Ground Support Station Team

Cassandra Johnson
Iva Gerasimenko
Aaron Podoll
Josh Berk
Jeremy Straub

Available at: https://works.bepress.com/jeremy_straub/46/
Who are we?

We at the Ground Support Station Team are an interdisciplinary group with various backgrounds. We share a common interest in space technologies and are enthusiastic to develop and implement a working Ground Station here at UND. We are all learning a great deal about satellite communications from the ground aspect and what it takes to develop such stations.

What are we doing?

The Ground Support Team is building the physical structures so that we can communicate and track the UND CubeSat (basic frame shown to right) once launched. We are currently determining the equipment we still need to purchase and developing a budget around those components. The aim for the Ground Support Station is for it to be accessible remotely via the internet. We are working with the Ground Station Software Team to determine limitations imposed by the equipment. We plan on building the Ground Support Station out at the UND observatory (directions to the right).

What components make up the ground support station?

There are a few basic components to each Ground Support Station that can be fleshed out in more robust and costly systems. For our Ground Support Station we are working on a limited budget, however we aim to create a working Ground Station on a limited budget that others on a budget (schools) may emulate. The graphic to the left shows a basic mock up for the style of Ground Station we are working with. There are a few basic components that create the Ground Support Station network as follows:

- **Antenna**
- **Data Handling**
- **Mission Control/End User**

**Antenna**

This portion of the network is composed of two Yagi circularly polarized antenna (see above) which are in the UHF/VHF range atop a tripod, a rotor which moves the antenna to track the satellite across the sky, and the phasing lines which will transmit data to the UHF/VHF transceiver we have.

**Data Handling**

This portion of the network is composed of the UHF/VHF transceiver shown above (Yaesu FT-847), the rotor control and tracking control, the server, and a modem allowing end user access via the internet.

**Mission Control/End User**

This portion of the network is composed of an on site computer with server access and the programs allowing remote access to the facility for winter time activities.

Citations


Thanks to Dr Ron Fevig for mentoring our station and providing much of the background information on starting a Ground Station, Martin Hynes for providing additional advice and information on developing the Ground Support Station, and Jeremy and Josh for pointing us in the right direction.