Group1: AlbertaSat OBC Software

Critical Design Review Presentation

Members

Brendan Bruner

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Jeff Ryan

Division of Work

-Brendan has been working on AlbertaSat since last spring, including designing the general architecture.

-Oleg is currently working on the MNLP.

-Divyank is currently working on CSP.

-Jeff is currently working on Comms.

Functionality

-Controls communication between the different parts of the satellite.

-Prepares packets from SD card to send and decodes received packets.

-Manage what state the machine is in by communicating with EPS and ADCS boards.

Functionality continued...

-Receives information from payloads (MNLP and DFGM) and saves to an SD card.

-Handles errors and controls state for MNLP.

Design

General layout of satellite components:

https://drive.google.com/file/d/0B09MbYuKY6W5TGNzaVJlamY3Tmc/view?usp=sharing

Design Continued...

State Diagram:

https://drive.google.com/file/d/0B09MbYuKY6W5bWFzUzNFcG1UUDA/view?usp=sharing

Challenges

-Have yet to receive specifications for DFGM

-Lack of documentation on CSP

-Scope of project, a lot to learn/know before any progress can be made.

Calculations

-A member of AlbertaSat is currently working on calculations for the SD card, including memory size and priority of data.

-Currently learning about components and will need to do calculations and testing for data transfer rates and data sizes.

Simplified UML

basic UML that describes how commands are dealt with:

https://drive.google.com/file/d/0B09MbYuKY6W5T0E1cDBuWllBZm8/view?usp=sharing

Command Implementation

Implementation Document

Test Plan

-Implementing TDD for the C code as much as possible.

-Uploaded code (to git) is ran on a testing board via a server.

-Will create mock drivers (for Comms, MNLP, EPS, etc.) on external boards to verify proper functionality.

END