



*North Fulton
Amateur Radio League
NFARL eNEWS*

May 2017

*Celebrating 40 Years
Service | Friendship | Education | Fun*

www.nfarl.org



May Club Meeting Features Famous Record Holder!

Don't miss NFARL's monthly meeting on Tuesday May 16, 2017. **Alan Adamson**, W7QO, will present "Balloons carrying Ham radio – Around the world in 250 days".

Alan currently holds the record for:

- ◆ The longest duration balloon flight (over 250 days and counting!)
- ◆ The longest distance balloon flight (over 600,000 km)
- ◆ The most circumnavigations –with the lightest trackable payload
- ◆ The most consecutive days of received reports by a non-satellite system

Alan will present his unique experience in this, yet another, exciting way to experience the magic of Ham Radio!

Alan has more than 30 years of Design, Development, Management, and Delivery of High-Tech communication and security products. He has designed a variety of microcontroller, ARM based solutions including a frequency agile, fully programmable, RF radio/GPS tracking platform, a 3 axis camera stabilization system, a multi-axis, multi-motor, flight controller, and various small projects targeted at the internet of things environment.

Alan manages an RF consulting business, with focus on rooftop management of RF spectrum, communications technologies, public exposure and RF safety training issues.

Alan has held engineering and product management positions with BellSouth, BellSouth.com, Hayes Communications, and Symantec.

He is a 30+ year Holder of an Extra Class Amateur Radio license.

Alan chose a different approach by developing his own hardware and software technologies. Realizing a lack of flexibility surrounding the AVR, and specifically the Arduino platform, Alan switched to the ARM platform.

Working for a large West Coast company he designed and developed the hardware and firmware for a balloon tracking system based upon a satellite modem.

Be sure to attend this month's NFARL meeting to learn more and meet Alan!

HAPPY BIRTHDAY NFARL !

This year marks the fortieth year of the existence of the North Fulton Amateur Radio League. How do you celebrate a club's birthday? My answer to that is, Let's Eat Cake!

One of our celebrations for NFARL's year long 40th Anniversary will be at the [88th Atlanta Hamfestival](#) which will be held the first weekend in June. Mark it down for Saturday, June 3rd from 8:00 AM to 3:00 PM.

Our regular snack at hamfests is coffee and donut holes. This year there will be a big, beautiful birthday cake. We will still have coffee for the die-hards, and will add cold water to the menu. There will be plates and napkins for those of hygienic disposition. Our special anniversary banner will be on display, and club members will be proud of what it signifies.

Terry Joyner, W4YBV, and Danny Turner, WA4BRO did a great thing in 1977, and we shouldn't let this occasion pass without giving recognition to our founders. Thanks to the founders, Terry, Danny and others, for the energy and foresight in establishing a much needed amateur radio presence in the North Fulton area.

Sometime later, Fred Moore, N4CLA came along with his repeater, and the club's repeater carried his call for decades. The call-sign N4CLA became synonymous with the club for so long that people thought NFARL was Fred's personal club. Along with the founders, Fred's imprint can be seen in the club's history, too.

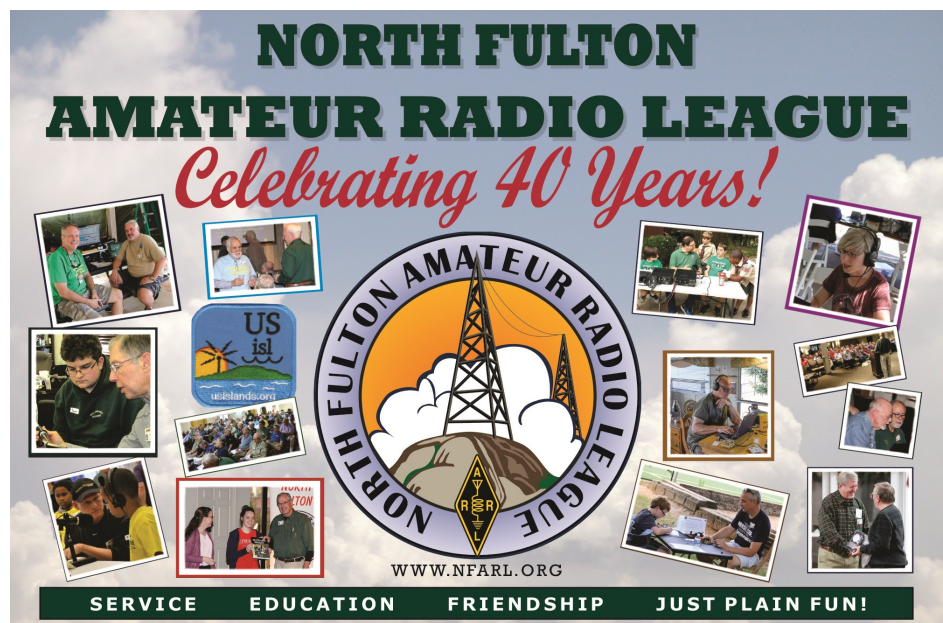
In addition to celebrating our 40th Anniversary Year at our Atlanta HamFest booth, we will also be providing quick sign up for new club memberships and easy renewal opportunities.

Also look for HamJam raffle tickets to be on sale at the Atlanta Hamfest. It's never too soon to promote our premier event of the year!

This is the time to wear your NFARL gear. We look forward to seeing a forest of green around the NFARL booth.

Please join us as we celebrate this special NFARL anniversary with all of our ham radio friends.

Bob Beeman k4bb



NFARL Upcoming Events and Dates

- **Every Sunday — NFARES net** - 8:30 PM - 147.06 MHz (+) PL 100
All licensed Hams are welcome, you do not need to be an ARES member!
- **Every Monday — Tech Talk** - 8:30 PM - 145.47 MHz (-) PL 100
NFARL's flagship technical based "non check-in" net. The net is always better when using the web based chat room but Internet is not required to join the net. Check NFARL Nets [website](#) for "how to".
- **Every Wednesday — Hungry Hams Lunch Bunch** - 11:15 AM
Slope's BBQ, 34 East Crossville Road, Roswell.
- **Every Thursday — YL Net** — 8:00 PM - 145.47 MHz (-) PL 100
Check NFARL Nets [website](#) for "how to."
OM's (guys) are welcome to listen in to this YL net.
Great opportunity to get your YL's on the radio!
- **Every Saturday — Royal Order of the Olde Geezers (ROOG) Lodge No. 1**
9:00 AM - Reveille Café, 2960 Shallowford Road, Marietta (at Sandy Plains and Shallowford). Everyone is welcome: You don't have to be "old" or a "geezer" to join this breakfast get-together.
- **Second Tuesday — NFARES Meeting** - 7:00 PM - 9:00 PM
Fellowship Bible Church, 480 W. Crossville Road, Roswell.
Check [NFARES.net](#) for more information.
- **Third Tuesday — NFARL Club Meeting** - **May 16, 2017**, 7:30 PM.
Pre-meeting activities begin at 7:00PM.
Location: [Alpharetta Adult Activity Center at North Park](#)
13450 Cogburn Road, Alpharetta, GA 30004
Program: Alan Adamson, W7QO, presents
" Balloons Carrying Ham Radio - Around the World in 250 days"
- **Fourth Tuesday — NFARL Executive Team Meeting**
May 23, 2017, 7:00 PM
Location: [Arbor Terrace at Crabapple](#)
12200 Crabapple Road, Alpharetta, GA 30004
Meetings are open to all NFARL members. Space is available on a first arrival basis. Please contact the [President](#) to ensure available space.

President's Letter / Mark Schumann, KK4FOF

The Georgia QSO party is in the books and NFARL had 30 members participate. As part of NFARL's 40th anniversary activities and our annual NFARL GQP Challenge, we had 5 special event call signs active during the event. John Tramontanis, N4TOL is crunching the numbers and will present awards at an upcoming meeting. You have until May 15th to submit your log in Cabrillo format to GQP Official Scorers and be sure to designate NFARL as your affiliated club. Also download and forward your completed (see link on NFARL home page) NFARL score spreadsheet to John ASAP. No score is too low as there are multiple categories and award classes.

Per NFARL's Bylaws, the NFARL Executive Committee approved the 2017 budget during our April meeting. I can report that NFARL's year over year finances are positive and the club is in a healthy position for 2017. I look forward to presenting an overview at the May club meeting. As you know, NFARL's primary source of "revenue" is annual member dues so please renew when you receive your renewal email notification. You can also check your membership status on the NFARL website by clicking Members, Membership List and typing your call sign on the displayed membership list.

The Dayton Hamvention is just 6 days away and I know many NFARL members have made plans to attend the largest ham event in the world. This year's event will be at Greene County Fairgrounds and Expo Center. While I won't be able to attend, I look forward to an update at a future club meeting from some of our members that make the annual trek to Dayton.

Closer to home, the Atlanta Hamfest is June 3rd at Jim Miller Park in Marietta, GA. As a part of our 40th Anniversary celebrations, NFARL will be serving cake and refreshments so plan on attending and participating in the celebrations.

ARRL Field Day 2017 is on June 24th and 25th. NFARL will be holding Field Day at our usual location which has been re-named Groveway Community Park (formerly Waller Park Extension). Ian Kahn, KM4IK, is our NFARL 2017 Field Day chairman. We will again run class 3A which will include CW, Phone and a Swing Station. In addition, we will have our traditional Get on The Air (GOTA) station, 6M, VHF, UHF and satellite stations. Field Day is an excellent opportunity to practice, hone and demonstrate your amateur radio skills. Band captains are looking for operators so I encourage you to visit the NFARL website and sign-up for an operating slot while they are available. We also need volunteers for setup on Friday and tear down on Sunday. I look forward to seeing everyone at the May meeting on May 16th and enjoying our guest speaker Alan Adamson, W7QO and his presentation "Balloons carrying ham radio – Around the world in 250 days".



**Mark - KK4FOF
NFARL President**

73

Mark Schumann KK4FOF

NFARL President

One Day US Island Get Away / Terry Joyner, W4YBV

Please come out this Saturday May 13 and join KK4PCR Grant Register, K2NED Ed Chwat, N4SEC Jim Paine and W4YBV Terry Joyner on INDIAN Island GA025-L at Stone Mountain for the US ISLAND One Day Get-A-Way. This will be our 12th island to activate this year in our club contest. If you can't join us please work us from your home. We will be on the air beginning at 8:00 a.m.

We'll be on 20 meters, 14.260 and up, or 40 meters, 7.260 and up all day.

I have one seat in my truck still open to any one who needs a ride. We have the cold drinks but you will need to pack a lunch. Contact Me at 770-993-8502 or Cell 770-833-4413 we will leave out around 7 a.m.

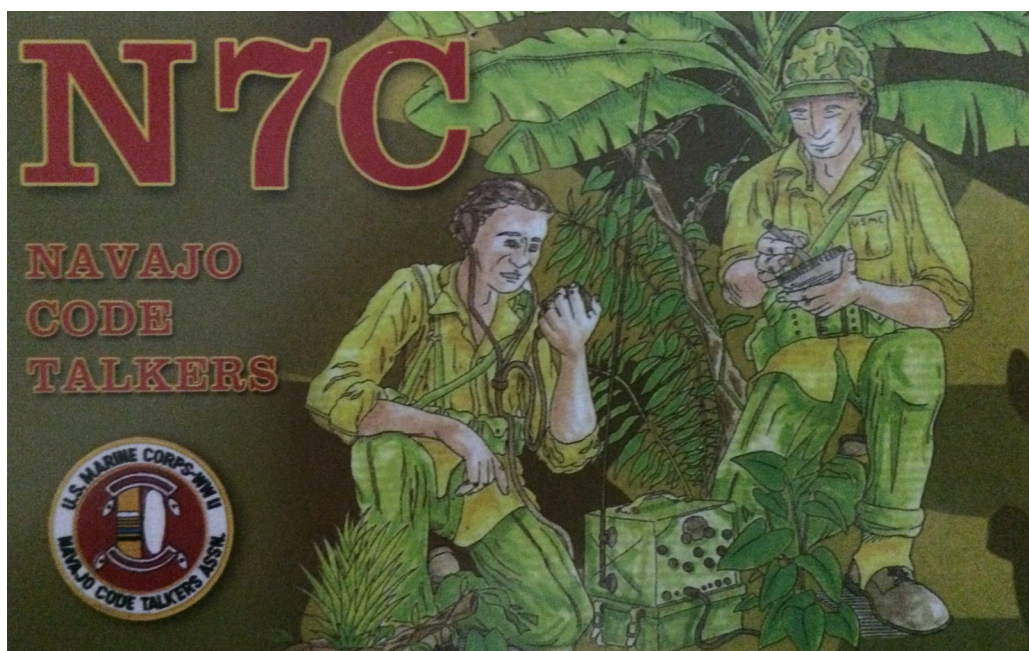


Special Event Stations / Terry Joyner, W4YBV

This Special Event Station is a great history lesson from WW11. This event is celebrating Indian Marine fighters skilled in the native lore of their ancestors.

These Navajos serving with the 3rd US Marine Corps division signal unit in WWII were a match for the Japanese in any fight.

This special event station is on the air every year in August on 14.265 MHz 7.265 MHz and 18.133 MHz from Window Rock, Lukachukai, Navajo Nation Arizona. The QSL manager is N7HG.



Field Day Update / Ian Kahn, KM4IK

Field Day plans continue full-speed ahead! We're gearing up for another successful event. Come out and help us show the world what ham radio is all about and why we're still relevant in today's digital age. And, let's see if we can get some new people interested in our amazing hobby!

We've said it before, we'll say it again. The City of Roswell changed the name of the park we're using. The park we formerly knew as Waller Park Extension is now Groveland Community Park. Same facility, same location. Just a new name. So, when you see Groveland Community Park, think Waller Park Extension. Let anyone on the Field Day team know if you have any questions or concerns.

Once again, we will use K4JJ as our main site call sign. Our GOTA station call sign will be NF4GA. Our site information is posted on the ARRL Field Day Locator site at <http://www.arrl.org/field-day-locator>. If you hear of anyone looking for someplace to spend Field Day, please let them know about our event and send them to the Field Day locator with K4JJ as the call sign.

For logging this year, we will once again use N1MMLogger+ logging software. We will do a brief demo of this software at the June meeting, when we go over our Field Day plans and prepare the club for the weekend. As I said in other posts, please download the software and play with it some to familiarize yourselves with it. It is free software, and, for our purposes, is pretty easy to learn once it is set up. If you have any questions about setting it up or using it, please let me know. I'm happy to help or answer any questions I can. You can download it at <https://n1mm.hamdocs.com/tiki-index.php>.

Our station captains are starting to solicit operators to fill slots and keep the stations on the air. When our captains reach out and ask for people to fill operating slots, please respond. Please fill in the slots and operate. If you can operate for an hour, operate for an hour. If you can operate for three hours, operate for three hours. However much time you can operate, please operate. While we are not focusing on our final score this year, we still want to post the best score we can. When more people operate, we have more fun and have a more successful event.

Finally, we have our annual picnic Saturday evening of Field Day weekend. Lynn, N4MSK, will be sending out sign-up emails starting right after Memorial Day. Please be on the lookout for these emails, and respond to her as soon as possible. Your participation is part of what makes our annual picnic the huge success it has been for so many years.

Until next time!

73 de,

Ian, KM4IK



Make your plans NOW to attend the 88th annual Atlanta HamFest on June 3rd, 2017. We are excited to announce our own Mini-Maker YouthFest will happen at this year's HamFest! This 88th annual HamFest will also include popular radio manufacturers and vendors from across the southeast. In addition to the Mini-Maker YouthFest events, the Atlanta HamFest will include new forums, ways to challenge your ham skills, and of course, VE Testing. It's a HamFest so big we even have TWO grand prizes this year.

Our new focus on young Makers involves the whole family. Amateur Radio Operators were the original Makers and we're making it special for you to bring the young Makers in your family to the Atlanta Hamfest. For every young Maker or Makers (ages 10 - 16) you bring along to the Mini-Maker YouthFest, you will receive a **bonus** entry for the Grand Prize drawing for free! Activities for young Makers include making electronics, sending and receiving Morse Code, hands on STEM demos, a GOTA station, special youth door prizes and much more!



The vendor list for the 2017 Atlanta HamFest includes many of your favorite vendors like ICOM, the SignMan of Baton Rouge, the Wireman, Ham Radio Outlet, and HamWorld. The ARRL Section Leadership is represented as are many area local clubs - offering you the opportunity of involvement in all facets of Amateur Radio!

The 88th Atlanta HamFest forums will include diverse presentations on Raspberry Pi, ARES, D-Star, and high altitude RF balloons. Live demos will include satellite communications, ARES demos, and a high altitude balloon launch. Also enjoy live music provided by Bitsyland!



If you like prizes (and who doesn't?), don't miss us on Saturday, June 3rd. Show your skill by participating in the CWOPS copy contest or try your hand at the antenna launching skill event. Did we forget to mention Door Prizes? Door Prizes will be awarded continuously throughout the day, including items from GiftsForHams.com, and this year we

have TWO Grand Prizes! Both the very popular Kenwood TH-D74 HT AND an ICOM 7100 will be given away at 2PM to a couple of lucky winners!

The Atlanta HamFest will be held from 8 AM to 3 PM at Jim R. Miller Park in Marietta, Georgia on June 3, 2017. The Atlanta HamFest is the 2017 ARRL Georgia Section HamFest, produced by the Kennehooshee Amateur Radio Club and the Atlanta Radio Club. For more information and advance ticket sales for pickup at the will call window, visit AtlantaHamfest.org. Tickets at the gate are \$8 for those 18 and over, kids 17 and under are free.

Newt KN4WET

Field Day Opportunities / Nathan Wood, K4NHW

Have fun while improving your operating skills!

As the captain of the SSB station and the newly designed swing station, it is an honor to serve you, the NFARL again this year. Last year was a blast and very productive. We clinched First Place in category 3A! This was all possible thanks to the outstanding operators (of all experience levels) on the air and the supporting personnel behind the scenes. It was the hottest day of the year and the band conditions were less than desirable. But we, as a team, worked through it and came out on top!

This year is shaping up to be even better than last! Several meetings have already taken place (starting at the end of last year) in preparation for this year's Field Day. We've made every effort to give you, the members of NFARL, the chance to come out on top again this year all while learning, improving your own skills and having fun! The task at hand is currently schedule related.

In order for us to have a successful field day again this year, it takes members of the club to participate as Ham radio operators. We need operators occupying seats and making contacts. There are many slots available, day and night, for various stations. If you have any special request (i.e. 2.5 hour shift, 40 meter band, padded leather chair, favorite cold beverage, custom molded ergonomic keyboard), let me know and I'll do everything possible to accommodate that! I consider it my job to do whatever it takes to allow you to be comfortable and successful in your operations...and to fill these slots!

My fear is that many of you are reading my various pleas for operators and saying "Someone else will pick that up". Well, if everyone in the club thinks the same thing, no one will step up. Chairs will be vacant and we, as a club, will not be as successful as we have been in years past. The same few people cannot carry the club as a whole. It takes members stepping up and being a part of the club for the club to be successful. It is easy being on the sidelines and then claiming victory for your team. But the truth is, we're all players! And as every evolving entity, some people will move on and others will have to fill their spots.

If you have not contacted me about a spot, please consider doing so now! The number of responses that I've received already has been extremely disappointing for a club this size! We are not looking for seasoned contest operators. We are looking for willing participants! If you can speak and type, you qualify for the position! I, along with many others, will be onsite again this year for the entire operating hours of field day, so we will be here to support you. We are looking for people willing to fill a slot as little as one hour!

The success of NFARL Field Day begins and ends with YOU!

Nathan H. Wood, K4NHW
k4nhw@arrl.net

Handheld Satellite Antenna Gain / John Kludt, K4SQC

AS we have previously discussed there are two commercial handheld antennas in primary use for satellite communications. One of these antennas is the Elk, a five element log periodic covering the 144MHz to 435 MHz band. The second antenna is the Arrow antenna. This antenna is a three element 144Mhz Yagi and a seven element 435 MHz Yagi interlaced on the same boom with the Yagi's at 90 degrees to each other. Both antennas have been used successfully by numerous amateurs in satellite communications.

While there are published gain figures for the Elk antenna, little has been published on the gain of the Arrow antenna. One of the features of the Southeast VHF Society (SVHFS) Conference is antenna range that can be used to measure the gain of various antennas in the VHF/UHF/SHF range. In addition to the Arrow and the Elk, I decided to measure the gain of the Harbor Freight Tape Measure antennas developed by NFARL club member Bob Freeman, KI4SBL. (*ed note; see January 2017 eNews page #9*) These are two separate Yagi's: a five element antenna for 144MHz and a ten element antenna for 435 MHz. The elements for these two units are cut from the ever present Harbor Freight tape measures that can frequently be obtained for little or for free while visiting the store.

The methodology used by SVHFS has been in use for several years and is documented in several proceedings of the conference. Basically, the SVHFS maintains a series of reference antennas. These are used to calibrate the range consisting of a very sensitive spectrum analyzer and a source antenna. Once calibrated the test antenna for the reference antenna and the relative gain (loss) is measured versus the reference antenna. Using math, the gain of the test antenna is then calculated in dBd.

There are a number of ways to calculate the gain of an antenna. The two most frequently seen are the dBi – gain relative to a theoretical isotropic radiator and dBd – gain relative to a reference dipole. You can convert dBd to dBi by adding 2.15 dB to a measurement presented in dBd. For this purpose, comparing two antennas, the important item is that all measurements are done using the same units, in this case dBd.

Using the above methodology the gains for these three antennas were measured to be as follows:

144 MHz		
KI4SBL	5 element Yagi	8.2dBd
Arrow	3 element Yagi	5.4 dBd
Elk	5 element log periodic	3.7dBd

435 MHz		
KI4SBL	10 element Yagi	12.9 dBd
Arrow	7 element Yagi	8.7 dBd
Elk	5 element log periodic	6.7 dBd

(Continued on page 10)

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The published gain for the Elk antenna is 8.8dBd on 144 MHz and 7.0 dBd on 435 MHz. While there is good accord for the data on 435 MHz with this antenna there is a large discrepancy on the 144MHz band. In further studies this discrepancy will be explained. Or at least we will attempt to explain the difference.

While there is no published official data for the Arrow antenna, the numbers obtained for both bands seem to be intuitively reasonable. One note on using the Arrow antenna – do not forget to twist the antenna 90 degrees when transmitting. The normal procedure for using an Arrow is to rotate the antenna along the axis of the boom for maximum received signal. This better aligns the axis of the antenna with the orientation of the antenna on the spacecraft. If one where to then transmit *without* rotating the antenna, the transmitting antenna would then be oriented at 90 degrees to the apparent orientation of the spacecraft antenna with the introduction of a 10-12 dB loss of signal strength *at the spacecraft*.

The performance of the KI4SBL antennas was a pleasant surprise. This antenna is cheap and relatively easy to construct. Cutting the elements to length is aided by the fact that the measurement marks are on the antenna material itself – a tape measure! The antenna is not designed for permanent installation as the elements, particularly on 144 MHz, tend to literally “flap in the breeze.” The next enhancement for these antennas, already accomplished by KI4SBL, is to add a second set of elements for each band at right angles to the existing set of elements in an “X-pole” configuration. Using a relay, the antenna can be easily switched from horizontal to vertical configuration to maximize both the received and transmitted signals vis-à-vis the spacecraft.



KI4SBL Tape Measure Beams (with KI4SBL rotator!)

It is a great time to get on the birds. There are currently some 15 active Amateur Radio satellites carrying transponders in orbit. More are on the way. Rather than cruise the miserable HF conditions and low sunspot numbers, try getting on the birds and make some satellite Q's.

Here at K4SQC we have used all three of these antennas to make qso's. And under almost all conditions 5 to 10 watts is a satellite “full gallon” – QRP to boot!

North Fulton Amateur Radio Emergency Service NARES Update / Grant Register, KK4PCR, Acting NFARES EC

We are happy to report our ARES club members are working to fulfill the requirements for their Georgia Section ARES Identification card/badge.

We will participate with the North Fulton Amateur Radio League at their booth at the Atlanta Hamfest on June 3rd at Jim Miller Park located in Marietta, Georgia. We hope this will be an opportunity to recruit some new members.

We will be helping the North Fulton Amateur Radio Club with field day putting up antennas on Friday, copying the field day "official" bulletin from ARRL, keeping some records during field day and finally passing that traffic in order to get the extra 300 points for the North Fulton Club competition. One of our members also organizes the safety team for field day, which also earns some extra points for the club.

Some ARES members will be volunteering as communicators during the Peachtree Road Race, which is always a fun event.

We will be supporting the Sandy Springs Fire Department during the fireworks at the Concourse Office Park on July 4th. We assist them annually by watching for possible fire during this event. We usually have a good portion of the club participate in this event. It gives us an opportunity to test our Go Kits, wear our official looking Radio Communicator hat and vest all while supporting the local fire department.

We will organize a net for the GA 400 Hospitality Bike Ride on July 9th. There will be approximately 20 ARES volunteers involved in an all day affair to provide much needed communications for this large event, over 1,600 cyclists will be participating! We will have two or three members follow the event on motorcycles to provide aid to cyclists who have trouble.

We are continuing to organize for our "simulated emergency test", or SET, which is scheduled for October 21st. This will allow us to test our equipment in the Sandy Springs EOC, Police Stations, Fire Stations and Hospitals, as well as practice our skills with both phone and digital modes.

We are eager and ready for a full summer of radio, fun, sunshine and fresh air.

Grant Register – KK4PCR



Morse-ing Around with Arduino / Bob Freeman, KI4SBL

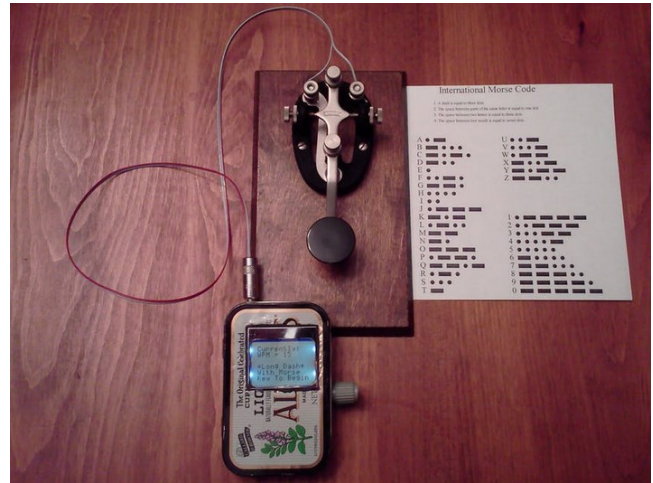
I am always on the lookout for fun Arduino projects, especially when they relate to electronics and ham radio. Well, I stumbled on a nice little project that has the potential to help me improve my Morse code skills while keeping my DIY project backlog full at the same time. In the interest of sharing, here we go!

The project is called " Magic Morse on Arduino" and can be found at the link: <https://create.arduino.cc/projecthub/rayburne/magic-morse-on-arduino-f48633> .

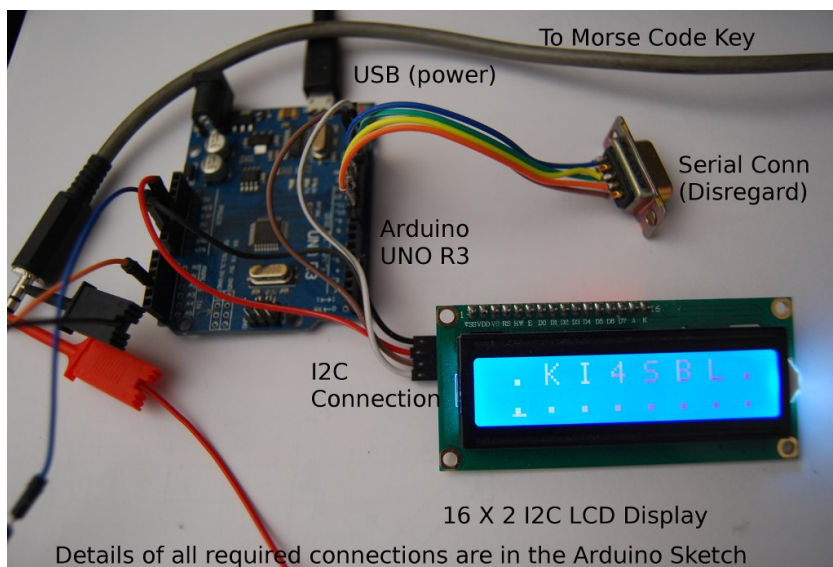
A photograph of one implementation of this project is shown right.

Source code for the Arduino sketch is provided on the site and enables one to send and receive morse code. Some minor changes are required to the source code due to updates to the Arduino IDE, these are described in the comments section of the page (wish I had read the comments first, hi hi).

The project site includes code for two different LCD display types, an old Nokia 5110 and a 16 X 2 Parallel LCD. As luck would have it, I had neither of these display units so, in keeping with the open source approach, I modified the Arduino sketch to work with the 16 X 2 I2C display that I had on my desk. These modifications were not extensive and all changes I made are included in the archive I made for my I2C display implementation of the project. These files are located on our club reflector in the Files area at: https://groups.yahoo.com/neo/groups/nfarl/files/DIY_Homebrew/Magic_Morse_I2C/.



Sample Completed "Magic Morse" Project



Test Setup for "Magic Morse" Project with I2C LCD Display

A photograph of my Arduino test setup is shown left. The photograph is annotated with connection information.

Note:

1. A relatively small number of connections is needed overall
2. A potentiometer can be used to set the code speed but this was not used in my prototype testing.

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A couple of issues were encountered in compiling and uploading the Arduino sketch; hopefully, the following information will help others who attempt to build this project.

- The compiler failed to find the streaming.h library and complained, of course. I found the library at the following link and it worked without problem: <http://arduiniana.org/libraries/streaming>.
- Use of the I2C type display required an additional library, as well. This library is available on GitHub at: <https://github.com/fdebrabander/Arduino-LiquidCrystal-I2C-library> . This library also works without problem.
- Recall that the changes mentioned in the COMMENTS section of the Magic Morse web page are required (the compiler will let you know, of course).

So, there you have it. This is a nice little project that you can build in a day. It offers you the chance to improve code speed and, given its small size, can be taken with you so you can practice anywhere.

If there are questions or corrections, please contact the author and I'll try to help out.

Have fun!

Bob, KI4SBL

It's Not My Job! / Neil Foster, N4FN

This is a story about four people named Anybody, Everybody, Somebody and Nobody.

There was an important job to be done and Everybody was sure that Somebody would do it. Anybody could have done it but Nobody did it.

Somebody got angry about that because it was Everybody's job. Everybody thought Anybody could do it, but Nobody realized that Everybody wouldn't do it.

It ended up that Everybody blamed somebody when Nobody did what Anybody could have done.

Sound familiar?

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Club Repeaters

Frequency—Description	P.L. Tone	Location
145.470 (-) EchoLink Node 56086 NF4GA-R	100 Hz	Sweat Mountain
147.060 (+) Primary ARES Repeater	100 Hz	Roswell Water Tower
224.620 (-) Joint Venture with MATPARC	100 Hz	Sweat Mountain
443.150 (+)	No Tone	Roswell Water Tower
444.475 (+)	100 Hz	Sweat Mountain
927.0125 (-)	146.2 Hz	Sweat Mountain

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