Linear Lines

Trident Amateur Radio Club (TARC) Newsletter
March 2014

TARC Nets:

Every Tuesday, 147.27 MHz PL 123.0

- 7:30 PM CW practice
- 8:00 PM Net

Upcoming Events:

Mar 17	Club Meeting
Mar 20	"Spring Fling" casual dinner **Contact:** Bob NG4R
Mar 22	Operating Day **Contact:** Steve KE4THX
Apr 6	Board Meeting (all welcome)
Apr 21	Club Meeting

Operating Day is coming soon! *– We're on the cusp of warmer weather, so we'll be shedding the heavy coats and the eyebrow-singeing jet-engine heaters. Come enjoy the milder days, get some practice setting up field operations, and have fun yammering with friends. What could be better!*

From The President

Greetings. We had another fantastic month. It started with a great **Hamfest** in N Charleston. Lots of old friends got to have an eyeball, and many of us got to stock up on the parts we had been needing for the various projects on our list. Speaking of projects the **builders group** had a couple of meetings. We now have the 8X coax and connectors available for purchase, and Larry obtained a 48-inch TV with surround sound. We discussed the ideas for building antennas. Larry has a fantastic 2-Meter quad. We will continue to work on teaching about and developing projects using the micro controllers like the PIC and Arduino. We also taught a **Technician class** at the workshop and got several new hams licensed. We had another **Fox Hunt** and no one found me this time. The next Fox hunt will be in May and Tommy AA4TB will be the fox so I can try my hand at hunting. The **Dinner Group** is having their first dinner at Moose's on the 20th of this month. (Details are in one of the following articles.) This month's **VE exams** were again successful, with many new hams licensed. Looking forward to Charlotte Hamfest and will give report at the meeting. The club will be celebrating its **41st Birthday** next month so we will have cake and Ice Cream at the meeting. 73 for now and hope everyone can make the meeting at our new meeting place on the 17th at 7:30 Tom Lufkin, W4DAX

2M CW Training Net

Want to learn CW or just experience what it sounds like? The Trident Amateur Radio Club holds a 2 Meter CW training net each Tuesday at 7:30 PM. The net sends some CW at a slow speed for learning this first digital mode. Then we ask for check-ins. You can check in in voice and let us know you are listening. If anyone would like to practice CW on the air, let Tom W4DAX know and he can meet you on a simplex frequency and help you get your speed up.

QRZ

Everyone should visit QRZ.com and input your call sign. See what is listed – if there is not an entry, you should think about putting a small blurb about yourself and your ham related activities.

From the VP shack

Winter field day has passed once again. We didn't set any records, but we did exceed last year's score. Results of total score will follow upon review. **ARRL Field Day** is right around the corner on the last weekend of June. Preparations are already beginning. Stay tuned!

73 Steve KE4THX

Equipment Loan Program

Did you know the club has several pieces of HF and VHF equipment that we can loan to a new ham to help put them on the air? This is a great way to get on the air while you're planning for (and saving for) your own station. Contact Ron K4TCP if you are interested in using some of this equipment.

Builders Group

Trident Amateur Radio Club has formed a builders group that will meet whenever at Larry KI4VPS's house. The group will both build various antennas and other ham related items and help new hams get some basic things built. They will also introduce the use of microprocessors using the PIC and Arduino platforms. This should be a fun group and an excellent opportunity for everyone to develop or sharpen their DIY skills.

Treasurer's Report

The treasury remains solvent this month, thanks to all who have paid dues. The club now has for purchase, coax (RG-8x), adapters, and PL259s for the ends. Anyone can purchase these items. They do not have to be a club member or even a ham. Now anyone who needs coax etc for their antenna project will have a local source for them with no tax or shipping. Prices are as follows:

- Coax: $0.35 per foot
- Adapters: $1.00 ea
- PS259 $2.25 ea

There are lots of activity/events coming this year. I encourage everyone to get involved, and if they have any ideas about events they would like to see/participate in, please let us know at the board meeting. 73 Bob NG4R

Spring Fling Dinner Outing

Date: March 20 (Thurs)
Time: 6:30pm
Place: Moose's BBQ, Hwy 78, Summerville

Spring is coming! The first day of Spring is Thursday, the 20th of March, and to celebrate we have decided to hold the first dinner outing on that day starting at 6:30pm. The location will be Moose's Bar B Cue restaurant Highway 78 and Highway 17A in Summerville. They have wonderful food and I'm sure everyone will enjoy it. Everyone pays for their own meal. This is only a social get together, not a club meeting. We will come together with wife and kids or just yourself and just enjoy each other. **No formal program, no pressure, just good food and talk.** Before the evening ends, someone will be chosen to invite us to their favorite restaurant. You pick the next date and time. Hope to see you there to celebrate Spring!
73
Bob NG4R and Thelma K4MTJ

New Member Bio

Wayne Norris KK4VJG

I have been a South Carolina resident since January 2010. My wife of many years and I relocated to Summerville from Maryland a year after we both retired from long careers in the Defense industry with Westinghouse / Northrop Grumman. Early in my working life, I held a First Class Commercial Radiotelephone license, while I worked at a 50Kw AM radio station, before I went into the Defense industry.

Ham radio has always been on my bucket list but the code requirement kept me from pursuing the hobby. During my working life, I actually worked with Roland Anders K3RA. In my studies for the Technician exam, I discovered he is the Chairman of the QPC.

I am currently a "sponge" trying to learn everything I can to become more active and upgrade my license. I want to thank Dave Hyatt KU4YM for pointing me in the right direction on the path to the VEC and TARC. The club members I have talked with and those I have met have made me feel welcome to the club. The offers of help/advice in advancing my ham skill set are most welcome. 73, Wayne KK4VJG

POP QUIZ ! !

What is an advantage of downward sloping radials on a quarter wave ground-plane antenna?

a) They increase the radiation angle
b) They lower the radiation angle
c) They bring the feed-point imped. closer to 300 Ω
d) They bring the feed-point imped. closer to 50 Ω

Which of the following is a limitation on transmitter power on the 28 MHz band?

a) 100 watts PEP output
b) 1000 watts PEP output
c) 1500 watts PEP output
d) 2000 watts PEP output

When is an amateur station allowed to use any means at its disposal to assist another station in distress?

a) At any time during an actual emergency
b) Only on authorized HF frequencies
c) Only when transmitting in RACES
d) At any time when transmitting in an organized net

Tower Safety:

Idaho Ham Seriously Injured in Tower Mishap

Robert "Bearpaw" Galindo, KE7ADT, of Athol, Idaho, was critically injured February 13 when the winching cable of his 40 foot crank-up tower snapped while he was working on the tower. Galindo, 52, a General class licensee and ARRL member, was reported trapped and dangling 20 feet in the air when rescue crews arrived at his home. His wife, Gail Perry, KE7ADN, witnessed the accident and called 911. The mishap resulted in the loss of Galindo's right hand and several fingers of his left hand.

Timberlake Fire Protection District officials reported that rescuers had to raise the upper tower sections to extricate Galindo. He was transported by helicopter to a hospital in Coeur d'Alene, where he underwent surgery. Galindo was listed in critical condition following the surgery and was expected to remain hospitalized for several days.

-- Thanks to John Bigley, N7UR, Nevada Amateur Radio Newswire

Regulatory:

FCC Proposes to Fine Texas Radio Amateur $7000 for Malicious Interference

The FCC has issued a Notice of Apparent Liability for Forfeiture (NAL) to James R. Winstead, KD5OZY, of Coleman, Texas, after determining that Winstead "apparently willfully violated" FCC rules by interfering with Amateur Radio communications. The Commission proposed a $7000 fine. The action was in response to complaints from other radio amateurs of intentional interference on 7.195 MHz.

According to the NAL, released February 19, an agent from the Commission's Dallas Office on January 21 used direction-finding techniques to positively identify the source of the interfering transmissions as Winstead's address. After monitoring the transmissions from the station for about a half-hour, the agent heard Winstead, an Amateur Extra class licensee, "replay multiple times short sentences or conversations that had just been transmitted, and occasionally speak the word 'George.'" "During the inspection, Mr Winstead showed the agent how he recorded and retransmitted other amateur licensees' communications," the FCC said. "He also admitted that he intentionally interfered with amateur communications on 7.195 MHz and had an ongoing disagreement with another amateur licensee named George.""Mr Winstead replayed recorded conversations so frequently that other licensees were unable to complete their conversations," the NAL stated. The agent estimated that Winstead disrupted approximately 20 minutes of conversation over a 30 minute period by making up to 15 minutes of short transmissions. The agent subsequently inspected Winstead's station, observing that his radio equipment was tuned to 7.195 Mhz.

The FCC said the evidence in the case was sufficient to establish that Winstead had violated Section 333 of the Communications Act of 1934 and Section 97.101(d) of the FCC Amateur Service rules. Both sections prohibit willful and malicious interference to radio communications. Citing its Forfeiture Policy Statement and Section 1.80 of the rules, the FCC determined that Winstead was liable for a $7000 forfeiture. "We caution Mr Winstead, however, that future violations of this kind may result in significantly higher forfeitures," the FCC stressed. Winstead has 30 days to pay or contest the fine.

On his QRZ.com page, Winstead describes himself as "an electronics technician for about 27 years" and a ham for about 12 years.

March Birthdays: Tommy AE4TB, Vaughn KJ4ZFY, Thelma K4MTJ, Fred KG4YGP. ***Happy Birthday All!***

Lightning Detector That Interfaces to your Arduino!

"NOBODY IS SAFE"

By Ron Davis – K4TCP

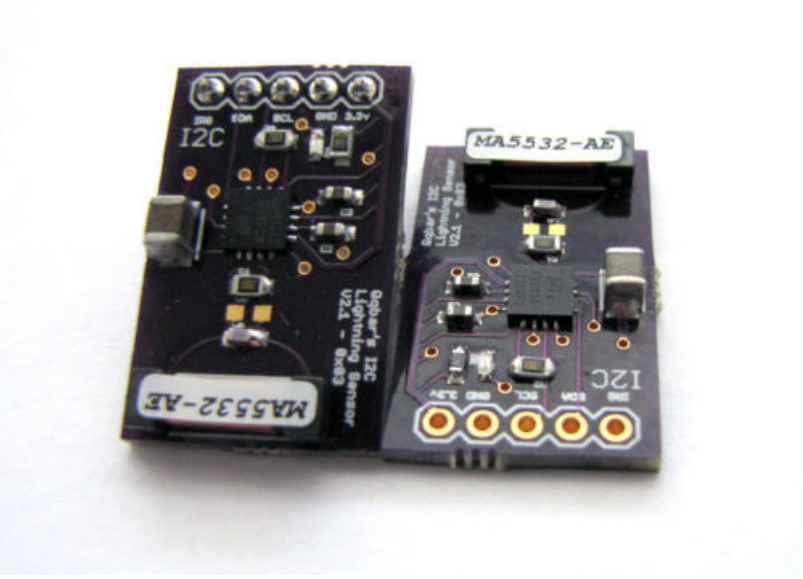
I have not built this circuit yet but some aspects about this chip I find interesting and this could make a great lightning detection device for your Ham radio station. The Arduino can be used to count the number of lightning strikes and log the time and distance somewhere. I would imagine a sketch could calculate average number of strikes within a threshold distance per hour, half hour and 10 minutes. This could be used to set a trigger that the Arduino could then act upon to alert someone. The alert can be as simple as flashing a LED (Blink Sketch) or as complex as sending an SMS text message to your phone. This could also be a great compliment to one's weather station.

The heart of the detector is the chip AS3935 made by austriamicrosystems.
Datasheet located here -> http://www.mouser.com/pdfdocs/AMS_AS3935_Datasheet_v4.pdf

Some of the key features of the chip are:

- Lightning sensor warns of lightning storm activity within a radius of 40km
- Distance estimation to the head of the storm down to 1km in 14 steps
- Detects both cloud-to-ground and intra-cloud (cloud-to-cloud) flashes
- Embedded man-made disturber rejection algorithm
- Programmable detection levels enable threshold setting for optimal controls
- SPI and I²C interface is used for control and register reading
- Antenna Tuning to compensate variations of the external components
- Supply voltage range 2.4V to 5.5V

Although the chip is a bit pricey I did find some breakout board versions of it for around $20 on eBay. And they do not come from overseas, so you won't have to wait 4 weeks for it to arrive.

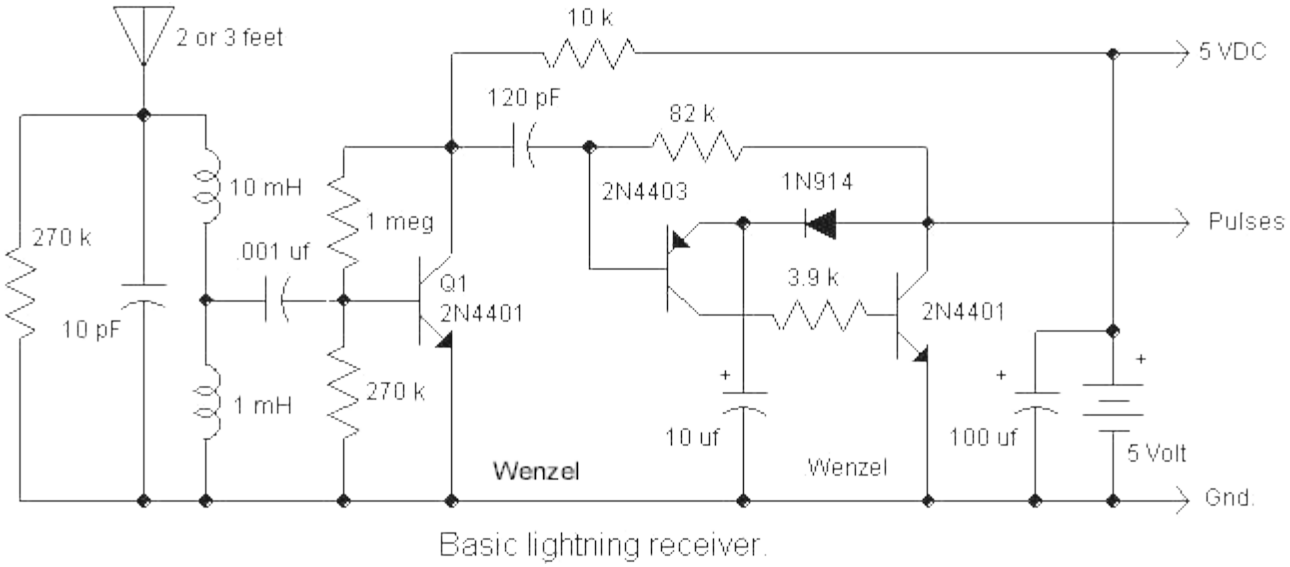


This is just one example of a breakout board. The boards allow one to easily and temporarily connect the assembly to a bread board or similar prototyping platform for connection to your Microcontroller (Arduino). Once your prototype is

complete you can migrate the circuits into a more permanent case. The device supports communication via SPI or I2C. I found a few different libraries available to incorporate into your Arduino IDE so that your sketch can talk to this board.

Here is the link to the github repository for the AS3935 Library: https://github.com/raivisr/AS3935-Arduino-Library

For those of you that would like to build a lightning detector circuit with discrete components here is one of many schematics:



Basic lightning receiver.

This circuit can also be interfaced to the Arduino or any microcontroller.
So…. Anyone interested in building this?
Please send questions or comments to Ron K4TCP – Ron.Davis@gmx.us

"Anything Worth Doing is worth OVERDOING"

Want to see something in Linear Lines?

If there's something you want to see in Linear Lines, please send it to Robert KV4LV <kv4lv@arrl.net> by the second Monday of the month.