

SCOPE

A newsletter by and for the
Palomar Amateur Radio Club
of San Diego, California.



Auction Statistics Comparison

Year	2011	2010
Sellers	15	15
Registered buyers	49	53
Active buyers	33	28
Items	125	124
Total Income	1237	967
Club Profit	140	224
Lights Out	~10p	~10:30p

Thank you to all participants in our annual auction! We had a great time and made some money for the club. Many people went home with new treasures, and interesting stories were shared.

Do you have a mobile installation? Do you want to have a mobile installation, and need some motivation?

We're looking for a few good mobile installations - whether they're completed, on the drawing board, or half-way done and tripping you and your passengers every time you get in and out of the vehicle - to be featured in the Scope. We'd love to show your installation.

Tips, narratives, explanations, techniques, problems encountered and solved (or encountered and evaded) are what we're looking for. Send them in!

scope@palomararc.org

Save the Date

Club Meeting

2 November 2011

Ken Cohen KI6HRH presents on Go Kits and more. Prepare for emergencies with go kits!

Board Meeting

9 November 2011

Palomar Amateur Radio Club board meeting at 7:00pm at K2RP QTH.

ARRL Sweepstakes

November!

5-7 November CW
19-21 November Phone

Club Membership for August Edition

Here is the list of members receiving the SCOPE on the web, that have let their membership "expire" in the last month or so. Please check this list, and get your renewal checks in the mail! Pretty PLEASE!!!
N6FF, KI6KJG, KF6UVF, KI6MMT, KB7XI, W6UDO, AB6RM, WB6NFK, AND AC8Q.

Last year we sent out nearly 100 postcards to past members that let their membership run out (2010). A common response was that their failure to renew was an oversight, and quite a few sent in more than one year's renewal! Must be time to try that again!

I now have a list of 88 folks that elected to receive their SCOPE on the web - That have forgotten to renew their membership.

AI
W6GNI

October's Fold & Staple Crew
W6GNI AI WA5ACE Sonny
KB6NMK Jo KB6YHZ Art & Janet

The ARRL San Diego Section now has a Section Emergency Coordinator.

Bruce Krypton, KG6IYN, has agreed to fill the position. I am confident that Bruce will do an outstanding job.

Steve Early, AD6VI

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ARRL Affiliated Clubs Sweepstakes Bulletin – 2011

Larry Hammel, K5OT – Sweepstakes Contest Manager

Clubs are always looking for operating events and opportunities that excite and motivate their members to be active, especially on HF. This year's ARRL November Sweepstakes certainly fits the bill and – for the first time in years – the bands will have plenty to offer Technician license-holders, too! Sweepstakes – or "Sweeps" among friends – is a contest in which modest stations can do very, very well. There's no need for giant towers and antennas or legal-limit amplifiers – a backyard dipole or vertical and a "barefoot" HF rig will do just fine. In fact, SS is one contest in which antennas can be too high!

Because Sweepstakes brings out so many US and Canadian operators, it is very popular for friendly "contests within a contest" between clubs and between club members. A club contest to work the most sections, make Worked All States, or ring up the highest score is a nice way to wrap up the season with awards being presented at the year-end meeting. Many clubs have a friendly competition with other nearby clubs for local bragging rights. Even small clubs can get into the action on a national scale in the Local category of the ARRL Affiliated Club Completion.

College clubs can participate in two ways. The first is to submit a score in the School Club category of the main competition. With its 30-hour time limit, the shared-operating nature of the category fits right in with the busy fall semester. Give the Phone weekend (Nov 19-20) a try before heading home for Thanksgiving break! The second is to participate in the Collegiate Championship, sponsored by Ken Harker, WM5R. Ken has compiled a long list of yearly winners for each of the NCAA Division I Conferences – has your school's club participated? The website is currently being updated with the 2010 scores and we need some help sorting out the current conference assignment for the record-holders

Advertisements are free for members

Have items that need to find a new home? Advertise here! Send your ads to scope@palomararc.org

- any volunteers? Finally, for a relaxed "practice" opportunity, try the ARRL's School Club Roundup from Oct 17-21.

Did we mention the opportunities for Technician licensees? Techs have a large chunk of 10 meters available to them on both Phone (28.3-28.5 MHz) and CW (28.0-28.2) but in recent years, there hasn't been much activity due to quiet solar conditions. Lately, the solar flux has been kicking up to 120 and higher, meaning that 10 meters opens up coast-to-coast and beyond! If your club's Techs have been wondering what all the fuss is about 10 meters, be sure to encourage their activity during Sweeps. Perhaps one of those intra-club challenges we were talking about?

If you'd like to know more about Sweepstakes, download the Sweepstakes Operating Guide – there are simple explanations of the rules and a list of resource articles and websites to help you get the most from your Sweepstakes weekend. Maybe you'll even bring home the coveted "Clean Sweep" coffee mug!

CQ Sweeps!

73, Larry Hammel K5OT

Magazines, Newsletters, Web sites, and E-Mail Reflectors

National Contest Journal: www.ncjweb.com

Contesting.com: www.contesting.com

Radio-sport by NS3T: www.radio-sport.net

World-Wide Young Contesters: www.wwyc.net

CQ-contest reflector:
lists.contesting.com/mailman/listinfo/cq-contest

3830 Contest Results reporting:
www.hornucopia.com/3830score

Dipole Antennas

Simple in design, effective in operation

The Amateur Radio Club of El Cajon will be holding a 5 hour (+/- as needed) Get on the Air Workshop on November 6th 2011 at 10:00am. In this Workshop, we'll be constructing and tuning Dipole antennas. The Workshop is simple in format and at a level beginners can understand. This will be a "Hands On" Workshop and will cover dipole basics, calculating wire length, making a home brew center insulator from a piece of wood, splitting feedline, stress relief for feedline and wire solder joints on the insulator, basic soldering, proper installation of PL-259 connectors, elevating the antenna above ground and tuning the antennas using an antenna analyzer. Those attending the Workshop will take home with them, a perfectly tuned dipole antenna that they built themselves, from the ground up.

Although the class is a part of the Amateur Radio Club of El Cajon's monthly "Get on the Air" Workshops, anyone with a HAM ticket or with an interest in Amateur Radio is welcome to attend. This Workshop is HANDS ON and will be held in Lakeside at our Club's storage shed. As of right now, it looks like we'll have a sufficient amount of 14AWG wire for all attending but students will need to bring at least 18" (inches) of 50ohm coax and 1 PL-259. If using RG-58, a UG-175 adapter will be needed, if using RG-8X (or RG8 mini), they'll need to also bring a UG-176 adapter. These items can be found at a number of places around town...I do know Ham Radio Outlet carries connectors and coax.

Note: if the dipole you'd like to make is longer than 20 meters, please help us out and bring additional wire with you. Stranded 14AWG or larger is preferred.

For more details and directions, please drop our Club Vice President, Steve KO4QT an email: vicepresident@wa6bgs.us

We hope to see you there!

Where were you at 3:38 PM Thursday, September 8, 2011?

by Dennis KD6TUJ

After taking care of a customer in the yard, I came into the office and was told there was a citywide power outage. After helping prepare the office to continue without power, I went to get my generator to set up and supply temporary power to the phone system. I then went to the trusty 2m to hear what was going on. I started monitoring reports of the cities of Oceanside and Vista completely out. Next came Escondido. Something big was happening. Continued monitoring between work showed a major outage was in progress. A NCS started an information net on 146.730 to control the "check ins", What's going on, and general disorganization. This stabilized net operations. Information started to come in covering areas of loss, and scattered reports of causes. Traffic control info also came across.

Reminders were sent concerning "Emergency Traffic" if needed and some basic guidelines to use in power loss situations. Those being that controlled intersections not operating should be considered four way stops, and to turn off all power switches/controls except for a central light. Turning off all power devices will lessen the shock load during power up of the electric distribution system. Notice was also given to medical/oxygen users to go to hospitals for powered support needs if there was a problem maintaining their oxygen or other device needs.

Broadcasters remembered to monitor ham frequencies for information and started to broadcast ham info as "reports" of possible causes and problem areas. The reports were substantiated as the news confirmed the reports.

Many people went to the bank's magic wall and could not get cash to go down the street to get gas on the way to the store to buy groceries to cook on the electric stove or microwave. What's the problem. Gee, can't turn the radio on to hear what the broadcasters are saying. It was interesting to see people running cars to listen to the radio. A lot of RVers opened up the RV and ran generators for TVs and radios and air conditioners. Neighbors were actually out talking to one another. Kids were playing out late. That moon was near full for good light. Some even had bonfires in their front yards. Power reports started coming in about 9:30PM about grids coming back live. I watched several areas come back. None seemed adjacent or made much sense to someone who does not do grid management. My grid came back at about 11:15 PM. Panic set in. Family insisted on their powered toys again. Eight hours of a simpler life broken by progress.

Many people operated as NCS during this outage. I would like to thank them for their time. For many hams, this was their first time in adverse conditions as a ham. This is a chance to review your personal plans, and then review your ham plans. I used mobile radios while in the vehicles, monitoring mostly, only adding when I could offer something useful such as a traffic report request for where I happened to be. A scanner on batteries works great for monitoring 2m/440. This saves the drain of batteries that can not be recharged easily. The life span of a battery pack lasts from 4 hours to 16? hours. Many of us have AA battery packs for dry cell use. (Always have AA batteries on hand - if the kids/grandkids don't find them first!) I never understand how I only get use of 4 out of a 16 pack

There are many configurations of go kits. A presentation will be given on Go Kits at the November meeting by Ken KI6HRH.

Local CERT activity during the September 8, 2011 Blackout

Ramona-

We wish to report on the Ramona Team's activity during the blackout for the PARC newsletter.

Upon activation, we opened our command post and as the ECRA 147.030 Repeater was down we obtained permission to use the ARES/RACES 147.195 Repeater on Mt. Woodson. Opened a net and began a check in of team members and coordination of activities. We brought our Ramona/ROARS 145.300 Repeater online and moved our Local Emergency Net. Traffic to this unit. We continued to monitor and participate in the RACES Net. as needed. We have substantial generator and battery back-up capabilities so power was not an issue.

The team conducted health and welfare checks on our elderly and shut-in community and several high priority medical patients. One patient was in need of supplemental oxygen, as their resupply had not been delivered. In coordination with CAL-FIRE, transport to a local hospital was arranged for this patient. Another family with a child on critical life-support equipment, which was running on battery back-up power, was closely monitored and the team was standing by to assist with one of our portable generators if needed.

Our Public Information/Liaison Officer was stationed at the Ramona Municipal Water District's E.O.C. coordinating communications between the team and emergency resources there and kept the team updated with information from the greater county area.

We had good team participation and accountability through-out the emergency and are proud to be of service to the community.

All the Best,
Philip Savage, KI6WV
Ramona CERT

Oceanside-

In general, Oceanside CERT Amateur Radio Team members monitored PARC repeaters and our Primary 2m simplex frequency (145.540), passing on the unfolding event developments to families, friends and neighbors. Team members assisted drivers in getting home safe and sound by providing traffic updates for freeways and workarounds for gridlock on many of our local roads. Other various non-emergency but necessary activities included helping search for an open pharmacy, walking local neighborhoods, starting generators and running extension cords to neighboring homes, and charging neighbors' cell-phones. One member started his motorhome to provide care for two elderly people, and found his TV showing a football game had created a gathering place for neighbors. Although cellphones worked for many, there was at least one case where a couple married CERT hams were able to successfully re-establish contact across the county via ham radio after their cellphone connection was severed.

Lessons Re-emphasized: the blackout reminded us of the value of having a set Communication Protocol; having sufficient medications/water/food on hand; having working generators and/or off-grid battery backup; maintaining sufficient gas in vehicles; and having flashlights/fresh batteries and charged HTs. It also reminded us of why many have felt the need to carry our CERT backpacks and personal emergency kits in our vehicles. Finally, there was quite a bit of non-essential chatter on local repeaters, and our group feels a renewed need to improve our simplex coverage self-sufficiency around our city.
73 de Joe/N6JO

Power Outage Triggers OHCC CERT Activation

The Ocean Hills residential community in Oceanside has 1632 homes/2500 residents; CERT members within this community are part of Oceanside CERT but unofficially calls itself OHCC CERT. At about 4p.m., shortly after the power shut down in Oceanside, OHCC CERT activated the Incident Command Post located in the clubhouse CERT room. We joined other CERT, RACES, and Red Cross units from around the county, on the

HAM radio emergency communications network where we could exchange information and, if needed, request assistance.

Dick Travis, OIC Emergency Communications, quickly established a schedule to operate the Command Post Radio throughout the night on 3-hour shifts starting with Bill and Joanne Harms, followed by Craig

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and Nancy Powers, then Dick, and lastly, Holly Richardson along with volunteer Gordon Cowie.

Unfortunately, the power outage caused problems for some, but it also had a positive effect as an eye-opener for many. Following, are a few highlights of what we learned/confirmed as a result of the incident.

CERT members who checked on the welfare of their neighbors found that quite a few lacked adequate emergency lighting due to inoperative equipment (flashlights, etc.) or dead batteries. Although some had candles, they are not recommended due to the potential dangers. Among the best long-term, portable lights, are fluorescent and LED lanterns powered by common dry-cell batteries and/or manual-crank generator. An alternative is a portable radio and light combination similarly powered.

Several residents didn't know that there is an emergency release (should have a red handle) to allow their garage door to be opened without electricity (lifting the door after release does require physical strength and some may need a neighbor to help).

Many of us were reminded of how important it is to maintain a $\frac{3}{4}$ or more tank of gas in our car since, without power, most gas stations cannot operate their pumps.

Additionally, we were reminded that even a relatively minor incident can cause major problems on our roadways. This is one of the reasons we suggest not evacuating your home until advised to do so by authorities (for up-to-date information, we suggest tuning to AM 600, KOGO on your battery powered/manual-crank generator radio or CH 18, KOCT when TV is operational).

As with most all wide-spread emergencies, phone service was unreliable or totally unusable due to call volume or system failure. However, long distance calls via cell phone seemed to be working most of the time. This is the primary reason for using an out-of-state person for family members to check in with during or after a disaster.

Although OHCC did not have a water problem, some areas in the county were advised to conserve and in some cases boil their water before consuming. The storage of water in our home for drinking, cooking, and other needs is critical. 1 gal per person, per day is ideal. For long-term storage of drinking water only, there are small, vacuum sealed packets that claim to last up to 5 years. For information about OHCC CERT, please go to our website (members.cox.net/ohcccert).

Bill, KI6MY

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OPERATING DAY

Sunday, November 20, 2011



Rancho Del Oro Park

JOE AND MARY MOTTINO YMCA

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Oceanside

9:00 AM to 5:00 PM

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www.palomararc.org

contact Dennis KD6TUI (760) 672-0223

Come operate on the ham bands at Rancho Del Oro park

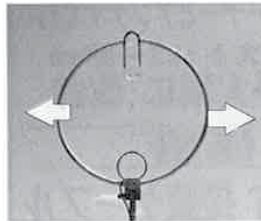
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水平偏波



簡単チューニング



紐を引いて
チューニング

Dear Editor:

I was recently in Japan and at Rocket Musen, they had some very interesting magnetic loop antennas for sale. I attached a pdf of the sales pamphlet in Japanese. I think you can discern from the pictures how to make your own antenna. The tubing is aluminum, 1/2" OD, and the different versions have different loop diameters. The tuning cap is a piece of inner insulation + center conductor from ~ RG8 coax trombone into a short length of straight Al pipe. To tune different bands an auxiliary cap using short length of coax is used in parallel with the variable cap. The variable cap is moved using some twine, to push/pull the coax in and out of the trombone section. The six turn version uses a commercially available antenna tuner to automate the tuning with out using the trombone capacitor. (both Yaesu and ICOM tuners will work)

Might be good for a field day or emergency antenna. (NVIS is easy)

Peter Shintani
 KG6YDB/VE7CQA

注 高電圧がかかりますので注意！ いておりますのでご用命ください。



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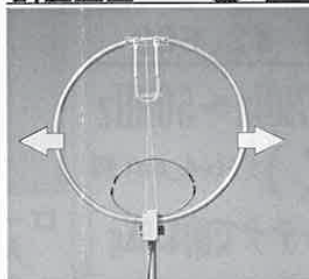
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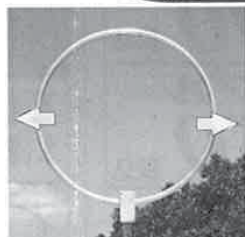
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どは電界成分ですから、その電界成分を受信せず、磁界成分のみを受信することにより、
ノイズに強くなりクリアに目的の信号を捕らえることが出来ます。

MK-52

長波~短波までの広帯域
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MK-52がお勧めです

希望小売価格 ¥19,800

特価 ¥15,000 税込

MK-5S

超小型
ループアンテナ

広帯域

70MHz~UHF対まで



直径:178mm 高さ:250mm
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注 受信専用です。送信には使用できません。R02P20

Minutes

Palomar Amateur Radio Club

Board of Directors Meeting

August 10, 2011

The meeting was called to order by President Dennis Baca KD6TUJ at 7:27pm at the home of Ron Pollack K2RP. In attendance were:

President Dennis Baca KD6TUJ
(by telephone)
Vice President Ron Pollack K2RP
Secretary Paul Williamson, KB5MU
Director #1 Don Johnson, WD6FWE
Newsletter Editor Michelle Thompson, W5NYV
(by telephone)

Routine Reports
Since two Board members were attending by telephone, routine reports were not presented.

Club Picnic

Motion by K2RP to authorize up to \$150 for food for the annual club picnic. Seconded by Don Johnson, WD6FWE. Motion passed unanimously.

Motion by K2RP to authorize picnic drawing prizes as follows: one \$100, two \$50, and four \$25. Seconded by WD6FWE. Motion passed unanimously.

Repeater Technical Report

KD6TUJ reported that the 147.075 repeater is still down. There hasn't yet been time to install a mobile radio as an auxiliary receiver for it. The problem with the 6m repeater has been isolated to the cavities. The 6m repeater has been turned off for now.

Adjournment

The meeting was adjourned at 7:37 pm.

Respectfully submitted,
Paul Williamson KB5MU
Secretary

Minutes
Palomar Amateur Radio Club
Board of Directors Meeting
September 14, 2011

The meeting was called to order by President Dennis Baca KD6TUJ. In attendance were:

President Dennis Baca KD6TUJ
Vice President Ron Pollack K2RP
Secretary Paul Williamson, KB5MU
Director #1 Don Johnson, WD6FWE
Newsletter Editor Michelle Thompson W5NYV
Membership Chairman Al Donlevy W6GNI
Repeater Technical Chairman Conrad Lara, KG6JFI

Secretary's Report

Secretary KB5MU distributed copies of the June, July, and August minutes. W6GNI to approve the June minutes. Seconded by W5NYV. Motion passed unanimously. The error in the July minutes was corrected to July 13. Motion by W6GNI to correct. Seconded by W5NYV. Motion passed unanimously. Motion passed unanimously. Seconded by Don Johnson WD6FWE. Motion passed unanimously.

Treasurer's Report

Treasurer Georgia Smith KI6LAV had distributed the Treasurer's Report to approve the Report as published. Seconded by Michelle Thompson W5NYV. Tom Martin KG6RCW had requested reimbursement of his expenses in recognition of the work he did on the Oceanside antenna project about approving expenses incurred without prior authorization. Motion to reimburse KG6RCW "reluctantly". Seconded by W6GNI. Motion passed unanimously.

Upcoming General Meeting

K2RP reported that the October meeting would feature the auction on Go Kits, presented by Ken Cohen KI6HRH. The December meeting details of the auction were discussed briefly.

Nominating Committee

KD6TUJ asked for suggestions for members to serve on the Nominating Committee.

Membership

W6GNI reported that the membership is down a few to 20. Renewals and one new member were processed. Of forty new members, ten bounced and only three renewed. Some members are late, in effect paying for 12 months every 15 or so months.

The club collects email addresses on the meeting sign-in sheet, making it to W6GNI for use in Membership canvassing. W6GNI first before being saved for activity points account.

Repeater Technical Report

Repeater Technical Chairman Conrad Lara KG6JFI reported that the 146.73 MHz repeater resets when there's a power loss, and the recent outage on August 29 was explained when we learned that the poles on the club's property on that day.

A new receiver board was made available to the club on September 14 and repaired or replaced.

continued on page 12

ca KD6TUJ at 7:27pm at the home of Ron Pollack K2RP.

KG6JEI

and August Board meeting minutes. Motion by Al Donlevy W5NYV. Motion passed unanimously. The data in the header of Conrad Lara KG6JEI to approve the July minutes as correct. Motion by Ron Pollack K2RP to approve the August minutes passed with KG6JEI abstaining.

Chairman's Report by email. Motion by Paul Williamson KB5MU and Le Thompson W5NYV. Motion passed unanimously. Expenses in purchasing a plaque for Fred Atchley AE6IC were approved by ordinance. Board members expressed some concern over the authorization, as required by the Bylaws. Motion by K2RP to approve the purchase of the plaque passed unanimously.

The annual auction, and the November meeting would be the annual holiday social. Logistical

the Nominating Committee.

259. At the last meeting only three re-entries were sent out to non-renewing members. Members habitually renew a few months in advance.

in sheet, but this sheet has not been printed. In the future they will be routed to the printer for the prize drawing at the picnic.

ported that the controller CPU on the board had failed and that's not supposed to happen. One member reported that SDG&E replaced one of the boards.

board while the failed board is debugged

Dear editor,

Perhaps you would be interested in printing this link to an article in Wired Magazine that talks about the long history of SWL and the mysterious Russian station UVB-76.

There are probably many PARC members who sparked their interest in ham radio by hearing signals like this one.

Hope you enjoy the article. Here's the link

http://www.wired.com/magazine/2011/09/ff_uv76/3/

73s
Jim Elliott
K6FUI



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continued from page 10-11

The TNC on the 146.700 MHz packet repeater is giving what appears to be garbage text on the serial port, even though the baud rate DIP switches appear to be set correctly. The repeater is off the air until this can be investigated further. The 145.05 MHz node and the Metro net node are online, but they were offline during the power outage since have not yet installed DC-to-DC power converters for them.

A work party tried bypassing the cavities on the 6m repeater. That didn't work. Testing points to a problem with the cavities, which we hope can be fixed by retuning them.

The backup batteries appear to be in good condition. We've obtained documentation (on paper) for these cells, and we have a refraction-based acid measurement tool for checking their condition.

Motion by K2RP to authorized KG6JEI to spend up to \$400 to purchase three more Mean Well SD-350C-12 DC-to-DC converters to complete the conversion of the site to 48VDC battery backup operation. Seconded by WD6FWE. Motion passed unanimously.

Power Outage Net

K2RP requested that the next Scope contain a mention of the great job W5NYV did running the net on the 146.730 MHz repeater during the recent extended power outage.

Paypal

K2RP asked KB5MU yet again about the status of the club accepting membership fees and other monies via online transfer using Paypal. KB5MU stated that there was nothing preventing it from being done, he just hadn't set it up yet.

Repeater Request

KG6JEI requested primary but non-exclusive use of the 146.730 MHz repeater from 6am to 6pm on October 29 for an event. Motion by KB5MU to approve the request. Seconded by W5NYV. Motion passed unanimously.

Next Board Meeting Location

It was agreed that the next Board meeting would be held at the home of K2RP at 7pm on October 12, 2011.

Adjournment

The meeting was adjourned at 9:30 pm.

Respectfully submitted,
Paul Williamson KB5MU
Secretary

The Scope needs your articles! Send them in and help defeat white space.

HAM RADIO

H
R
O

OUTLET

Jose XE2SJB
Jerry N5MCJ
Joe N6SIX

KENWOOD
rf CONCEPTS
DIAMOND
US TOWERS
KANTRONICS
YAESU, MFJ, ICOM
BENCHER, Inc.
HUSTLER
COMET
AMERITRON

Astron,
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Pan-Tilt-Zoom Video Camera for the Repeater Site

by Paul Williamson

Recently John WB6IQS obtained the donation to the club of a commercial quality outdoor color TV camera. It's in a sealed weather-proof housing, with a heater to drive moisture out and keep the electronics warm in the winter. Inside the housing, the camera's mount is capable of panning and tilting, and the camera itself has a wide zoom range. The camera also has good infrared sensitivity, so it should be able to capture some sort of image even at night.

The idea is to mount the camera on the tower at the club's repeater site on Palomar Mountain. The live video output would be fed into the club's amateur television (ATV) repeater, and the remote control functions to pan, tilt, and zoom ("PTZ") the camera would be handled by DTMF codes sent over the air (frequency TBD) by any user. We'll be able to check out the site without making a trip up the mountain. The camera should be able to zoom in on individual antennas (line of sight permitting) and perhaps even save some tower climbing. If we're able to mount the camera high enough, it might even be able to see around the county. We hope this might raise some additional interest in ATV operation.

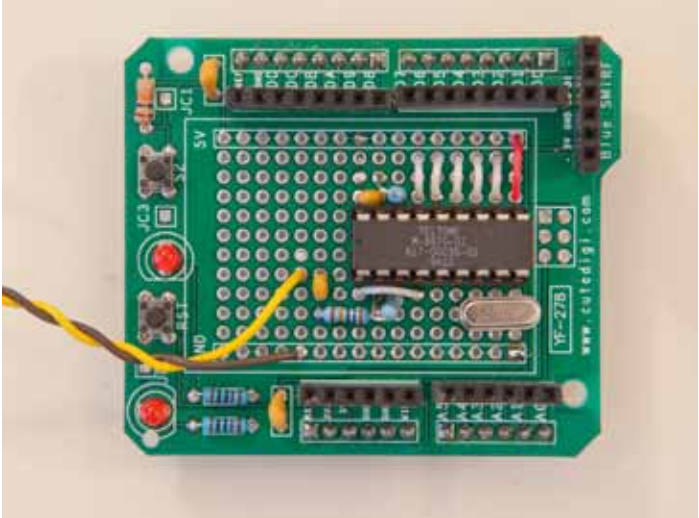
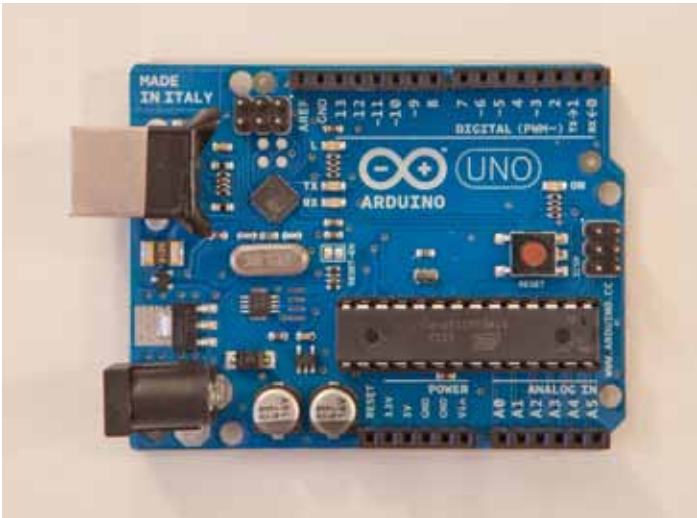
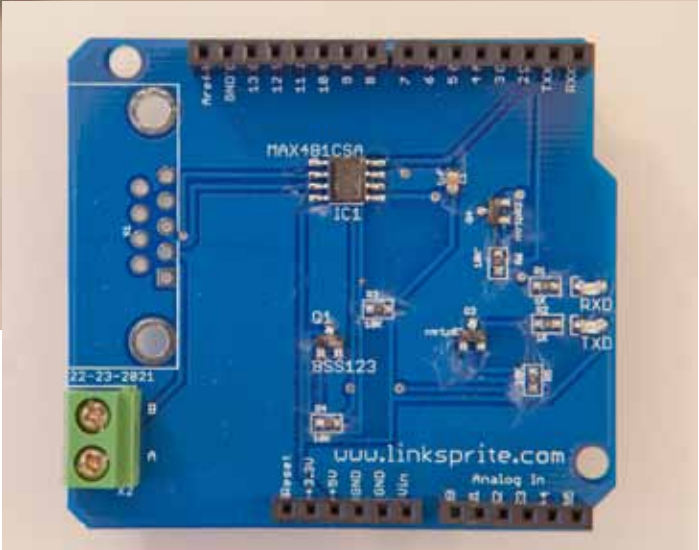
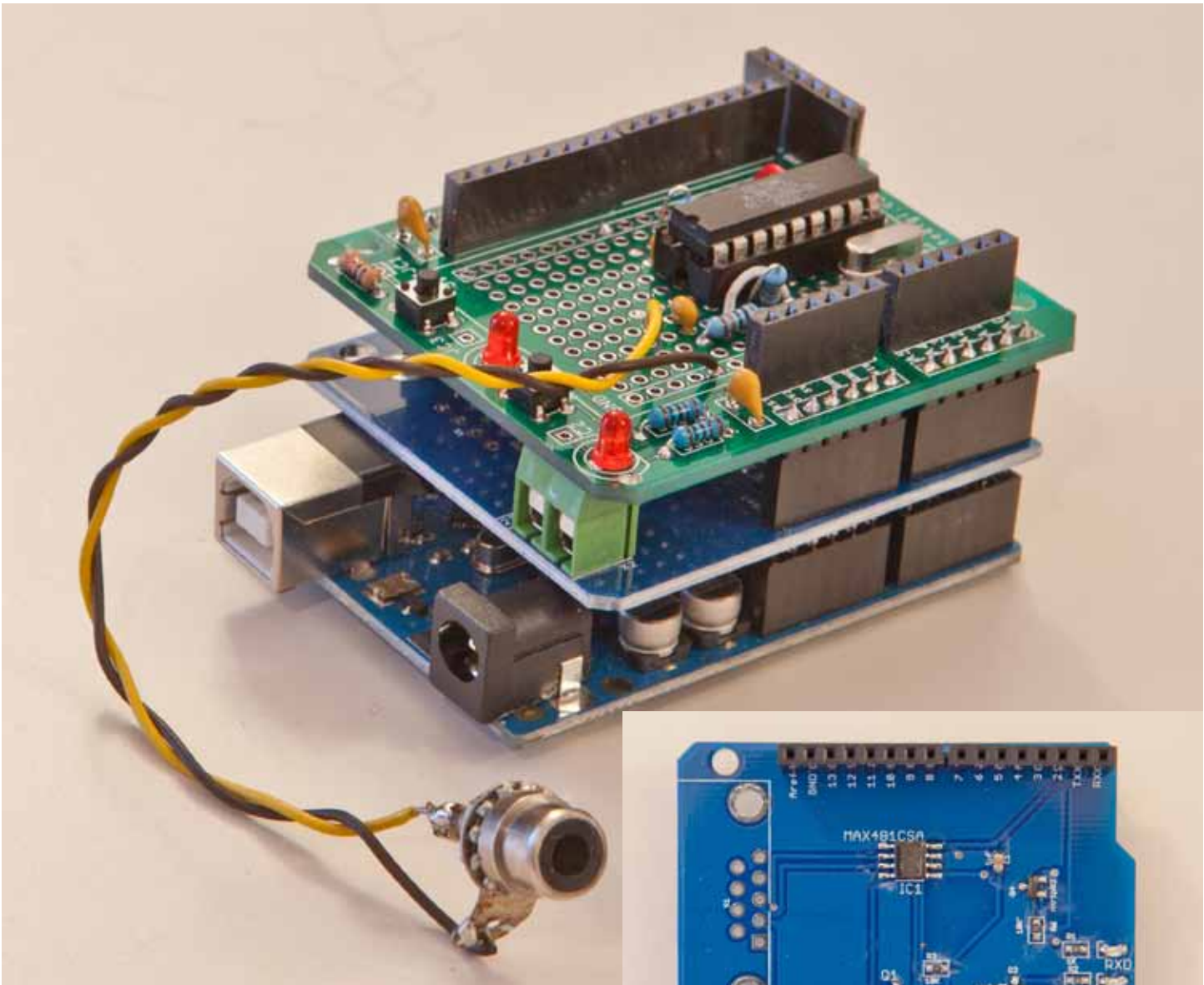
In order to get the camera installed, some work still has to be done. John has volunteered to fabricate a suitable mounting bracket for the camera. Art KC6UQH knows how to connect the video into a remotely controlled auxiliary port on the ATV repeater. Don WD6FWE has volunteered to do the tower climbing to install the camera. I (Paul KB5MU) am working on a DTMF receiver and controller board to enable remote control of pan, tilt, and zoom.

The community of people using small microcontrollers and connecting them to the physical world in innovative ways is a very rich and active one right now. A wide variety of small controller boards are readily available and inexpensive. One family of controller boards that's quite popular is the Arduino, based on an inexpensive but powerful Atmel microcontroller chip. Most Arduino boards support a standard set of I/O connectors that allow additional boards called "shields" to be stacked up with the main board. All sorts of shields are available for common interfacing tasks. I've chosen an Arduino UNO controller board. (see photo)

It needs two interfaces to the physical world: an audio interface from a radio receiver that can decode DTMF tones, and an electrical interface to the RS-485 standard interface provided by commercial PTZ cameras. Since RS-485 is a somewhat common interface, I was able to obtain an off-the-shelf commercial "shield" that takes care of that interface. (see photo). I couldn't find a DTMF decoder shield, but there's a standard DTMF decoder chip that requires only a few extra components, the MT8870D-1. I used a commercial prototyping "shield" that provides plenty of room to breadboard a simple circuit, and built up the circuit straight out of the MT8870D-1 data sheet. (see photo). All three board stack up together to make a nice compact package that has all the required interfaces to control the PTZ camera by DTMF.

That leaves the controller software to be written. I've written and tested demonstration software and proved that I can reliably decode DTMF tones, and started in on the task of defining and documenting what codes will do what functions. Once this is completed and I've had a chance to test with the camera itself, the software to implement the full set of remote control functions should practically write itself. Heh. The camera responds to a standardized set of commands called Pelco D. These commands are reasonably well documented, so there's some hope that talking to the camera won't present any major difficulties.

I can't tell yet how long this project will take. Even if the controller and the mounting bracket and all the other mechanical details come together quickly, we will be at the mercy of winter weather on Palomar Mountain to schedule an installation. It might be a while.



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Featured Program:

At 7:30pm on the 2nd of November 2011, Palomar Amateur Radio Club will have a program on Go Kits presented by Ken Cohen KI6HRH.

Arrive at 7:00pm to socialize. We look forward to seeing you at the Carlsbad Safety Center, 2560 Orion Way, Carlsbad, CA.