Assignment A2 – Requirements Definition

Summary

In this second assignment you will find and discuss a project that was subject to significant problems due to poorly written or managed requirements, analyze the as-stated requirements for the 2016 Cansat competition and synthesize your own requirements set as a team.

This assignment is worth 1/8 (12.5%) of your final grade.

The final deliverable must be uploaded as a single PDF file with the name: *A2_Team#_2015.pdf*. Upload your requirements document/database from task 3 as a separate file.

In addition to your team number and name, all team members who contributed must be clearly identified by name and email address on the first page of your submission.

1. A historical project that suffered from poor requirements

Identify a project that did not go smoothly due to problems that are traceable to poorly written, missing, not verified or very volatile requirements. An example of such a project was the 1998-1999 Mars Climate Orbiter (MCO) presented in class, so you should find a different example. We recommend the following process:

a) Brainstorm projects that went poorly due to requirements (as a team)
b) Pick one of these projects and do some background research (e.g. their might be a GAO report in the U.S. due to cost and schedule overruns, accident investigation reports etc.…).
c) Write a short essay, about 500-600 words about what the major problems were and relate these to what we discussed in class (session 2). Be specific about the nature of the problem (missing requirement, misinterpreted, not verified, requirements volatility etc… see reading [2a]).

2. Cansat 2016 requirements analysis

In this second task we want you to carefully read the Cansat 2016 Mission Guide and Environmental Testing requirements documents, and answer the following questions:

a) Read the 47 "base requirements" (p.6-8) in the Cansat 2016 Mission Guide and analyze them according to the acceptability criteria we discussed in class. For example what type of requirement is it (functional, performance, constraint, interface etc.…), is it clear, feasible etc.… ?
b) For those requirements you deemed as unacceptable, rewrite them to make them better
c) As a set, do these requirements meet the criteria we discussed? For example are they complete, non-conflicting etc…. Which requirements go together as a group?

3. Cansat 2016 requirements definition

Based on your rewritten/critiqued requirements from task 2, create your own requirements document or database for the 2016 Cansat competition. Take into account the following points:

a) In addition to the 47 "base" requirements add the environmental testing requirements for Cansat 2016 (separate document)
b) How do you incorporate the requirements that are optional and that can lead to bonus points?
c) Since you will now likely have more than 50 requirements, apply the magical number 7+/-2 rule and create a hierarchy of requirements, with at least two but no more than three levels.
d) Implement your requirements in a document (e.g. Excel, Word …) or in a relational database (e.g. Microsoft Access …). Use hyperlinks to show traceability between requirements where appropriate.

4. Margins Allocation

Identify which of your requirements are most uncertain in terms of your ability to satisfy them?

a) Allocate reserves (margins) to those requirements in your requirements document and justify these margins.
b) Also, identify for each requirement how it will later be verified.

Grading Rubric and Time Commitment

1. Historical Project Discussion	max 20 Points
2. 2016 Cansat Requirements Analysis	max 30 Points
3. 2016 Cansat Requirements Definition	max 30 Points
4. Margins Allocation and Verification	max 20 Points
Total	max 100 Points

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