Phase 3 - Preliminary Detailed Design Pre Read Document

P21462 - “Solar Powered, Portable 3D Power Cart V2”

Attendees:

MSD 1 Team: Matthew Madsen, Christian Niebling, Jake Wildt, Garrett Waldron

Guide: Jennifer Indovina

Clients: Marcos Esterman, Alvaro Rojas

In the Preliminary Detailed Design phase, our team prototyped various designs to analyze behaviour, did in depth analysis to ensure our designs will be feasible, and tested parts acquired by last year’s team to ensure they are in working order.

Agenda:

1. Background and Current State
2. Open Items From Last Review
3. Solar Panel Modular Subsystem
4. Scissor Lift Modular Subsystem
5. Electrical Modular Subsystem
6. Overall System Prototype
7. Electrical BOM
8. Mechanical BOM
9. Risk Management
10. Schedule

Due to the unstable power grid in Colombia, there is a need for a supplementary power system that can provide power to applications in the event of a blackout. A mobile power station could provide such support for a variety of applications that require uninterrupted electricity. The existing design is a collapsible system that can switch between power sources, be easily used and assembled, and fail gracefully without power. The goal of this project is to enhance the progress made on the cart by adding two additional power sources while also being cognizant of limited supplies and resources in the area. The expected result is a functioning prototype cart with instructions for assembly, disassembly, testing, and regular use.

Knowledge of our team’s Systems Level Design Review along with our Preliminary Detailed Design Confluence Page will be helpful during our Phase Review. We ask that you please review these materials beforehand as they will provide valuable insight to our discussion. A link to our confluence page can be found here: [P21462 Preliminary Detailed Design](https://wiki.rit.edu/display/P21462/Preliminary+Detailed+Design)