

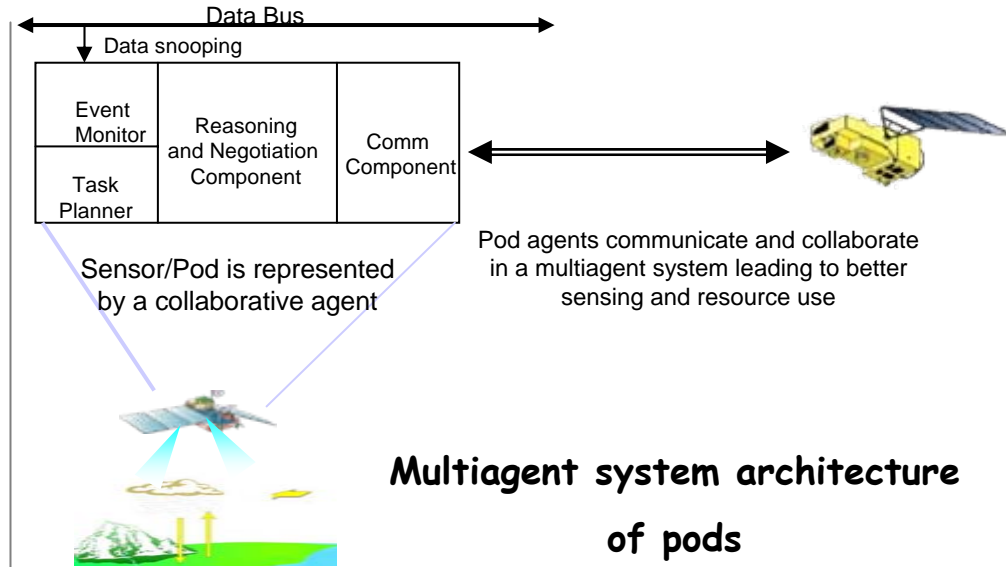


An Adaptive, Negotiating Multi-Agent System for Sensor Webs

PI: Costas Tsatsoulis, University of Kansas

Objective

- Add an intelligent agent to each pod in a Sensor Web
- Allow agents to plan for future sensing tasks and determine sensing resources needed
- Allow agents to collaborate and form dynamic coalitions to handle tasks that a single pod cannot do
- Allow agents to negotiate in order to form the best set of coalitions that maximize the overall utility of the Sensor Web
- Demonstrate the technology on simulated and real Sensor Web



Approach

- Develop intelligent, self-aware, collaborative pod agents
- Develop negotiation techniques to allow pod agents to share tasks and cooperate, while maximizing the overall utility of the pod coalition
- Develop event monitoring techniques that allow pod agents to create data collection plans that may involve pod coalitions.
- Validate system in simulated and then realistic pod environment

Co-I's/Partners

- None

Key Milestones

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|---|---------|
| • First Implementation of Pod Agent | 5/2007 |
| • Integrate Simulated Environment with Agents | 12/2007 |
| • Final Pod Agent | 12/2007 |
| • Develop a Coalition Formation Methodology | 8/2008 |
| • Develop Many-to-One Negotiation Protocol | 8/2008 |
| • End-to-End Demonstration | 12/2008 |
| • Embedding Agents on Real Sensors | 8/2009 |
| • Demonstrate Architecture on Real Sensors | 12/2009 |

TRL_{in} = 2

