Simi Settlers' Amateur Radio Club

Short Circuit

The next Simi Settlers club meeting is **Thursday August 11** at 7:00 PM
Simi Senior Center (Enter by the Southwest door).
3900 Avenida Simi, Simi Valley.

The next Simi Settlers Pizza Night is at
Toppers Pizza, 2408 Erringer Road, Simi Valley.
Thursday August 4 at 6:00 PM.

Assorted:

Note: The Senior Center has a touch computer screen at the entrance. Keyfob or not, be sure to tap a few times on the screen to find our meeting and say you attended.

The August **presentation** is going to continue entering a schematic, layout a printed circuit board, AND program an Arduino single board computer **Three for One !**. A simple project, a RF field strength meter was chosen to show LOTs of skills to get YOU started on making your own designs in printed circuit boards and Arduino.

A reminder that the **805 repeater is off the air**. Use the DSW repeater at 146.940, -600, PL of 127.3. Same location, roughly the same coverage area, NO 440 capability.

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Nets of Interest

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
LSB Net 8pm 3.908 MHz **SSARC 2 Meter Net*** 8:30 pm SMRA-ERN Repeater 146.805 -0.6MHz PL100.0 or 445.580 -5.0MHz PL100.0 The Newbie net 7 pm, Bozo Repeater 147.885 (– 127.3)	**Condor Connection** 7pm (Plays Newsline) Frazier Mountain 224.720-1.6 MHz PL156.7	**LSB Net** 8pm 3.908 MHz **ACS Area 1** Simi Valley SMRA-ERN 7:05pm Repeater 146.805 -0.6MHz PL100.0 or 445.580 -5.0MHz PL100.0 **ATN-CA Net** 7:30pm http://atn-tv.org/net night.htm **ACS Area 1** Simplex net, 6:45 PM on 145.510MHz	**Channel Islands chapter 10-10 International** 28.34 MHz at 10AM and 6PM **Mesh VOIP Net*** 8pm 2.4/5.8 GHz Mesh	**LSB Net** 8pm 3.908 MHz		**SSARC SSB HF Net** 8:30am **7.240** (+ or - QRM/N) 40 meter **CW-QRP** 9am 7.032 MHz **Quad Squad net** 1PM on 21.365 MHz's

Additional information on local nets can be found on the CVARC web site at: http://www.cvarc.org

* For more information, see http://www.pvarc.club/mesh/mesh-applications/

The 805 repeater is still under the weather. Use the DSW repeater at 146.940, -600, PL of 127.3. For August, the Sunday night net control is:

(July 31) Ron K6RIN

7 Matt KN6SEC

14 Brian KM6MIN

21 Rick W6DQE

28 Kevin KD6UTC

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ACS/ARES Corner

Frank Valdez KI6OQ is the Area 1 Emergency Coordinator

We are always looking for ACS members that would like to become Net Controllers. You will receive hands-on training at the Simi Valley PD (where we normally conduct the Weekly Net). It is both fun and at times challenging. You will gain valuable experience in running a controlled Net as well as becoming more than just familiar with the equipment in the Radio Room at the PD. If you would like to volunteer for this, just message Frank Valdez at **frankki6oq@gmail.com.**

Be sure to check www.vccomm.org for the latest !

If anyone is interested in how to set up your own packet station, RMS Winlink station, or a Mesh Node, contact Frank, he will point you in the right direction.

Barry K6ZA wants to remind everybody that they have options to check in with something other than a 2 meter handheld. The **80 meter net is Tuesday nights at 18:30 (6:30 PM) on 3.987 MHz.**

The **Area 1** (Simi Valley) net occurs Tuesdays. Generally it is just a brief check in, but usually some news about upcoming events is passed on.

The simplex net is on 145.510 at 6:45 PM. The regular net is on the 146.805 (-, PL100) repeater at 7:00 PM. **Stop buy and say Hi.** You do not have to do anything other than check to test out your simplex or repeater connection.

NOTE: Please be advised that we hold the Tue. **countywide** net at 19:30 (7:30PM) on the Sulphur Mountain WD6EBY repeater 145.200, minus 600 KHz offset, CTCSS of 127.3. Until further notice, this will be our standard frequency for countywide communications.

A reminder that the **805 repeater is off the air**. Use the DSW repeater at 146.940, -600, PL of 127.3. Same location, roughly the same coverage area, NO 440 capability.

Upcoming ACS events: Saturday August 20 and 21 is Wings over Camarillo.

Go see https://vc-acs.groups.io/g/main/calendar for the latest updates.

SIMEOC located at the Simi Police Station received a new dual band UHF and VHF radio, a new HF radio, and a new computer. Frank KI6OQ, Bill AB6BW, and Ron K6RIN are working on getting everything up and running.

The 145.050 packet station is waiting for a new cable to connect the radio and TNC.

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Member Updates

The July (was) and August presentation is going to be a whopper!

From the March 2019 issue of QST "An Arduino Powered RF Detector". The actual product may not be so important, but the process of creating your own printed circuit board may be of great value. This process will use KiCAD, a freely available electronic design tool.

This presentation will cover a LOT of ground, and will take at least two meetings. Rest assured, we will continue as required to get through it all. During this presentation, we will:

- Enter a circuit schematic
- Layout a printed circuit board
- Order the printed circuit board
- Order parts
- Program an Arduino single board microcontroller
- Stuff the board and see the blinking LEDs!

We can turn this into a "build it yourself at home or with a friend project". As we progress with the entry and layout, we will discuss who wants to get in on a group buy of the PCB and components.

I will have handouts of the original article and project notes.

August update:

At the July meeting, we introduced Kicad, and started to enter the schematic. We showed a tiny bit of impatience and jumped over to view the progress of the printed circuit board.

For August, we will try to finish up the schematic and make as much progress on the printed circuit board layout as possible.

For September, we will finish up the printed circuit board, make the production files, and introduce the integrated development environment (IDE) and program for the Arduino.

If time allows at the September meeting, we can take a vote to do a group buy of circuit boards, parts, or decide on the future path.

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An Arduino-Powered RF Detector

Teri Bloom, AC5YL

One delight of hanging around my neighbor Glen Popiel, KW5GP, is the constant exposure to all things Arduino — a community based around open-source hardware and software projects involving microcontrollers. Glen has authored two books on the subject — *Arduino for Ham Radio*[1] and *More Arduino Projects for Ham Radio*[2] — and I helped him with some of the project ideas. But you still have to build a project to really understand how Arduino works.

While at Hamvention, as I watched everyone communicating with hand-held radios, I wondered how much RF was really there. That's when I was inspired with the idea for a wearable RF detector built into a back-pack. To begin, I adapted the project "RF Probe with LED Bar Graph" from Glen's *Arduino for Ham Radio*.

> A string of LEDs and a microcontroller become a wearable field strength meter.

This Arduino project idea was going to be my first scratch build, and it turned out I learned more than I ever did from previous kits. I used Glen's in-home lab, many of his components, and his mentoring. My RF radiation monitor includes the Arduino Nano, 11 standard LEDs, and a 19-inch wire antenna optimized for the 2-meter band, all combined into a wearable, usable, functional, and eye-catching electronics package.
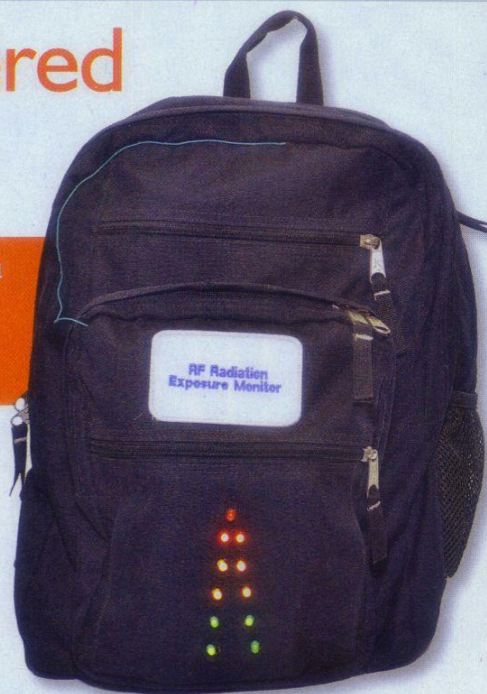
Construction

I arranged the LEDs in the shape of a tower on a rectangle of copper-clad perfboard using a template made of heavy paper. Figure 1 shows my placement of the green, yellow, and red LEDs. Using the template,
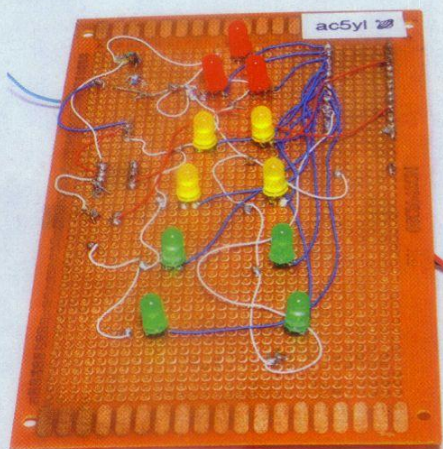

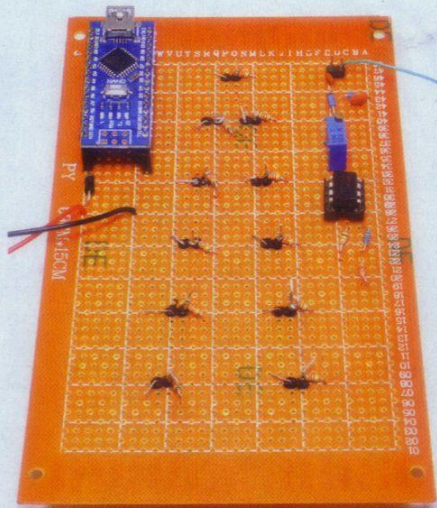Figure 1 — The front side of the perfboard shows the LED arrangement.

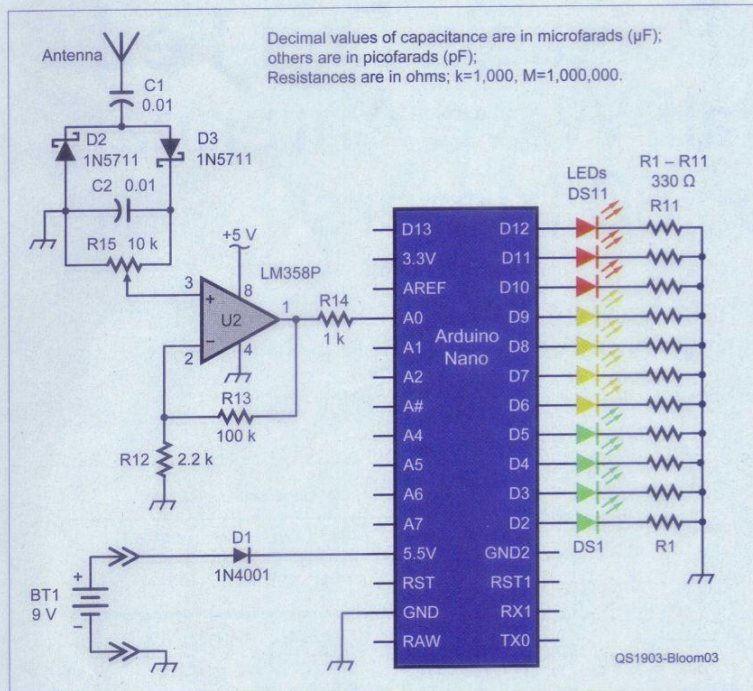Figure 2 — The back side of the perfboard shows the Arduino Nano in the upper left corner.

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Figure 3 — Schematic diagram of the project.

BT1 — 9 V battery
C1, C2 — capacitor, 0.01 µF
D1 — diode, 1N4001
D2, D3 — diode, 1N5711
DS1 – DS4 — green LED
DS5 – DS8 — yellow LED
DS9 – DS11 — red LED

R1 – R11 — resistor, 330 Ω
R12 — resistor, 2.2 kΩ
R13 — resistor, 100 kΩ
R14 — resistor, 1 kΩ
R15 — potentiometer, 10 kΩ
U1 — Arduino Nano
U2 — IC, LM358P op amp

I marked those LED locations on the perfboard and then soldered the LEDs, leaving space underneath for wires.

The current-limiting resistors are on the back side of the perfboard (see Figure 2) with the Arduino Nano in a corner of the board. This design allows the LEDs to be close to the material of the backpack while the rest of the components are safely out of the way. The schematic is in Figure 3. I used a standard Powerpole connector for the antenna so I could remove the project from the backpack as needed.

I snagged the sketch [A sketch is an Arduino program — Ed.] for the RF Probe project from Glen's book and adapted it to use standard LEDs, and to light the green LEDs first by twos, then the yellow LEDs, and, finally, the red LEDs all based on the strength of the detected RF signal. I hadn't done any programming in quite a while and had never written anything in Arduino's C++ style language, so this was a fun challenge. My Arduino sketch is on the **www.arrl.org/qst-in-depth** web page. Thank you, Glen, for your mentoring!

The Backpack

After testing everything, I grabbed my backpack and mounted the project into an exterior zippered compartment. I used the template and a soldering iron to make the holes in the fabric for the LEDs. I also placed Styrofoam™ behind the board to hold it in place once it was inside the zippered compartment. The battery is held to the board and Styrofoam by a rubber band, to prevent its weight from breaking the wires at the solder joints. I made one more hole near the top of the zippered compartment for the antenna. Then I brought the antenna wire through the hole, bent it near the top of the backpack's seam, and hand-stitched it in place.

Now as I walk the aisles of hamfests, my RF Radiation Exposure Monitor lights up from green to yellow to red and back down again, depending on the strength of and distance from RF sources. It gets a lot of attention!

Notes
[1]Glen Popiel, KW5GP, *Arduino for Ham Radio*, ARRL Bookstore Item no. 0161. Available from your ARRL dealer, or from the ARRL Store, **www.arrl.org/shop/**; **pubsales@arrl.org**.
[2]Glen Popiel, KW5GP, *More Arduino Projects for Ham Radio*, ARRL Bookstore Item no. 0703. Available from your ARRL dealer, or from the ARRL Store, **www.arrl.org/shop**; **pubsales@arrl.org**.

Teri Bloom, AC5YL, became a ham in December 2009, upgraded to Amateur Extra class in 2010, and became a Volunteer Examiner. She has since retired to Mississippi where she attends a number of hamfests, meets many hams, and is as active as she can be. You can reach Teri at ac5yl@amsat.org.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.

And an update on the Mesh equipment at Simi North by Orv, W6BI

The switch swap at SimiNorth was completed this morning. It went pretty smoothly, although I forgot to add VLAN2 to the switch to connected all three nodes (2, 3 and 5 GHz) together. That was an easy fix.

Outstanding maintenance items:

- The spiffy new switch has diagnostic tools - it reports that the Ethernet cable going to the PTZ camera is open, and the camera's not drawing any current. If it's the cable, we'll replace it. If it's the camera, we have a replacement on hand.

-
- The 2 GHz node, while working properly, shares its MAC address with a node in Sierra Madre (which is NOT supposed to happen). It resulted in them both having the same IP address, which confuses the network royally. We'll swap it out.

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- Dealing with the rust on the floor. The first attempt was not all that successful.

Photo of electronics in cabinet (batteries in bottom of cabinet; not shown):
Upper right - new Netonix 12-port switch (12VDC powered!)
Lower right - IOTA battery charger
Lower Left - fuse block
Upper left - telemetry box.

In the box: Upper left, RPI 3, with DAC board stack on top of it, and small prototype board on top of that. Used to monitor battery voltage, inside temp (USB thermometer is hanging below the box), outside temp, and AC power status.
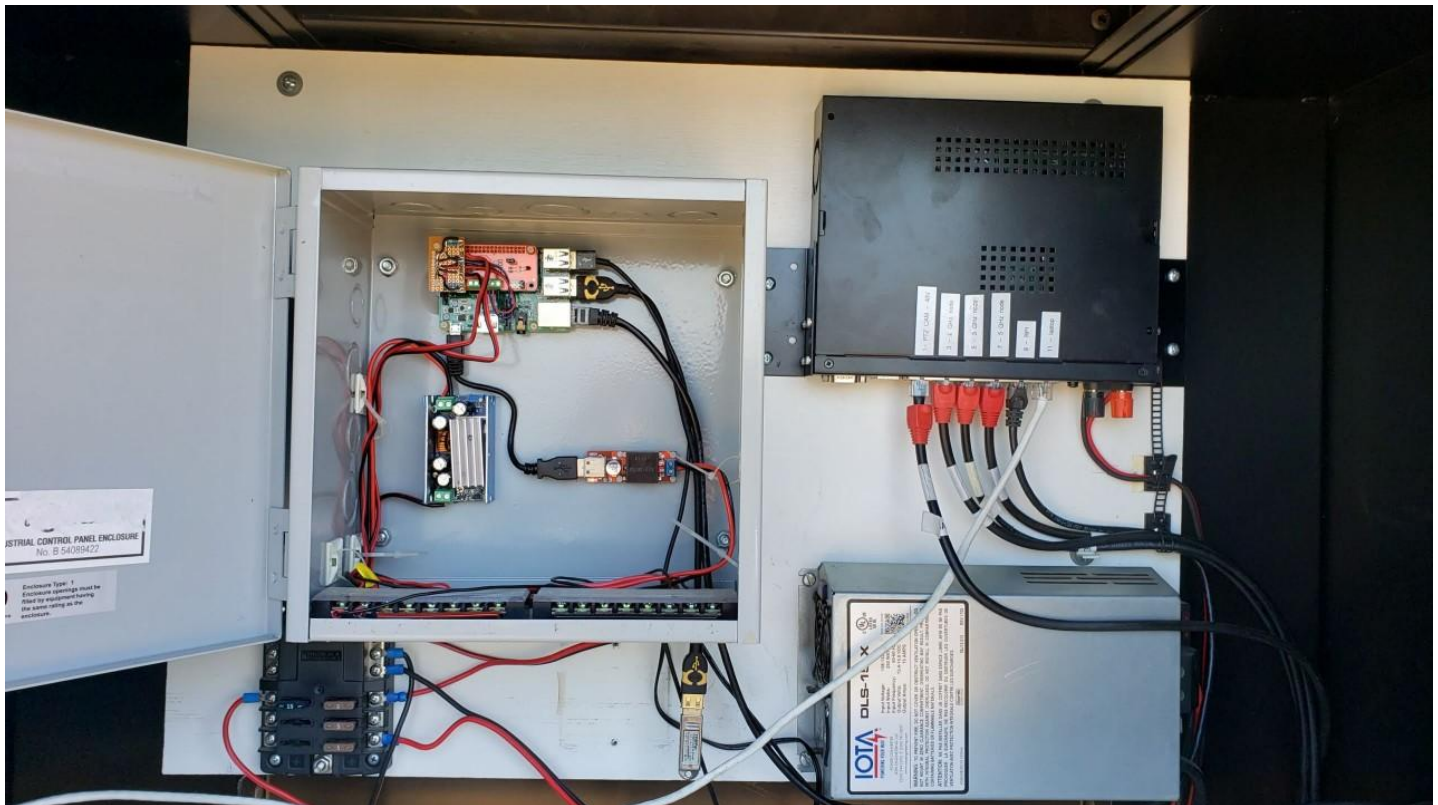

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Building a Prototype? Eric KE6MLF

When I am designing something new, or trying to get all the bits and pieces to work, I use these handy "breadboard" tools. The term breadboard came from when we used to use an old bread cutting board and a bunch of pins or nails to hold the circuit pieces and wires together.

The modern equivalent are these white prototype racks that have a 0.1 inch pin spacing, and "busses" or rows of pins tied together. The 0.1 inch spacing is to match the pins on the standard Dual Inline Package (DIP) integrated circuit. The accompanying box holds precut and stripped solid wire used to stitch the components together.
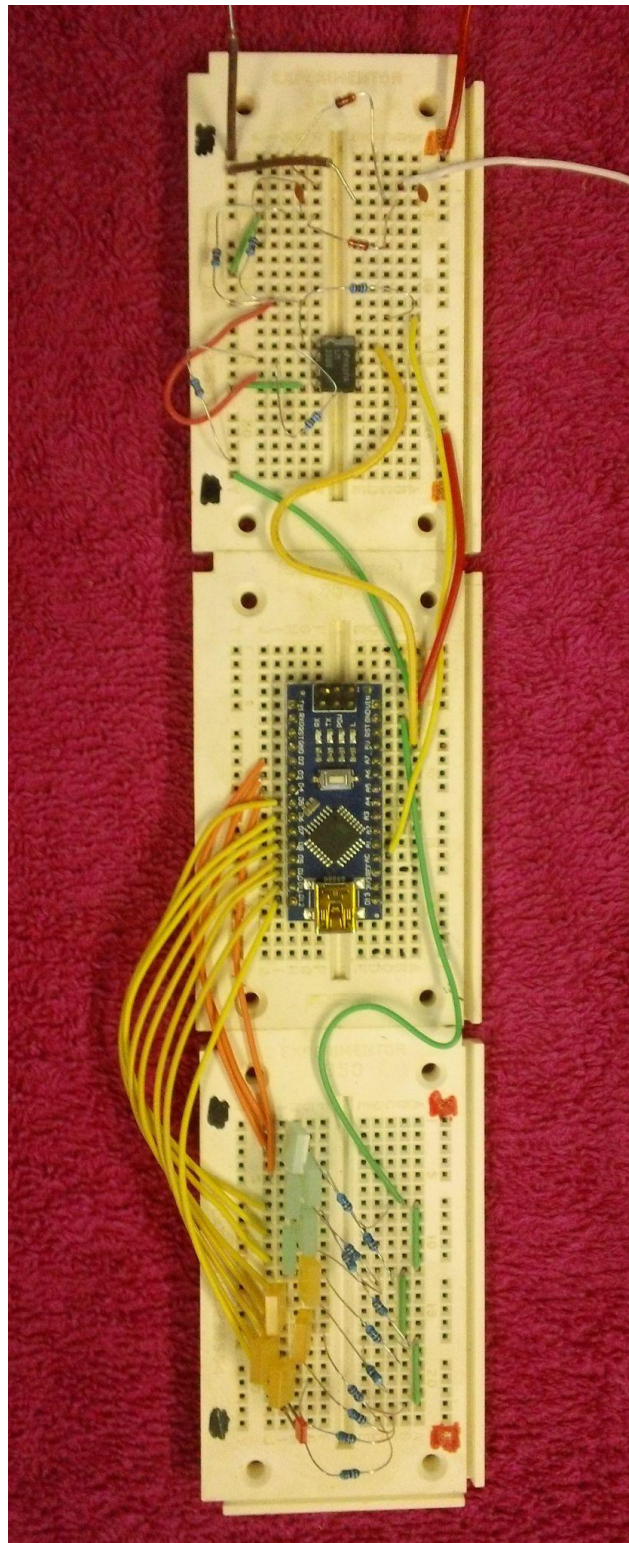

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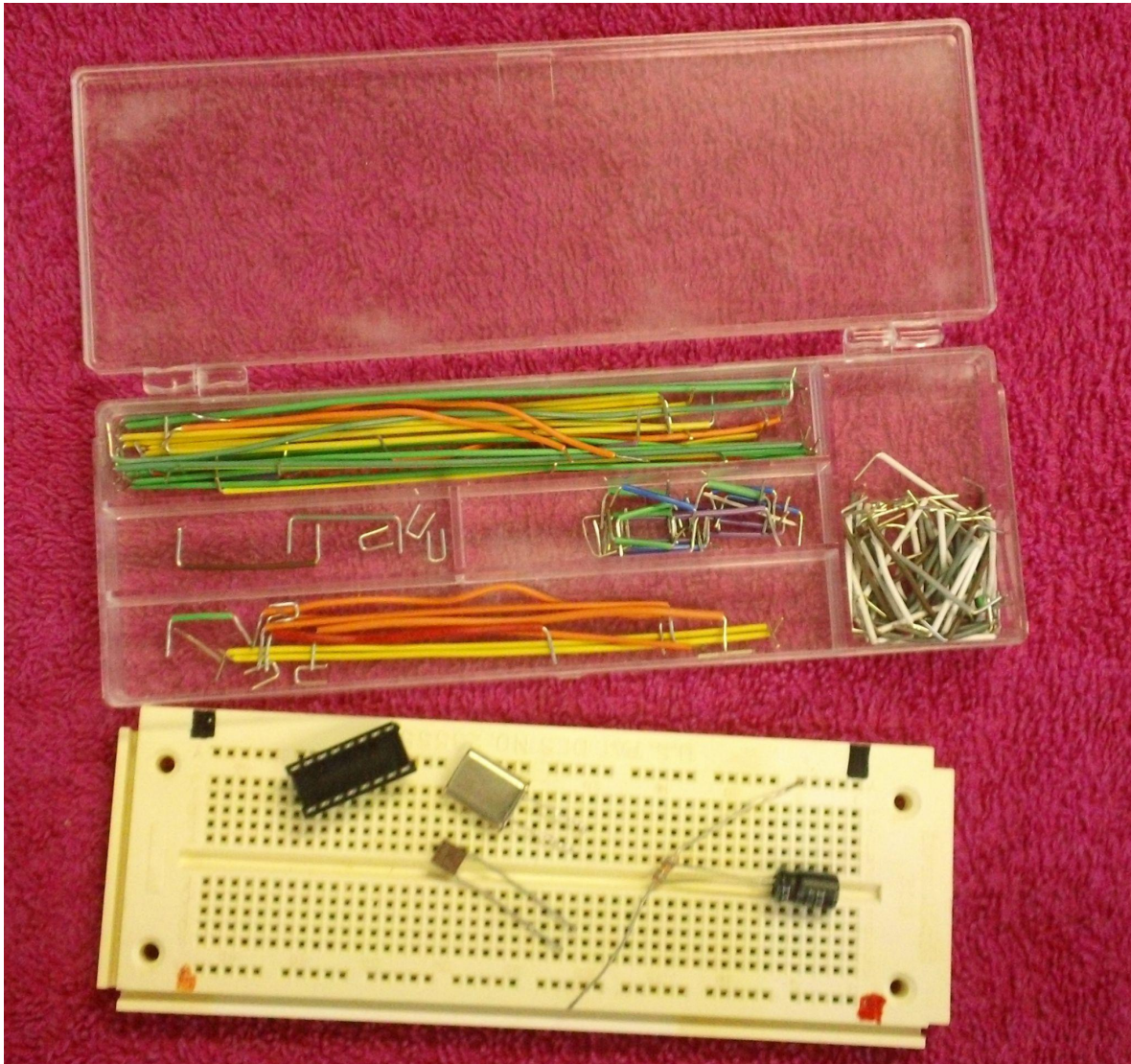
What does it look like? Here is our "RF Field Strength Meter" all cobbled up.

Note the breadboards can hook together to build bigger layouts.

The top holds the Input section of the RF detector.

The middle blue bit is the actual Arduino microcontroller.

The bottom section is the LEDs and resistors.

When I really want to go big, I use my Analog / Digital "Trainer". Used by lots of schools to give students a fast start on building circuits. Has power supplies, switches, potentiometers, LEDs, and a function generator ALREADY built in, ready to be wired up. The project wired up is supposed to end up as a morse code to text decoder. Will it work?
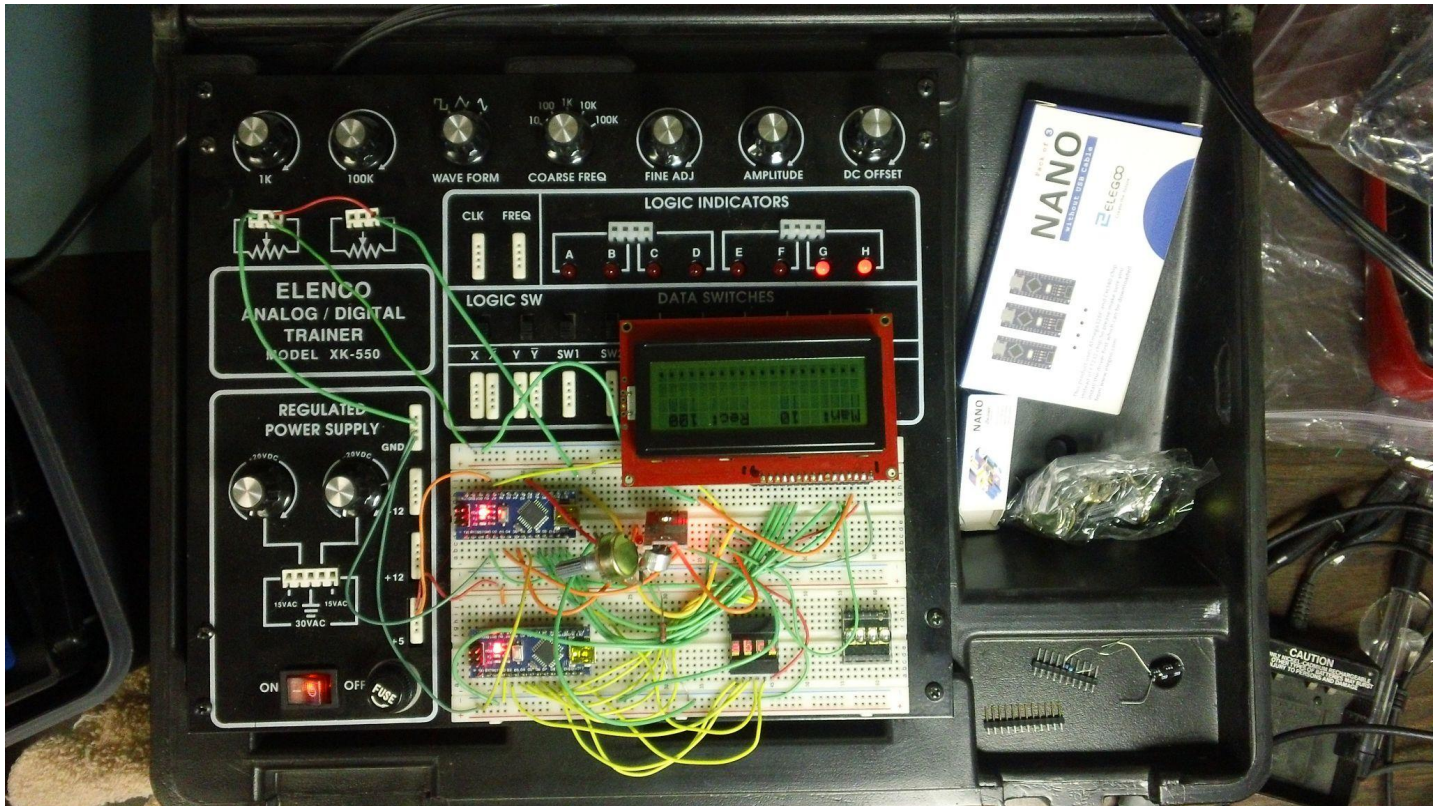
SSARC Marketplace

This section of the newsletter is for Simi Settler club members to post various used or previously owned items for sale that they may no longer have a need or use of. Please submit a brief description of the sale items (along with a photo if possible) and suggested price to Eric Oberg KE6MLF, the newsletter editor, at least two days before newsletter publication. It is suggested that a portion of each sale be donated to the SSARC treasury to help support the club's several activities. The term "OBO" means "Or Best Offer" and serves only as a starting point in negotiating a fair price.

. . . .

KLM 2-METER YAGI / LOG PERIODIC ANTENNA

This antenna is an unusual 2-meter antenna in that it has both a Yagi high-gain portion of the antenna combined with a Log Periodic portion of the antenna for wide bandwidth. The antenna is perfect for Field Day operations with an antenna rotator.

Condition: Fair/Good   Price: $10 OBO.   Please contact Mike Tweedy KV6I (805-231-9683)

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MFJ-886 FREQUENCY COUNTER

This product can measure RF frequencies between 1 MHz to 3 GHz in two switchable ranges, 1MHz to 300 MHz and from 300MHz to 3 GHz. This unit has an internal 9-V rechargeable battery that allows up to 6 hours of operation in the field. This unit features four selectable gating periods to allow for a rapid coarse frequency determination using a short 62.5 msec sample period up to a highly accuracy gating period of up to 4 seconds as displayed on a 10-digit display. Unit includes an AC wall adapter to recharge the internal battery. Unit includes a BNC antenna connector wherein both the compact frequency counter and detachable antenna can be placed in a short-sleeve shirt pocket for easy transportability. MFJ currently sells this unit for $159.95 new.

Condition: Excellent   Price: $30 OBO.   Please contact Mike Tweedy KV6I (805-231-9683)

PORTABLE TRIPOD ANTENNA TEST STAND

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This tripod test stand features a 3/8-24 female threaded mount to allow installation of such antennas as a hamstick or any other antennas for testing or operational purposes. The bottom of the tripod has a PL-239-type female connector to allow connecting a standard RG-8U or similar coax feedline. The three tripod legs can act as a small counterpoise for antennas under test and the entire unit can be installed on top of a motorhome or other vehicle for temporary use or actual operational use. Note: the sale is for the tripod stand only and does not include the hamstick and coax cable that are shown for demonstration purposes only.

Condition: Very Good   Price: $10 OBO.   Please contact Mike Tweedy KV6I (805-231-9683)

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Simi Settlers' Leadership				
President	Brian Hernandez	KM6MIN	(805) 813-7595	km6min_bh@yahoo.com
Vice President	VACANT			
Secretary	Ron Nelson	K6RIN		rnelson759@sbcglobal.net
Treasurer	Glenn Daly	WA6GNB		gnb.2112@yahoo.com
Committee Chairpersons				
Webmaster	Jim Parker	KJ6LXJ	(805) 368-6745 cell	kj6lxj@gmail.com
Newsletter	Eric Oberg	KE6MLF	(805) 791-0745 cell	ericoberg1@gmail.com
Membership	Jim Parker	KJ6LXJ	(805) 368-6745 cell	kj6lxj@gmail.com
PIO	Linda Parker		(805) 558-1731 cell	kj6lxj@gmail.com
Raffle Prizes	Rick Galbraith	W6DQE	(805) 433-4513 cell	rick@keymaterial.com
Youth Coordinator	VACANT			
Historian	Mike Tweedy	KV6I	(805) 231-9683 cell	mtweedy@roadrunner.com
Net Coordinator	Brian Hernandez	KM6MIN	(805) 813-7595	km6min_bh@yahoo.com
Food Services	Bill Everett	KI6KSV		ki6ksv@gmail.com
Room Coordinator	Linda Parker		(805) 558-1731 cell	kj6lxj@gmail.com
Elmers and Members at Large				
Past-President	Bill Woods	AB6BW	(818) 694-9019 cell	AB6BW1@gmail.com
Advisor	Bill Everett	KI6KSV		wildpoky45@earthlink.net
Advisor	Jim Hutchinson	KI6MZ		jhutch17@adelphia.net

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Simi Settlers Amateur Radio Club

P.O. Box 2125   Simi Valley, Ca 93062-2125 --- (www.simisettlers.org)

Membership Application

Type of Application: **Type of Membership:**

New Member   ☐   Individual ($18/yr)   ☐
Renewal   ☐   Family ($20/yr)   ☐

Name: _____ Day & Month of Birth: _____
(Omit year)

Call: _____ Class: _____ ARRL: Yes ☐   No ☐

Address: _____ City: _____ State: ___ Zip:_____

Phone: (____) _____ Alt. Phone: (____) _____

E-Mail Address: _____

Additional Family Members:

Name: _____ Day & Month of Birth: _____
(Omit year)

Call: _____ Class: _____ ARRL: Yes ☐   No ☐

Name: _____ Day & Month of Birth: _____
(Omit year)

Call: _____ Class: _____ ARRL: Yes ☐   No ☐

Name: _____ Day & Month of Birth: _____
(Omit year)

Call: _____ Class: _____ ARRL: Yes ☐   No ☐

Badges requested: Yes ☐   No ☐   How many? _____ X $18.00 = $ _____

Name (s) Call(s): _____

Shirts requested: Yes ☐   No ☐   How many? _____ X $35.00 = $ _____

Name (s) Call(s) Size(s) (Sm, Med, L, XL, etc):_____

Jackets Requested: Yes ☐   No ☐   How many? _____ X $88.00 = $ _____

Name (s) Call(s) Size(s) (Sm, Med, L, XL, etc):_____

OFFICE USE ONLY

Application type: New ☐   Renewal ☐   Membership type: Individual ☐   Family ☐

Date Received: _____ Amount Received: _____ Database completed: _____

Badges and Shirts ordered: _____

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