2 Nov, 2017

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**Progress Report – 1 Oct 2017 – 31 Oct 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. **Jira meetings, e.g. Sprint Planning, Sprint retrospective, etc. Lots of meetings.**
2. **Prepped for IPR that has been delayed.**
3. **All Transits. As I dug into it more, I came up with the following specs:**
   1. **Possible Transit Violation for each Frozen (and hence, we can say, for each PatternVariable; it simplifies the format of the output)**
   2. **A separate Transit Violation for each Sortie (not associated with any PatternVariable, so we will assign it to the last one with a different attribute)**
   3. **When CST is given, it must not be given in the first PatternVariable. Although we all agreed to do that, we all overlooked the case when the first PatternVariable is set to onMars. Hence, I’ve moved it back to the PvSeq (aka Sortie)**
4. **Also on Transits, I am doing a different type of initial assignment within an Optimization Pass. The considerations were:**
   1. **A “nearby” region that has only slightly lower probability should be preferred to a “far-off” region that has only slightly higher probability, if there is only one PatternVariable. This preference should decay when there are more than one PatternVariables.**
   2. **Suppose there are (eg) 3 PatternVariables within a PvSeq. As we increase the region for the 1st, we should keep in mind that we need to save duration for the 2nd and 3rd. Hence, we should start to build a region for the 2nd and/or 3rd before the 1st is done. In prior versions of Planner, a PatternVariable’s initial placement within an optimization pass was always completed before the next one was started. We can’t do that with PvSeqs. I had worked on completing the 1st completely before moving on to the 2nd, and I’d done this by pre-allocating 1/3 of the effort to the 1st one (plus the transit to the first one and some of the transit to the recovery). But it was very difficult to maintain the concern in “a.” of this section.  
      Now, I’m actually building all 3 regions in parallel; I expand the one that provides the most increase in POS.**
5. **Also on Transits, I think I have a much better way of getting *any* initial box. Before, I based it on a grid, taking a rectangular section of the grid. Then I re-gridded for different orientations, picking the best answer from the different choices of orientations (typically, about 6). Now I’m using grid with higher resolutions, but not limiting myself to rectangular sections of the grid. I then take the convex hull of the cells I do choose to include, and then fit the smallest rectangle around that hull. No multi-gridding! This could be applied to stand-alone PatternVariables as well.**
6. **Some time spent on maintenance; updating 3rd party libraries, checking the build process, etc.**

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| **Name** | **Activity Worked** | **Hours Worked** | **Hourly Cost** | **Total Cost** |
| Kratzke | Coding/Doc/Travel | 162.06 | -- | -- |
|  |  |  |  |  |
| **Totals** |  | 162.06 |  |  |
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