Janus: Flexible Interaction with Sensor Networks

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The Research Problem

• Sensor networks seldom run in isolation
  - configuration
  - sensing tasks often imply external contact
• Internet-type networks and Sensor networks operate on different principles
• Existing access high level access approaches are typically application specific
Approach

• An “overlay” or “middleware” architecture to provide flexible and lightweight access to sensor networks.
“Janus”

• flexible signalling mechanism

• RPC-like access to sensor network functionality

• dynamic negotiation supporting deployment of new functionality
Architecture
A Vision

• Active Networking
  − Code deployment platform: extreme flexibility
  − Dynamically load code into sensor network
  − Code can be invoked via Janus RPC-style approach
  − Currently work-in-progress
Future Directions

- Supporting multiple sensor nets
  - TinyDB
  - Suggestions?

- Supporting multiple front ends
  - WWW
  - SMS
Conclusions

• Challenge: Providing flexible access to sensor network resources

• Approach: Middleware with on-demand querying and event-driven notification

• Benefits:
  - flexible
  - lightweight