Groundstation: Design

Team #25
High-Altitude Rocketry Challenge
Natasha Anisimova
Terrance Lee
Albert Morgan

Abstract

The *Groundstation* software will collect telemetry from a rocket while is in flight and graphically display the telemetry in real-time. Groundstation is made up several different components: collection of data, storage of data, interpolation of data, and display of data. This document will examine nine different components of the system. For each of these components, three different technologies will be described and evaluated for use in this component. Finally, a recommendation will be made about which technology should be used.

I. Introduction

1) Identitication of the SSD
2) stakeholders
3) concerns
4) selected viewpoints
5) design views
6) design overlays
7) rationale

Maybe we don't need all of this stuff in the intro? I think some of it is covered below.

II. Structure Viewpoint

A. Entity

(Author: Albert Morgan)

1) Name: Web server

2) Type: Program

3) Contents: The web server will run on the Raspberry Pi. The web server has three primary functions:

- Server web pages to the clients.
- Receive telemetry from the serial port and convert it into json.
- Make the json data available to the clients.

Groundstation will use the Apache [**?**] web server.

Everything after this is just brainstorming

III. Context

Here's a section for the context design viewpoint. Context covers systems services and users. It has the following subsections:

A. Concerns

Design concerns come from the requirements. So, things like "The users need to visualize the data in real-time" and "We need to get telemetry from the rocket in real-time".

There are four types of elements: entity, relationship, attribute, constraint

B. Example entity

Entities are library, a system, framework, class, etc... It has the following sections

- Type: Framework, library, class, object, etc...
- Purpose: Why does this entity exist?

C. Example relationship

We probably want a lot of these. They describe how entities work together. One might be "We get data from the rocket, and it goes to the processing entity". Another might be "We sent th eprocessed data to the web browser".

D. Attribute is a fact

They usually answer questions, and are sort-of in Q&A format. What language are we using? Answer: we're going to use Node. Like that.

E. Constraint

"There ain't no Internet in the desert" and stuff like that.

F. Example name

G. Elements

This is a list of entities, relationships, attibutes, or constraints

H. Methods

I. Source

If we need to cite something, it goes in here.

IV. Interaction

Talk about how the system will get data from the serial port and how it will get sent to the web browser.

V. Algorithm

Stuff about the event-driven architecture maybe.

Nancy Squires	Date
Natasha Anisimova	Date
Terrance Lee	Date
Albert Morgan	Date