1 May, 2017

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**Progress Report – 1 Apr 2017 – 30 Apr 2017**

Contract Number: HSHQDC-06-D-00022

Contract Number 7500097279

Order Number: HSCG23-07-J-TED150

Task Order – Performance Work Statement (PWS) 1.12

Attachments: (1) SAROPS subcontractor financial reports.

1. **Rounding. I noticed problems that others hadn’t reported while looking at problems that others did report. First; not all aspects of my solutions were always being rounded. I found cases where the track-spacing was not a multiple of 0.1. Furthermore, I did not realize that when one optimizes in “non-rounded space,” and converts to “rounded space,” it’s not guaranteed that when one goes back to “non-rounded space,” that he will get the answer he started with. This was killing the “push optimize button over and over again paradigm,” but not frequently enough to be noticed. I released 6 or 7 new versions of the jar file as I struggled to contain all of the problems related to rounding and “push the optimize button over and over again.” These problems also included consistency from one planner run to another, the “this plan” result, and overlap considerations; rounding affects the boxes which could introduce overlap, and overlap has to be cleared. In short, rounding introduced more problems than I anticipated, many of these problems were exposed at the end of March, and it took most of April to clean them up.**
2. **Judy and Rob noticed a “latest seed” problem. This seemingly incidental feature is crucial to the “push the optimize button over and over again” paradigm.**
3. **Worked with Jim on the API of makePattern. I think that what we have is adequate for 2.1, but I also worked on simplifying it and building a tool that we can use to study my rounding algorithms. This is for 2.2. I also wrote the rounding algorithms up, and went over them with Jack, but I think the tool is necessary for understanding these. Rounding, when combined with the other specs, is not straightforward; some specs will “have to give,” and picking which one and when is what this tool is about.**
4. **Participated in all CGTRK and TWG conf calls.**
5. **Started working on Simulator write-up, but was side tracked by rounding.**

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| **Name** | **Activity Worked** | **Hours Worked** | **Hourly Cost** | **Total Cost** |
| Kratzke | Coding/Doc/Travel | 184 | -- | -- |
|  |  |  |  |  |
| **Totals** |  | 184 |  |  |
|  |  |  |  |  |