STSM Scientific Report

Grantee: Zhixian Yan, EPFL, Switzerland
Host: Prof. Yannis Theodoridis, University of Piraeus, Greece
Duration: September 1, 2010 – October 31, 2010

1. Purpose of the STSM

- Exchange the previous works of trajectory reconstruction that have been done independently by Piraeus and EPFL.
- Establish new challenges and approaches for trajectory reconstruction and semantic trajectory computation.

2. Description of the work carried out during the STSM

- Study the recent version of Hermes (the moving object database engine)
- Establish the new requirements / datatypes on modeling trajectories for the trajectory database implementation in Postgres/PostGIS
- Apply the SeMiTri framework to compute trajectories of the Marin dataset
- Improve the paper section about “trajectory reconstruction” in the “semantic trajectory” survey paper of Modap WG3
- Contribute to the report of “The Roadmap of Modap WG4”
- Discuss and clarify the challenges/approaches of real-time and distributed trajectory computation
- Complete the initial development of the online and distributed trajectory computation

3. Description of the main results obtained

- Clarify the roadmap and challenges of trajectory computation, including issues about data cleaning, data compression, uncertainty, data compression, semantics, and real-life computation (e.g. online and distributed computation).
- Establish new implementation requirements of Hermes (trajectory databases) in Postgres/PostGIS. Integrate current SeMiTri framework with the Hermes database engine.
- Establish the detailed ideas of online and distributed trajectory computation, and setup some initial implementations.

4. Future collaboration with host institution (if applicable)

- Finalized the section of “trajectory reconstruction” in the “semantic trajectory” survey paper
- Further develop the work of online/distributed trajectory computation, and target at a joint research publication. (the very first draft was done)
- Continue work on the development of the trajectory database engine in Postgres/PostGIS

5. Foreseen publications/articles resulting or to result from the STSM (if applicable)

- The survey of “Semantic Trajectory Modeling, Computing, and Analysis”, together with other colleagues in the Modap project.
- The paper entitled “*Real-Time and Distributed Trajectory Computation*”, be prepared for MDM 2011 (12th Mobile Data Management Conference)

6. Confirmation by the host institution of the successful execution of the STSM

This STSM was undoubtedly successful. The collaboration was excellent and as it is obvious from the above report that it can be characterized more constructive that it was initially planned to be. The explanation of this was on the one hand the common research interests, and on the other hand, the promptness of Zhixian to energetically participate in the activities of INFOLAB.

7. Other comments (if any)