

Loudoun Amateur Radio Group

Regular Meeting Notes January 15, 2022

Venue: Due to the ongoing national health crisis, the meeting was held virtually using Google Meet

- 8:00-8:30 The Google Meeting connection was active for informal discussions.
- Pledge of Allegiance
- Jim N4FAF reported that the minutes from the December meeting can be accessed via the club web site.
- Steve KN4HOZ is the outgoing club treasurer. He reported that the beginning balance in the club bank account \$11,104.85. A total of \$816.87 was received in club dues. There was one expense of \$500 which was a donation to the church to secure a potential meeting place for us during 2022. The ending balance was \$11,421.72.
- The results from the election of officers for 2022 were presented. The President is Mike White N4PDY, the Vice-President is Steve Greene KS1G, the Treasurer is John Brown W0MPM and the Secretary is Jim Babcock N4FAF. Steve Edwards KN4HOZ is recognized for his exemplary performance for four years as club Treasurer.
- The club is still in need of a head of the education committee. Leads for other usual club activities such as Field Day and Reston Bike Ride support need to be staffed. Interested members should send email to leadership@k4lrg.org.
- Bryan K1NSA presented information about a homebrewed two-axis rotation system intended to allow an antenna system to track a satellite as it passes through the sky. The vertical axis of rotation is calibrated based on the compass heading from the current location to true North. The horizontal axis of rotation is calibrated based on the elevation of the satellite target above the horizon. An alternative to using the rotator is holding the antenna by hand and moving it to track the satellite pass. Low orbit satellites pass quickly, so holding the antenna may result in an inconsistent signal as the satellite moves within the beamwidth of the receive antenna.

An organization known as SatNOGS has networked many ground stations that are capable of tracking satellites. They also support construction of the rotation system using common parts including some 3-D printed parts. They also support a software package that will control the rotation system. The software can run on a Raspberry Pi computer for the tracking software with an Arduino microcontroller to control the motors of the rotator. Additionally, an application allowing remote operation is available. The software is able to operate autonomously to track scheduled passes or periodically intercept images from a weather satellite. A software defined radio with a USB interface can be used to decode radio signals at frequencies outside of the ham bands.

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Ballpark cost of the rotator itself is \$400. Additional costs include a support for the rotator such as a tripod and the antenna system that is mounted on the rotator. 3-D printed parts should be printed using ABS plastic which is UV resistant. Two motors are required, one for each axis of rotation. The motors can be steppers or DC continuous.

There was a comment that all times used by the SatNOG software is relative to UTC.

- The next club meeting is scheduled for February 19.
- The meeting adjourned at 9:40 AM.
- Attendance

KT9N	Chris
K1NSA	Bryan
KE4S	Dave
KD4BK	Barry
KU4FT	Chris
W4PMP	Chris
N3YRQ	Dilip
N4FAF	Jim
K4FW	Jim
W0MPM	John
WB2UNA	John
WA4KBM	Kevin
N4PDY	Mike
N4TGA	Merc
KS1G	Steve
KN4HOZ	Steve
K4FWD	Frank
W5ODJ	John
KI2H	Harry

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N4PD

Paul