

Restated Project Scope and Project Plan

EML 4551C – Senior Design – Spring 2012 Deliverable 6

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Table of Contents

Project Scope 1
 Problem Statement..... 1
Project Plan..... 3

Project Scope

Problem Statement

Our center of attention is on the latching mechanism used to engage and hold the panels in their final, flush positions. The panels are initially in a stowed position stacked on top of each other as can be seen below in figure 1.

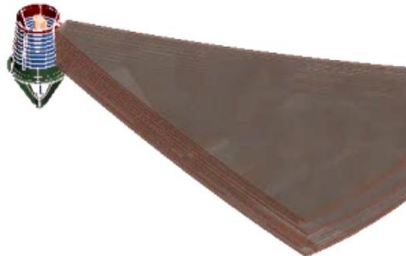


Figure 1 shows the stowed positioning of the panels in which they rest on top of one another.

The hub mechanism will first use rotational motion to move the panels from their stacked position to their desired radial positions as can be seen below in figure 2.

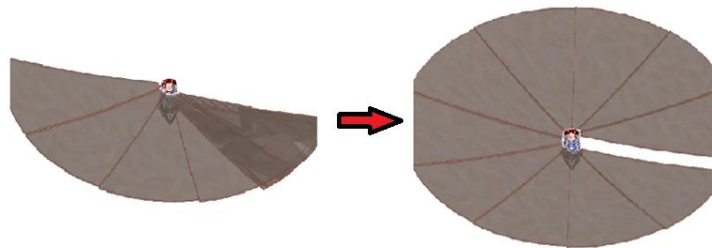


Figure 2 : Left) The hub initially uses rotational motion to move the panels from their stacked positions. Right) The geometry of the panels once they have finished the rotational motion phase.

Once the rotational phase of motion has completed, each panel will then be in its desired radial position. However, due to the initially stacked geometry of the panels, there is a vertical offset between panels which makes a second phase of motion necessary. In this phase, linear motion will be used to bring the panels to their fully deployed, flush positions (figure 3).



Figure 3 shows the panels in their fully deployed configuration in which the panels are both vertically and horizontally flush with one another.

The latching mechanism will be designed to engage in the linear motion phase of deployment. Ideally, it will be a passive design. It must securely hold each panel flush with their two adjacent panels and must be a reliable design.

By the project's end, our latching design in conjunction with the hub mechanism design will be used to create a working prototype for a reflector system. Said prototype should be scalable to the desired dimensions for the actual system. It must meet the size, shape and movement requirements that were set forth prior to the commencement of the project.

Future Plans - Schedule

Spring'12 Schedule

