

# Communicator

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**DARPA/IAO**





# Problem

## The 10-Minute Trip Plan

**Multiple turns, multiple domains**

You are in Denver, Friday night, 8pm, on the road to airport after a great meeting. As a result of the meeting, you need to attend a group meeting in San Diego on Point Loma on Monday at 8:30, a meeting Tuesday morning at Miramar at 7:30, then one from 3-5 in Monterey; you need reservations (car, hotel, air).

**Conversational interaction, spoken output**

You pull over to the side of the road and take out your Communicator. Through spoken dialogue (augmented with a display and pointing), you make the appropriate reservations, discover a conflict, and send an email message (dictated) to inform group of changed schedule.



# Background

**W:** I need an early flight to send new computers to Bosnia  
**C:** Where from?  
**W:** Washington DC  
**C:** OK, there's a Tuesday evening flight out of Andrews arriving 8:38 AM on Wednesday in Frankfurt Germany  
**W:** No, I prefer [a flight from Andrews into] Ramstein Germany.  
**C:** How about MAC Flight #1296 arriving Ramstein at 10:45AM on Wednesday?  
**W:** Is that a C-141 aircraft?  
**C:** No, it's a C-5.  
**W:** OK, arrange for transportation on that flight

Living & Working  
in Operational  
Environments



Spoken mixed-initiative dialogue  
with context tracking, clarifications  
and confirmations

Dialog Clarifies  
Interaction

**Goal: Address research issues required to develop intuitive, mobile interfaces to distributed information**



# Objective

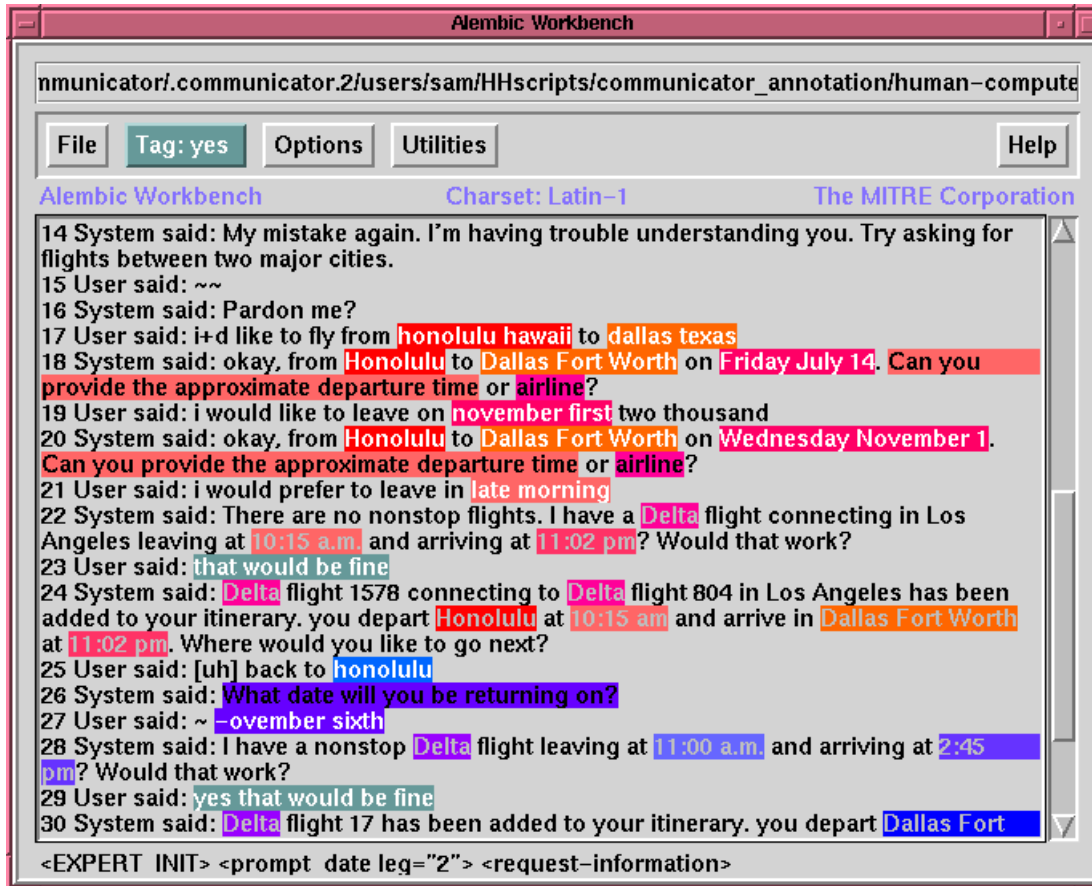
- **Facilitate the development of, and create a market for, next generation of dialogue systems**
  - **Emphasize open source modules and distributed architecture for plug & play**
  - **Support natural interaction exploiting advances in dialogue management, speech, language generation, etc.**
  - **Address in-vehicle spoken dialogue, including hard acoustic issues**
  - **Achieve military technology transfer**



# Activities

- **Open source architecture and modules**
  - Infrastructure development and support
  - Collaborative software development (audio, parsing, dialogue)
  - Toolkit of open source modules
- **Plug and play/portability**
  - Standards monitoring and development, heterogeneous system development
- **Exploration of dialogue data**
  - Contrasts between human-human and human-computer dialogues
  - Inferring errors

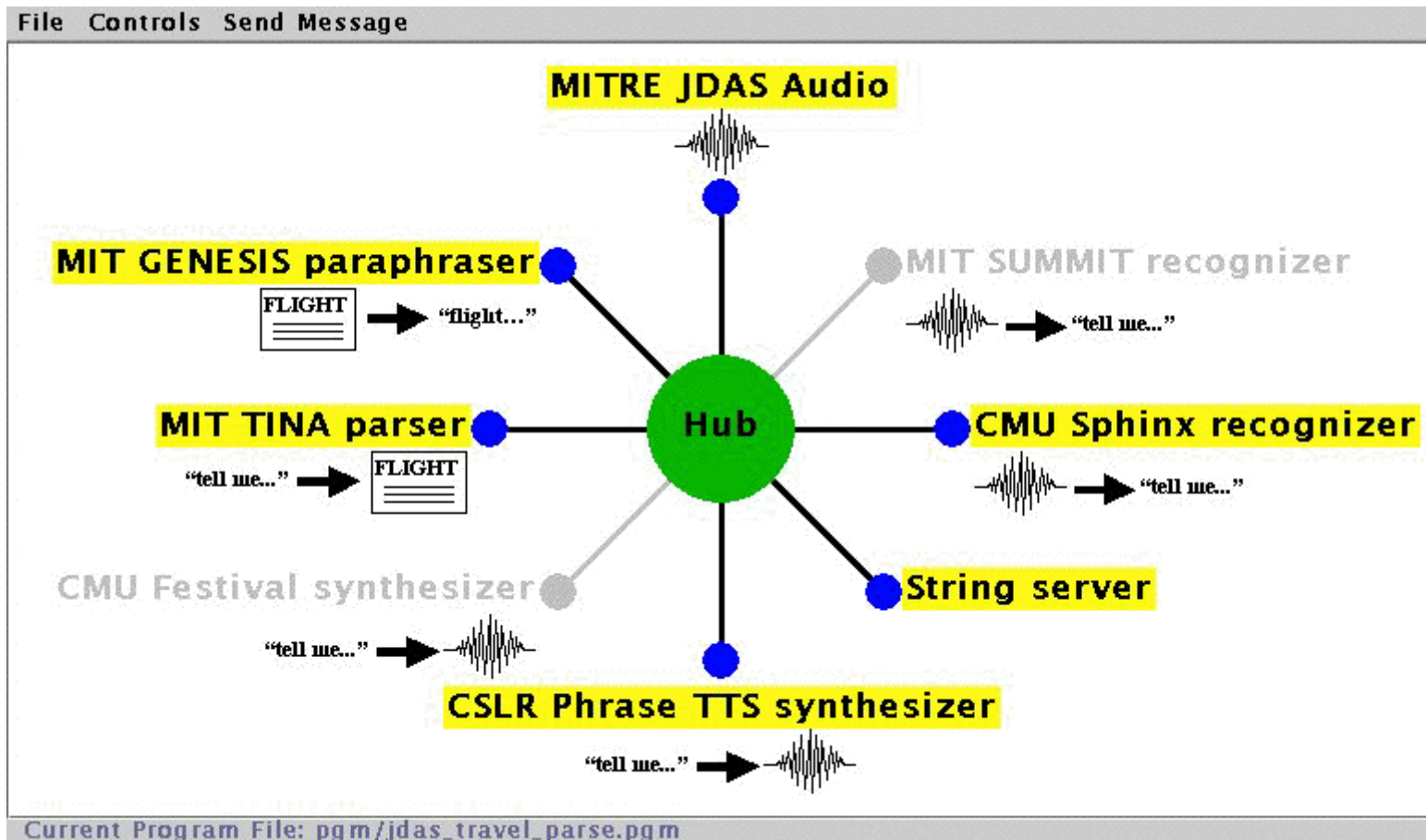
# Highlight



MITRE's work in exploring human-human and human-computer dialogues will contribute to the state of the art in dialogue system design



# Highlight



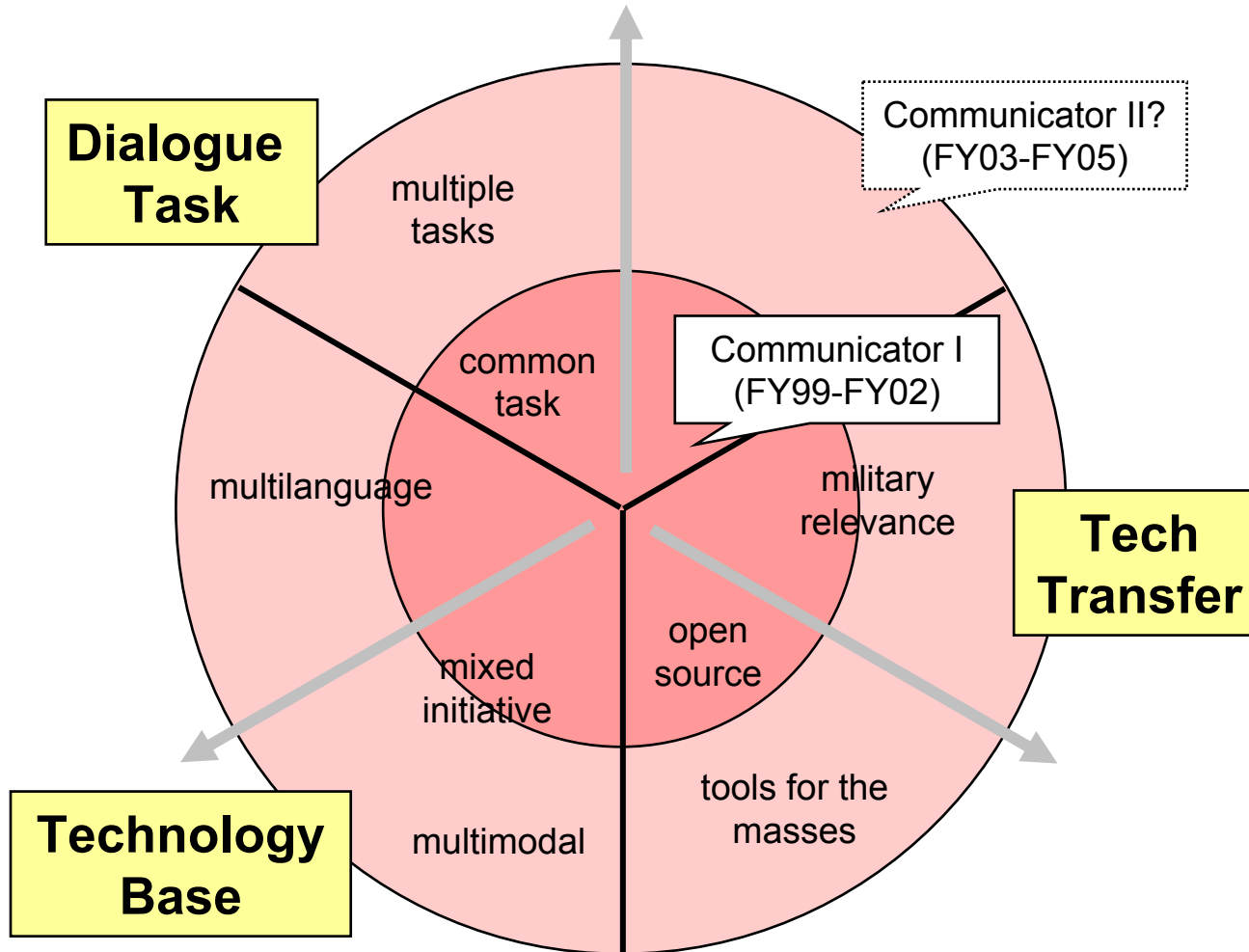
The Communicator infrastructure is highly flexible, portable and configurable



# Impacts

- **Open source Communicator architecture available to researchers around the world**
- **MITRE leadership in audio tools and speech service definitions will help enable true low-cost, plug and play access to speech-enabled interaction**
- **Published research in dialogue exploration will help guide the course of interface development**

# Future Plans



**DARPA plans for Communicator followon will push the envelope in low-cost, sophisticated interaction**