

Cathay December 2014

www.cathayradio.org

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Mission: The Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses. We support local community requests for HAM emergency communications. Several of us are trained in CPR/ First Aid and are involved with community disaster preparedness.

Monday Night Net Time: 9 PM Local Time/PST, Frequencies: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8. The repeaters are linked only during the CARC Monday night net.

Update: Link to repeater 442.70 is currently not active until further notice.

The CARC Monday night net is the best way to find out the latest club news.

All check-ins are welcome.

Message from the President: George Chong, W6BUR

Hello CARC Members and Friends;

I wish to thank those 9 CARC members that were able to celebrate Veteran's day at the Buffet Fortuna Restaurant this last November 11, 2014.

Gilbert – KJ6HKD, Gary -, KN6LV Dennis - AH6KD,
Rodney –KJ6DZI, Cy - WB6TCF, David - WZ6X,
John - W6QNT, Hetty - WB6SHU, George – W6BUR

We had a wonderful time eating the terrific food and many of us stayed from 11:30 am until 3pm trying to getting caught up with what we all being doing. Plus I got a fancy new flashlight to show off at the luncheon.



Left to right: Dennis – AH6KD, George – W6BUR, Gil – KJ6HKD



Left to right: Dennis – AH6KD and George – W6BUR



Left to Right Gary - KN6LV, John - W6QNT, and David - WZ6X

Gary – KN6LV, show us his wonderful and latest robotic type creations, one of them that would automatically relight a candle, another would automatically open up at your touch. All of us at the luncheon were amazed at Gary's inventions and had lots of fun trying them out.

Normally, I would have expected more pictures from our luncheon gathering but the photographer (Rodney – KJ6DZI) was too busy eating like he has just come in from a famine! Not that I blame him, the Asian buffet food was just delicious and plentiful.

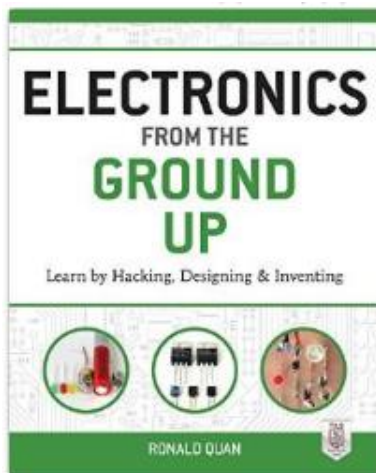
In case you are wondering, Gil – KJ6HKD was heading off to his Coast Guard meeting just after our luncheon and needed to be in his uniform and not trying to get a discount! I believe Gil - KJ6HKD is teaching CORE in Chinese, a first !

David - WZ6X shared with us pictures of mobile setup went on vacation using a rental car. As many of you know David lives in American Canyon and described what it was like to be at the epicenter of the last Northern California Earthquake that we recently experienced a few months ago.

It was great to see John – W6QNT and Cy - WB6TCF to be able to take a break from their separate family duties and join us for lunch.

I know I am repeating myself below from last month's newsletter but I consider it important information for our club members:

New Book - Electronics from the Ground Up Book



I am very pleased to announce that CARC member, Ronald Quan – KI6AZB has published a 2nd electronics book: "***Electronics from the Ground Up: Learn by Hacking, Designing, and Inventing***".

You can find Ron's new book on Amazon with the following URL;

http://www.amazon.com/Electronics-Ground-Up-Designing-Inventing/dp/0071837280/ref=sr_1_2/179-3842971-4625314?s=books&ie=UTF8&qid=1413613218&sr=1-2

Ron wrote his new book for beginners that wanted to learn the fundamentals of electronics.

Annual Christmas Party: 6pm-10pm Saturday December 13, 2014

Please make sure you read further down in this newsletter for more information about the upcoming Christmas Party. The Christmas Party will be hosted by Edison Fong - *WB6IQN* at his home: 1163 Quince Ave. Sunnyvale, CA. Please email Ed: edison_fong@hotmail.com if you are able to attend the Christmas Party.

Featured Tech Article Intro

This month's article entitled: "Human Powered Thermoelectric Flashlight" was selected because it appeals to the innovation and inventive nature of our HAMs. It all started as a young girl's high school project with encouragement from her HAM father. Her invention has gotten worldwide attention for her ingenuity and simplicity of using off the shelf items cobbled together into something that nobody thought of doing before.

CARC Final Wrap-up News

Chat sub s'em to all you CARC members!

- George W6BUR.

Public Service Announcements

HAM CRAM / HAM Licensing

For upcoming HAM Licensing locations please refer to:

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

Auxiliary Communications Service (ACS)

The Auxiliary Communications Service (ACS) was organized by the San Francisco Office of Emergency Services (OES) following the 1989 Loma Prieta Earthquake to support the communications needs of the City and County of San Francisco when responding to emergencies and special events.

The Auxiliary Communications Service holds General Meetings on the third Tuesday of each month at the San Francisco Emergency Operations Center, 1011 Turk Street (between Gough Street and Laguna Street), from 1900 hours to 2100 hours local time. All interested persons are welcome to attend.

The ACS Net begins at 1930 hours (7:30 p.m.) local time each Thursday evening, on the WA6GG repeater at 442.050 MHz, positive offset, tone 127.3 Hz. The purpose of this net is to practice Net Control skills, practice checking in with deployment status in a formal net, and to share information regarding upcoming ACS events. Guests are welcome to check in. ACS Members should perform Net Control duty on a regular basis. On the second Thursday of each month, the net will be conducted on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz, simplex.

For more information, please attend an ACS meeting or check in on a net, or call 415-558-2717.

Upcoming meetings: Tuesday 7pm, Dec 16, 2014 (Usually a XMAS party)
Tuesday 7pm, Jan 15, 2015
Tuesday 7pm, Feb 17, 2015

Gilbert Gin (KJ6HKD)

Free Disaster Preparedness Classes In Oakland:

<http://www.oaklandnet.com/fire/core/index2.html>

CORE is a free training program for individuals, neighborhood groups and community-based organizations in Oakland. The underlying premise is that a major disaster will overwhelm first responders, leaving many citizens on their own for the first 72 hours or longer after the emergency.

If you have questions about the recertification process, you may contact the CORE Coordinator at 510-238-6351 or core@oaklandnet.com.

Free Disaster Preparedness Classes In San Francisco – NERT Taught by San Francisco Fire Department

RSVP to sffdnert@sfgov.org or call 415-970-2024 to register. Visit www.sfgov.org/sffdnert to learn more about the training, other locations, and register on line.

December

8th: NERT Holiday Party, 6:00p-8:00p, Sports Basement,
[Register](#)

* SFFD DOT is the Division of Training @ [19th Street/Folsom](#). (enter through yard on 19th and park along back wall) Division of Training classroom is in the 1-story building directly next to the Fire Station on the corner.

San Francisco Police Department: Auxiliary Law Enforcement Response Team (ALERT)

The Auxiliary Law Enforcement Response Team (ALERT) is a citizen disaster preparedness program designed. The ALERT program is for volunteers 16 years of age or older, who live, work, or attend high school in San Francisco.

Graduates of the San Francisco Police Activities League (P.A.L) Law Enforcement Cadet Academy are also eligible to join.

ALERT volunteers will first complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into an 8 hour Police Department course specifically designed for ALERT team members.

ALERT members will work closely with full-time and/or Reserve Police Officers in the event they are deployed after a disaster. The Basic ALERT volunteer will have no law enforcement powers other than those available to all citizens.

SFPD ALERT Training

The next ALERT training classes have been scheduled for **Saturday, February 28th, 2015**. The classes will be held at the San Francisco Police Academy, in the parking lot bungalow, from 8am-5pm (one hour lunch break).

IMPORTANT- All participants must complete the background interview process in order to be eligible to attend the ALERT training class.

Eligible ALERT participants may register for a training class by contacting the ALERT Program Coordinator, Mark Hernandez, at sfpdalert@sfgov.org, or by telephone at 415-401-4615.

SFPD ALERT Training Drill

All active/trained ALERT members are asked to join us for our next training drill, scheduled for **Saturday, January 31st, 2015**. The drill will be held in the Police Academy (350 Amber Drive) parking lot from 9am-1pm. Details will be emailed to active ALERT members, prior to the date of the exercise. Participation is not required, but strongly encouraged.

PUBLIC INFORMATIONAL MEETING

An informational meeting will be held at the San Francisco Police Academy, located at 350 Amber Drive, Parking lot bungalows, on Thursday January 15, 2015, at 7pm. All members of the public are welcome. Interested individuals will have their questions about the program answered at the meeting.

For more information on the San Francisco Police Department ALERT Program, email us at sfpdalert@sfgov.org, or call Sergeant Mark Hernandez (SFPD, Ret.), SFPD ALERT Program Coordinator, at (415) 401-4615.

For additional information on the web please refer to:

<http://sf-police.org/index.aspx?page=4019>

Annual Christmas Party

Host: Edison Fong – WB6IQN

Christmas Party – Saturday, December 13 6-10 PM

Format: Potluck – bring your favorite dish.

Door Prize - Beofeng UV5RA Dual band hand held

Where: 1163 Quince Ave. Sunnyvale, CA -

Best directions given on www.googlemaps.com If you get lost, call: 408-245-8210

We will once again host the Christmas Party this year. Bring your friends, neighbors, cousins, you name it. Last year we had over 80 people with kids, friends, neighbors, all kinds of ham friends. There will be all kinds of dishes from traditional Christmas, to Chinese, Korean, Italian, barbeque, you name it. Deserts are always plentiful.

Who knows who would be there this year? Last year we had the Mayor of Sunnyvale and several famous people from the electronics industry. This is also a great party to update your professional networking if you are looking for a job.

All licensed hams will receive one ticket (no charge) for the door prize- no charge. That will make you eligible for the door prizes.

The grand prize will be the Baofeng UV5RA. This is the latest version of the Baofeng UV5 series. This is a super radio with 128 memory channels, 1800 mah battery; drop in charger, built-in LED flashlight and even a built-in FM broadcast radio. I carry mine with me all the time.

Kids are welcome and bring your friends.

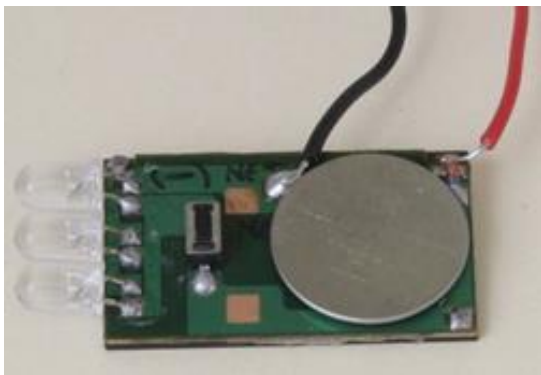
To show our appreciation for your support of the Cathay Amateur Radio Club (CARC) for the last year, all attendees will receive a gift of a unique 3 LED solar rechargeable flashlight. No batteries to ever buy.

This little light incorporates 9 silicon solar cells (generates about 6 volts in the sun), a rechargeable LiOn battery, three bright white LED's, a momentary switch, and steering diode for charging. When the battery runs down, just place it the sun for a day and it is ready to go.

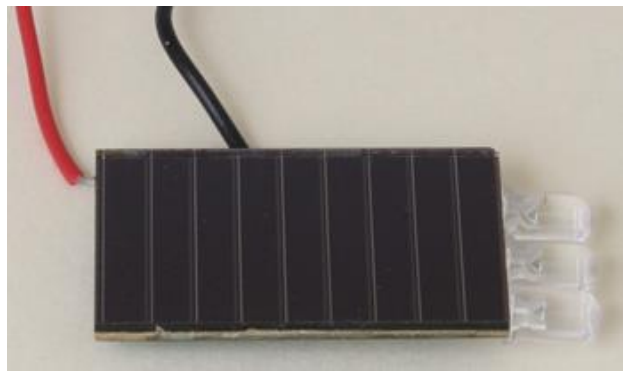
See the pictures below with the flashlight taken apart.



3 LED solar rechargeable flashlight disassembled.



Close up of the circuit board of flashlight



Flip side of circuit board with solar panel attached



BaoFeng UV-5R

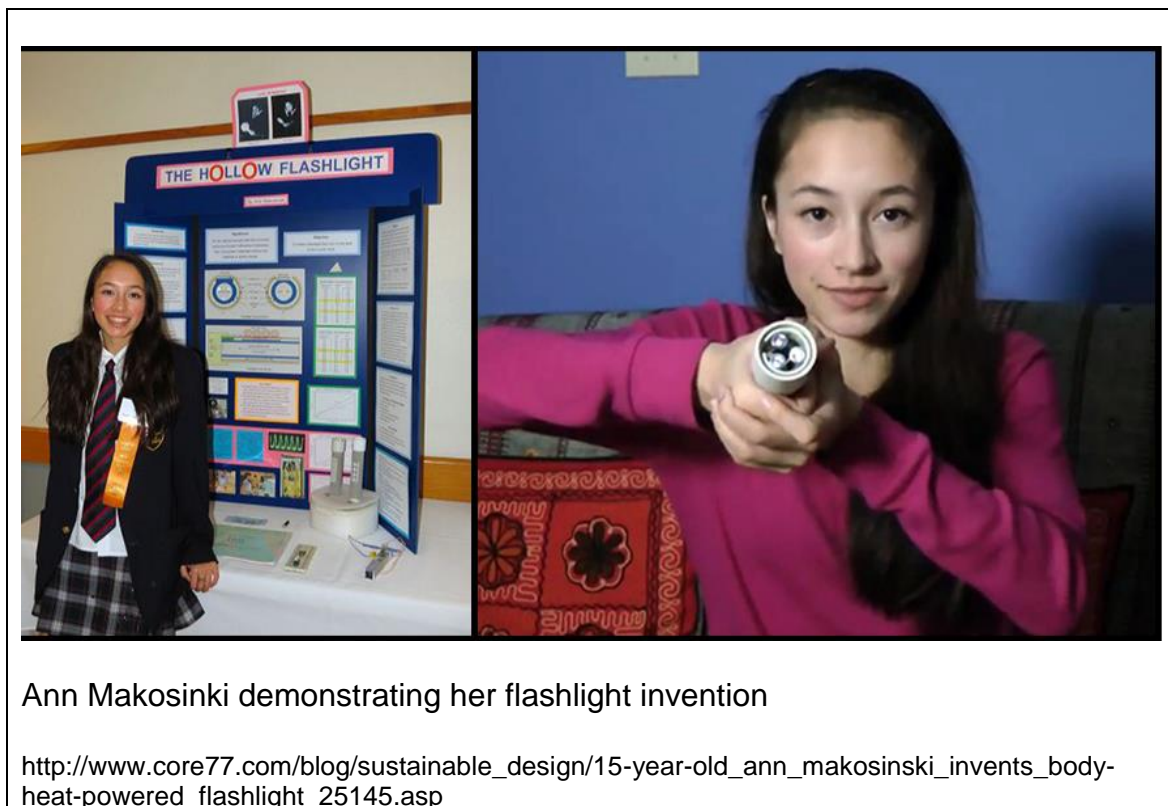
Featured Tech Article:

Human Powered Thermoelectric Flashlight

By Rodney Yee
Dec 2, 2014

Ham operators Arthur Makosinski (Canadian - VE7AIH) and his wife are very proud of the accomplishments of their 16 year old daughter, Ann Makosinski.

Canadian Ann Makosinski at the young age of 15 for a school science project developed a 24 lumen output flashlight powered solely by the heat from a human hand. That right, no batteries, no solar cells, no energy storage devices of any kind.



Ann's flashlight uses Peltier tiles, which produce electricity when one side of the tile is heated and the other is cooled. The flashlight has a heat sink, an aluminum hollow tube open on both ends to allow ambient air to cool the inside of the Peltier tiles.

The outer tube is covered in an insulating material but leaving the Peltier tiles exposed so they can be in direct contact of a person's hand. The heat provided by merely

holding the flashlight would warm up the outside of the Peltier tiles, creating a temperature difference between the outside and the inside of the flashlight tube. The heat difference would create sufficient electricity to operate the flashlight.



Partially assembled flashlight



Picture of the assemble flashlight

Ann got the idea for the flashlight when she read an article that stated that the human body puts out enough energy as a 100 watt bulb and learned from her overseas pen pal that rural parts of the Philippines suffered from a shortage of electricity to light up their homes. Her pen pal was having difficulty keeping up with her school studies because she had no electric powered lights to allow her to study at night.

With encouragement from Ann's ninth grade teacher at St. Michaels University School, (Victoria, BC, Canada) she submitted her flashlight design to the 2013 Google Science Fair in Mountain View, California. Much to her surprise became the winner of the 15-16 age categories and received a \$25,000 scholarship, a trophy made of Legos along with a trip to visit the Legos Group headquarters in Denmark.



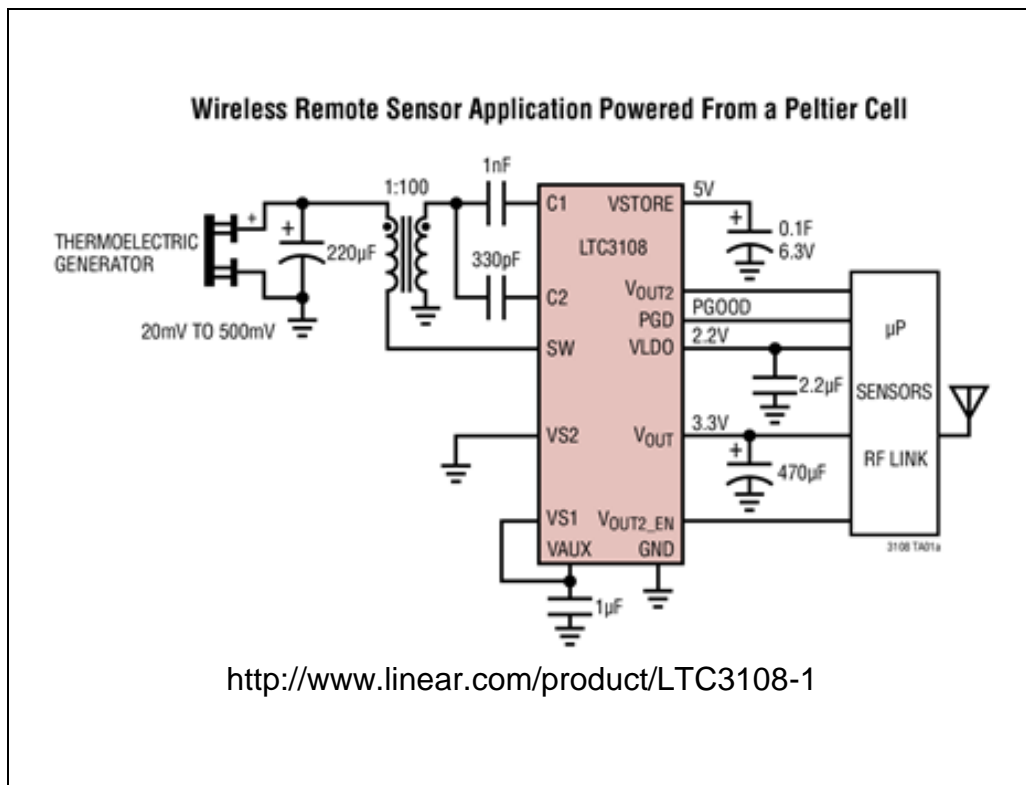
Ann Makosinki holding her Google Science Fair Lego Trophy

Since her win, Ann has appeared on the Jimmy Fallon's "The Tonight Show" and given three TEDx talks. She also received a standing ovation during her high school morning assembly.

Up to now nobody had thought of using Peltier tiles for a flashlight and able to come up with a novel way of putting the existing technology to use. That is what makes Ann's flashlight so innovative. Ann Makosinski's flashlight is unique in that it uses thermoelectric technology to run a portable hand held flashlight that has with no moving parts.

Along with the Peltier tiles as a thermoelectric generator, the electrical circuitry consists of only 4 electrical components:

- The power converter integrated circuit, LTC3108
- Hand wound step-up transformer with ratio of 5:125
- a 47 μ F capacitor
- LED



About the Thermoelectric Effect and Peltier Tiles:

The generation of electricity from a heat source is known as the: "Thermoelectricity and/or The Seebeck Effect". In 1821 (one hundred nine three years ago) the German Physicist, Thomas J. Seebeck discovered that a circuit made from two dissimilar metals with junctions held at different temperatures will produce electricity in millivolts amounts.

Note that the voltage V in millivolts (mV) is equal to the voltage V in volts (V) times 1000.

In 1936 while continuing research on the Seebeck Effect the French Physicist, Jean C.A. Peltier discovered that the Seebeck effect can be reversed, known as the Peltier effect.

The Peltier effect occurs when a direct current is sent through a circuit with two dissimilar metals; heating will take place at one junction and cooling at the other, a kind of heat pump.

Devices known as Peltier Tiles can either generate electricity from the thermoelectric effect or function as a heat pump when electricity is applied to them.

For additional information see: Woodstove Green Power Generator - Thermoelectric Module - How do I get off the grid? <http://www.youtube.com/watch?v=8PWGXyb67XI>

A common household consumer product that uses the thermoelectric effect of Peltier tile is the small portable light weight beverage coolers you find at hardware or department stores. These cooler have no moving parts unlike the traditional refrigeration units that require a motor and compressor.

Electrically powered Peltier coolers are very useful for small units but are neither economical nor efficient for large units as compared to traditional compressor driven refrigeration units.

The current flashlight design works off 20 millivolts, putting out 24 lumens of light for 20 minutes and costs a merely \$26 in parts.

The potential of this completely ecologically sustainable and reusable invention is that it could bring electricity and light to 1.2 billion people in need worldwide.

Presently Ann is on improving the efficiency and brightness of her flashlight invention.