

## DICIT Technologies

- > Multi-channel acoustic echo cancellation
- > Blind source separation
- > Adaptive beamforming and dereverberation
- > Acoustic event detection and classification
- > Multiple speaker localization
- > Speaker identification and verification
- > Distant-talking automatic speech recognition
- > Natural language understanding
- > Mixed-initiative dialogue
- > Adaptive user profiling and customization
- > Voice/haptic multimodality



## Other applicative contexts

- > DICIT technologies may be fruitfully re-used in other applicative areas as home automation, surveillance, and automotive telematics.
- > In particular, home surveillance represents a second domain to investigate during the project.

## Foreseen prototypes

- > Distant talking spoken dialogue in three languages (D/E/I)
- > Anti-intrusion acoustic monitoring



FONDAZIONE  
BRUNO KESSLER



CONNECTING A COM



advanced multimedia services



## Project Coordinator

**ITC-Fondazione Bruno Kessler**  
IRST  
Povo, Trento - Italy  
Project Manager Dr. Maurizio Omologo

## Project Consortium

**AlpiKom S.p.A.**  
Trento - Italy  
Professional Service Dr. Andrea Lastrì

**Amuser S.p.A.**  
Torino - Italy  
Manager of Prototyping  
Dr. Roberto Manione

**Elektrobit Automotive GmbH**  
Erlangen - Germany  
Manager Speech Dialog Systems  
Dr. Silke Goronzy

**Fracarro Radioindustrie S.p.A.**  
Castelfranco Veneto - Italy  
Technical Director Dr. Luigino Righetto

**Friedrich-Alexander-Universität**  
Erlangen-Nürnberg - Germany  
Chair of Multimedia Communications  
and Signal Processing  
Prof. Walter Kellermann

**IBM Česká Republika**  
Praha - Czech Republic  
IBM Research Dr. Jan Sedivý

## Contacts

**Project Manager**  
**Maurizio Omologo**  
**ITC-Fondazione Bruno Kessler**  
IRST - SSI division  
Via Sommarive, 18  
38050 Povo (TN) - Italy  
omologo@itc.it

## For Information

**Luisa Perenthaler**  
**ITC-Fondazione Bruno Kessler**  
IRST  
Via Sommarive, 18  
38050 Povo (TN) - Italy  
perenthaler@itc.it

# Distant-talking Interfaces for Control of Interactive TV

**DICIT**  
Distant-talking Interfaces  
for Control of Interactive TV

<http://dicit.itc.it>

<http://dicit.itc.it>



STREP PROJECT  
Contract number: FP6 IST - 034624  
Strategic objective: 2.5.7 - Multimodal Interfaces  
Duration: October 2006 - September 2009



Information Society  
Technologies



DICIT addresses the development of advanced technologies for speech/acoustic processing and interpretation based on multi-microphone devices.

### The interactive TV scenario

The project focuses on a novel concept of interface to TV related devices. The DICIT system shall understand commands spoken by multiple users in a living room, even in the presence of background noise and TV surround audio propagated in the environment.

### Main challenges

- Detect and interpret acoustic events.
- Free the user from typical constraints as: close talking and restricted language.
- Ensure robust performance under adverse noisy conditions and room acoustics.
- Realize a mixed initiative dialogue and learn user's preferences.
- Complementary use of voice and remote control.

### Functionalities

- TV/STB control by voice
- advanced search in EPG

DICIT handles a multiple speaker context

The microphone array allows spatially selective capturing/enhancing of the active speakers

Output of surround system is dynamically compensated and ignored for speech recognition

DICIT, what movies are on tonight?

Voice command complements remote control

DICIT identifies and rejects non-speech events

DICIT, pause this program!

