1 Apr, 2019

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**Progress Report – 1 Mar 2019 – 31 Mar 2019**

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. **Put together 2 documents/webexes explaining how to build an installer and how to add land adjustments.**
2. **Worked with Fred to get his land modifications for LALB; at the end, he did all the work. They had a problem reconciling the CUIT, but they figured out the problem. But I then suggested that they keep their old SimLandVersions for good starting points in case something else goes wrong.**
3. **Worked on the VS/SS document. It really requires an extensive section on rounding, and the 3 types of Boxes that Planner deals with.**
4. **Had a bug in my regular LP optimization, using the new rounding algorithm. A crash occurred when the optimizer tried a box that was too big for the path length given. I fixed that, but that introduced a new problem. Unbeknownst to me, Jim sometimes calls the SimLib routine with a already-rounded-with-reduced-pathLength box, and sometimes with an unrounded box. I call the former a “TsBox” and the latter a “SpecBox.” Although the SpecBox is available from the PlannerResult file, he uses the TsBox to re-create the pattern and boxes that are also available in the PlannerResult file. Because he uses the TsBox with the original track length and not the SpecBox with the original track length, he was getting different answers. I rolled back the changes that I had made and made more minimal changes, correcting the bug, but restoring the property that when we go from a SpecBox to a TsBox, and then apply the algorithm again to the TsBox, we get the same TsBox. I haven’t proved that that happens, but I ran hundreds of random cases checking this, and it always worked. It seems reasonable that it works and that counterexamples are hard, if not impossible, to find.**
5. **Finished up the work on distinctDetectionThreshold. Had to move that value from a global one to one for each sensor. Sensors can be input on the compObjectType tag or on the individual sensor tag within a multi-sensor, and this is true for both Simulator and Planner, so there were many places to change in the code and several new Sim.properties.**
6. **A little follow-up on an excess effort/overlap problem.**
7. **A little work on SBV, or rather non-work on non-SBV; the StateVectorType will remain non-final ARRIVE for legs that are not the terminal leg of a voyage, and ARRIVE for legs that are the terminal leg; probably “UNDERWAY” will never be used.**
8. **Checked out a multi-sensor sweep width calculation performance issue. Did not see the slowdown that Jim reported. Put timing statements in, but where Jim reported a jump from 1 to 7 seconds, I saw a jump of only 1 to 4. Moreover, the calculation in question had 4 integrals, and each was about ½ second, so there was no apparent bottleneck.**

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| **Name** | **Activity Worked** | **Hours Worked** | **Hourly Cost** | **Total Cost** |
| Kratzke | Coding/Doc/Travel | 178.15 | -- | -- |
|  |  |  |  |  |
| **Totals** |  | 178.15 |  |  |
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