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THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

Space Hardware Club

Using an Autonomous Ground Station to Aid in Community Outreach

Tyler Hughes

ChargerSat-1

University of Alabama Huntsville

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NSSTC

NASA

Autonomous Ground Station

Do you like to sleep?

What do you do when you're asleep at 3:00AM and your CubeSat is about to pass over?

- Run to the ground station and receive the transmission?
- By using timed queues you will be able to effectively make your ground station autonomous in the sense that it will know when to record the pass.

Current Hardware/Software Requirements

- Database to store information from beacon and downlink
- Relay Switch Controllers to automatically turn equipment on and off when needed.

- Advantages:
  - No one has to be there when the CubeSat passes overhead
- Disadvantages:
  - More prone to software glitches
    - Not permanent and can be overcome as more revisions to software is made.

Ground Station Database

- Can store subsystem status information
- Can store commands to be transmitted later

How convenient is using the app versus going to the ground control room?

How can I use my new ground station to my advantage?

CubeSat Android App

- Gets data from the database and displays it to the user
- Can be used for outreach
- Maintenance free

What information does it display?

- Anything that you have information for.
  - EPS status, voltage
  - Deployment statuses

Presenting at a high school?
Want the students to be able to submit a request for the CubeSat to execute a command?

- The app will have the option for people to submit a command request to the CubeSat.
- The request will be put in the database for the CubeSat team to approve or deny later.

Acknowledgments

- University of Alabama in Huntsville
- Alabama Space Grant Consortium