



Web Tasking Interface of the Extensible Sensing System

Poonam Jolly, Ben Huang, Eric Osterweil, Andrew Wu, Deborah Estrin
 Laboratory for Embedded Collaborative Studies – <http://lecs.cs.ucla.edu>

Introduction: The structure and implementation of the Extensible Sensing System (ESS)

• ESS Description

- Designed as a testbed for sensors and user interfaces to be used in environment sensing.
- Deployed at the James Reserve to facilitate microclimate analysis.
- Data is communicated through a **Publish-Subscribe Bus** where the clients are databases, GUIs, and other information sinks.



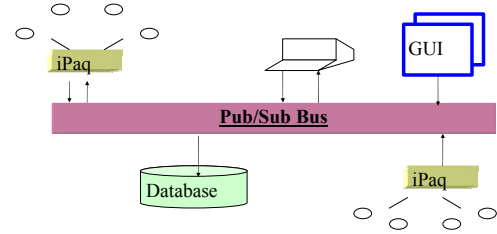
Sensor Node
(Berkeley Mica Mote)

• Goals

- A means of data flow and collection
- Allows remote sensor tasking
- Monitoring of the sensor network state
- Allow the end-user to interact with the network
- Provide an external user with these services over the World Wide Web

Problem Description: Lack of a well-defined user interface

- This GUI is designed with the intent of making it easily accessible to any user.
- Reasons for a Web Tasking Interface
 - The need for remote sensor tasking and network monitoring.
 - Means of allowing the end-user to make data requests to the sensor network.
 - To allow scientists to configure and access experiments and data.
 - Simplicity of using a web client allows the average user to access the GUI.



Proposed Solution: Designing an extensible interface to facilitate user interaction

User Requests

- Several webpages are created to allow users to reprogram and monitor various aspects of the network.
 - Type of data collected
 - Number of nodes deployed
 - Data collection specifications

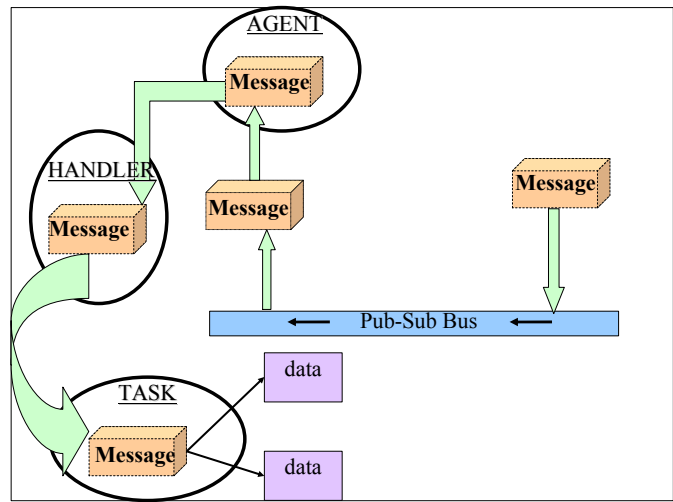
Services

- The user's data request is parsed and input to a storage class through a CGI program.
- This user input is then serialized and sent over a Publish-Subscribe bus.
- The message is received by the ESS Handler.

Tasks

- The Handler then passes the message into the tasking class corresponding with the service request being received.
- The tasking class unpacks data from the message.
- The tasking class provides for the appropriate execution of the tasks specified.
- This data is then analyzed within the network and the results are sent back to the user over the pub-sub bus.

Data Requests, Services, and Tasking



Path traveled by a message

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