MultiModal Command and Control

Concept/ Goals

- **The Command Post Information Environment (CPIE)**
  - Use PDAs to access information and control devices
  - Recognize speech from free microphones
  - Interact in shared 3-D space
  - Recognize gestures from PDAs and hands in the air
  - Provide active links between information products, analyses, sources—enabling rapid drill-down, update
  - Tailorable information awareness

Technical Approach

- Use interpreted language for rapid tailoring of task-specific 3-D interfaces
- Use *fabric/events* model for meeting browser/integrator
- Support ubiquitous wireless PDAs as mobile gateway to CPIE
- Enhance proven speech recognition technology
- Capture face-to-face “backchannel” gestures from hands and PDA pens

Technical Barriers / Risk

- **Human interaction**
  - Rapid tailoring for effective information awareness
  - Feature extraction from ongoing sensor and notes record
  - Error detection and correction techniques for speech
- **Integration**
  - Speech and gesture with visualization components
  - 3D interaction techniques with 3D displays
  - PDA and collaborative tools with other components
  - Effective wireless technologies for connecting devices together
- **Sensors**
  - Speech and gesture recognition at high accuracy

Schedule / Milestones

- Year 1
  - Speech and gesture recognition for CPOF activities
  - 3D interaction techniques
  - PDAs as input and control devices
- Year 2
  - Integration of speech with other components
  - Learning new gestural shortcuts
  - Structured note-taking for transcripts, presentations
  - Integrated CPIE record supporting awareness
- Year 3
  - Speech recognition from free microphones
  - 3D gestural meeting record
  - Meeting records indexed, searchable, evolvable