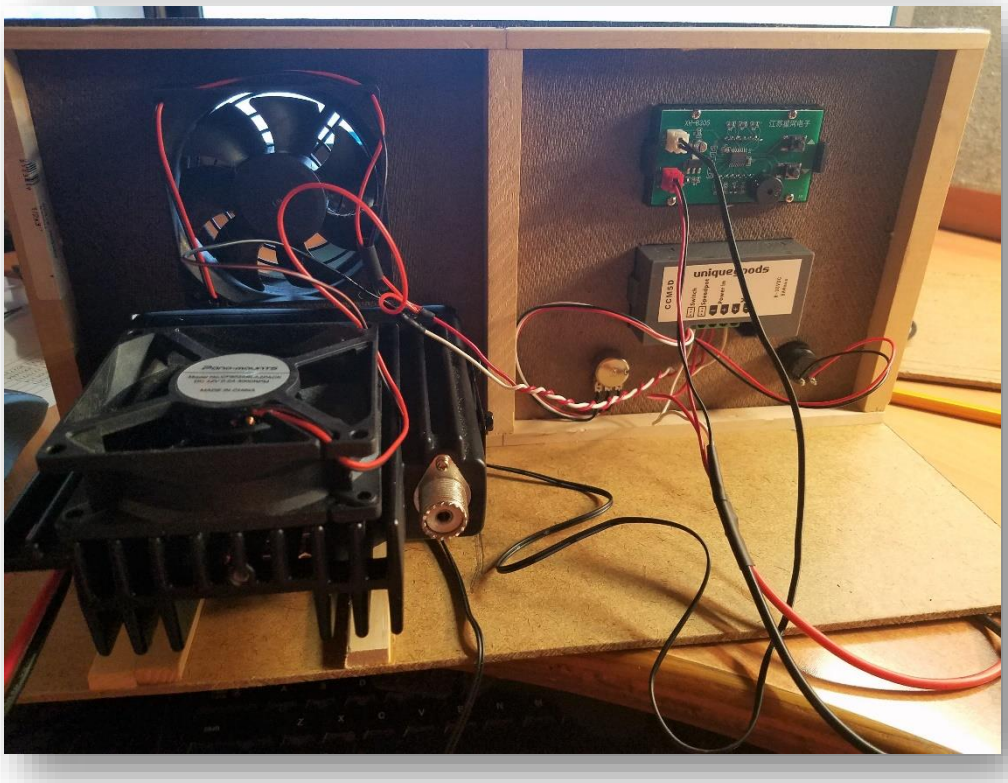

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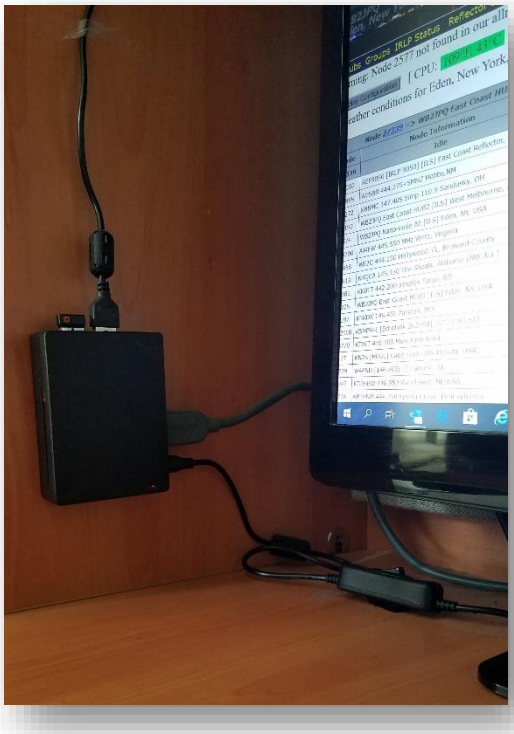

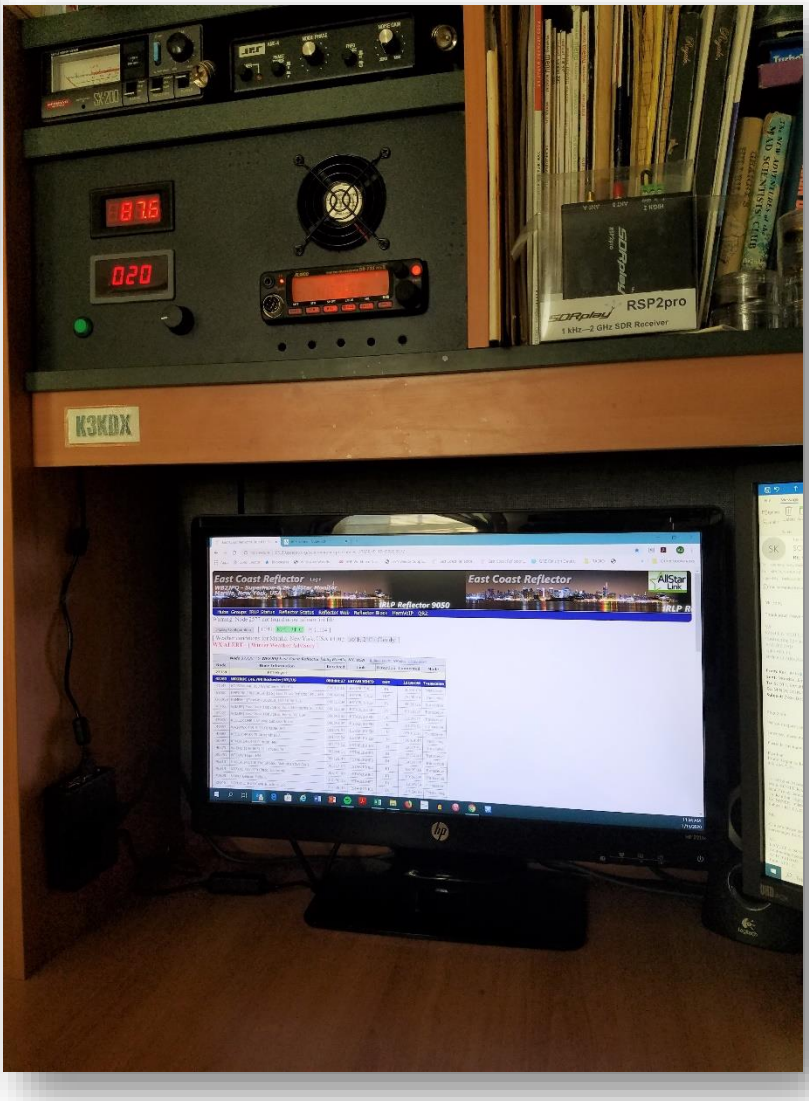

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If anyone is interested in my setup, the components are:

PRIMARY COMPONENTS	○ Alinco DR-135 Mk III as the node radio ○ RIM-Alinco from Repeater Builder ($50.00) ○ Raspberry Pi 3b+ ○ HamVOIP Allstar image
OPTIONAL COMPONENTS	○ 2 80mm fans ($12.00) ○ 12V motor speed controller (for fans) ($13.00) ○ 12V digital temp gauge w/ alarm ($8.00) ○ Fan grill guard ($1.85) ○ Scrap wood parts ○ Spray paint ○ Misc. wires, terminators, shrink tube, solder, etc. ○ HDMI A-B switch (surplus – already had it)

Building the node is a piece of cake – it's very simple.

- The RIM plugs into the DB9 connector on the Alinco and connects back to the Pi via USB.

- The node radio has a dummy load and is set to low power (5w). I can connect it to my antenna switch to connect the node to my other antennas if I want the node to have a bit of range; however, I use it right in the shack and just use the dummy load most of the time.

- The Pi has an aluminum "heat sink" enclosure so it doesn't overheat. It is attached to the vertical side of a shelf with Velcro tabs. It is connected wirelessly to my router. I could have put the Pi in the bookshelf enclosure; however, I decided to keep it separate so I can access it easier.

- The fans are rigged with an on-off switch (green button on pictures) as well as a variable speed controller. The temp sensor/probe is wedged in the radio heat sink fins at the chassis body and a dab of thermal paste.

- One fan is directly on the radio's heat sink fins blowing the hot air up, and one fan is on the front facing blowing the hot air out. The enclosure is vented from the bottom, side, and front (I put vent holes on the front under the radio) … so cool air is sucked in, up, and out…so far no heat problems at all and I normally keep the fan at about 20%; I might turn it up a bit during high duty times such as the TechNet.

- The Pi is directly connected via HDMI to my HDMI A-B switch so that I can push a button and monitor/work directly on the Pi and Asterisk without having to use Putty. I also plug a Logitech universal wireless fob into the Pi USB so that I have keyboard and mouse for the Pi. The setup works great for accessing the Pi.

- All power connections are relatively hidden and go to a PowerPole distribution block that is fed by/connected to a DC power source (also hidden out of the way)