Carnegie Mellon University

Robotics Capstone Project

Concept Evaluation

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Version 1
October 25, 2016

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List of Figures

1 System Description

RH: First a brief discussion introducing the project

RH: Add the systems diagram figure. Then discuss the system by walking through the figure.

2 Concept Operation

RH: Rubric: "Concept of operation clearly and succinctly specifies how the exhibit will work.". Describe the system from the viewpoint of someone using it.

RH: Show a state machine and/or flow chair of a person's operation. Then talk through the diagram. Mention how aspects of the interaction satisfy requirements

3 Use Cases

RH: Rubric: Use cases provide clear insight into the system and cover a wide range of possible interactions. Develop complete use case and detailed scenarios for the concept

RH: Question: how is this different from in the requirements?

4 Artistic Sketch of System

RH: Rubric: Sketch is very clear, providing significant insight about the design.

RH: Need to either make computer sketch and take a bunch of screen shots or draw a bunch of different views. RH: Explain how some physical aspects lead us to achieve our requirements.

5 Subsystem Descriptions

RH: Rubric: All subsystem descriptions provide a clear idea of each subsystem and any critical component is identified.

RH: Some subsystems might need their own diagram

RH: Here are possible subsystems

5.1 Tool Manipulator

5.2 Navigation and Localization

5.3 Image Processing

5.4 Work Scheduling, Distribution and Planning

5.5 Communication

6 Trade Studies

RH: Rubric: Conduct trade studies when there are significant alternatives. Describe trade studies (use comparative analysis techniques) and results. Trade studies present for all major design decisions and clearly identify reasons for choices. If no choice is made, a prototyping plan is identified.

RH: IDK what a trade study is so I looked it up. According to google: "A trade study or trade-off study is the activity of a multidisciplinary team to identify the most balanced technical solutions among a set of proposed viable solutions (FAA 2006). These viable solutions are judged by their satisfaction of a series of measures or cost functions."

RH: Items we could compare: wheels/drivetrain. Localization/marker system. Drawing tool. Image scanner.

7 Software Architecture

RH: Rubric: Describe the system software architecture and detail diagrammatically.
RH: Diagram of software flow. Need think thru.

8 Installation

RH: Rubric: Plan clearly specifies how the exhibit will be integrated and installed and the museum.
RH: I guess explain how this gets run? For our demo you need a flat area/sheet of paper free of obstacles. RH: Explain how need to set up vision marker
TODO: Neil working on it, just a paragraph or so