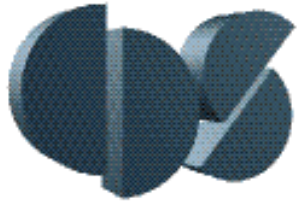
Mission Team



Josh Feingold and Nok Wongpiromsarn
9 October 2006

Team Scope:

- Facilitating the design and roles of high-level control and reasoning.
- Three parts
  - goal management
  - fault tolerance
  - mission/goal consistency

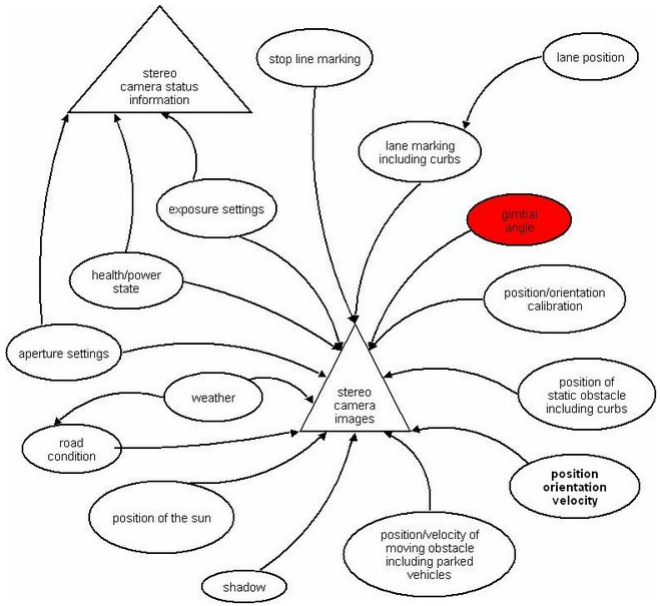
Summer 2006 Members:

- Coordinator: Tim Chung, Nok Wongpiromsarn
- Students: Stefano di Cairano, Noel duToit, Josh Feingold, Shawn Surdyk
- JPL: Bob Rasmussen
- Other: Stephanie Balster (NGC), Jonathan Chow (Lockheed Martin), Adriana Tapus (USC)

Summer 2006 Activities and Status

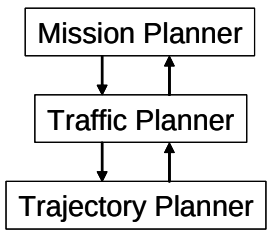
State Analysis

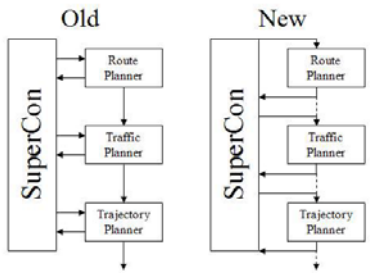
- Provide a process for capturing system and software requirements in the form of explicit models of system behavior.
  - Represent everything we need to know for controlling and estimating the state of the system under control.
  - Capture the physical cause-and-effect relationships between state variables.
- Status: Developed the first version of state models and objective tree



High level system architecture analysis

- Hierarchical (Distributed) VS SuperCon (Centralized)





Fall 2006 Activities

Small projects: none to date

Trade studies

- Supervisory control architectures: hierarchical VS centralized
- Mission and contingency management software: modifying an existing software such as MDS and CLARAty VS developing an entirely new software

Additional activities

- Literature review of existing contingency management approaches
- Traffic scene analysis: go through all the possible traffic scenarios to make sure that the current (hierarchical) architecture is able to handle any of them
- State models and objective tree: refine the first version and make sure that they are consistent with the current architecture and system spec