



MICA activities Related to PAMM project

Eric Castelli French co-director

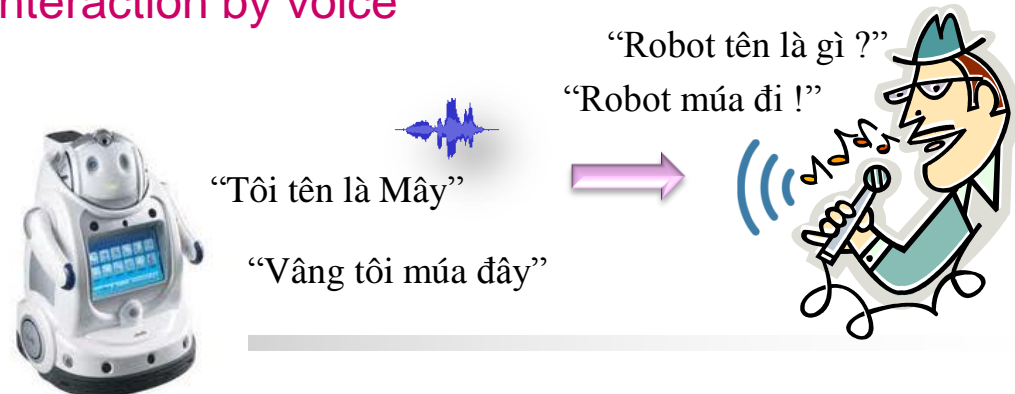
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UMI 2954

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MICA activities 1

Human-System Interaction with Speech

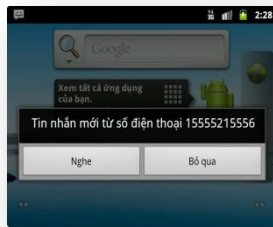
- **Vocal technologies & human machine interaction by speech – in Vietnamese**
 - ◆ Development of speech technologies
 - ★ speech synthesis
 - ★ recognition and understanding
 - ◆ Development of applications on embedded systems
 - ★ smartphones
 - ★ DSP-based systems
 - ★ service robots
 - ◆ Improve the quality of human computer interaction system
 - ★ **Human-Machine Interaction by voice**



MICA activities 1

Developed devices and systems

Synthesis for Vietnamese



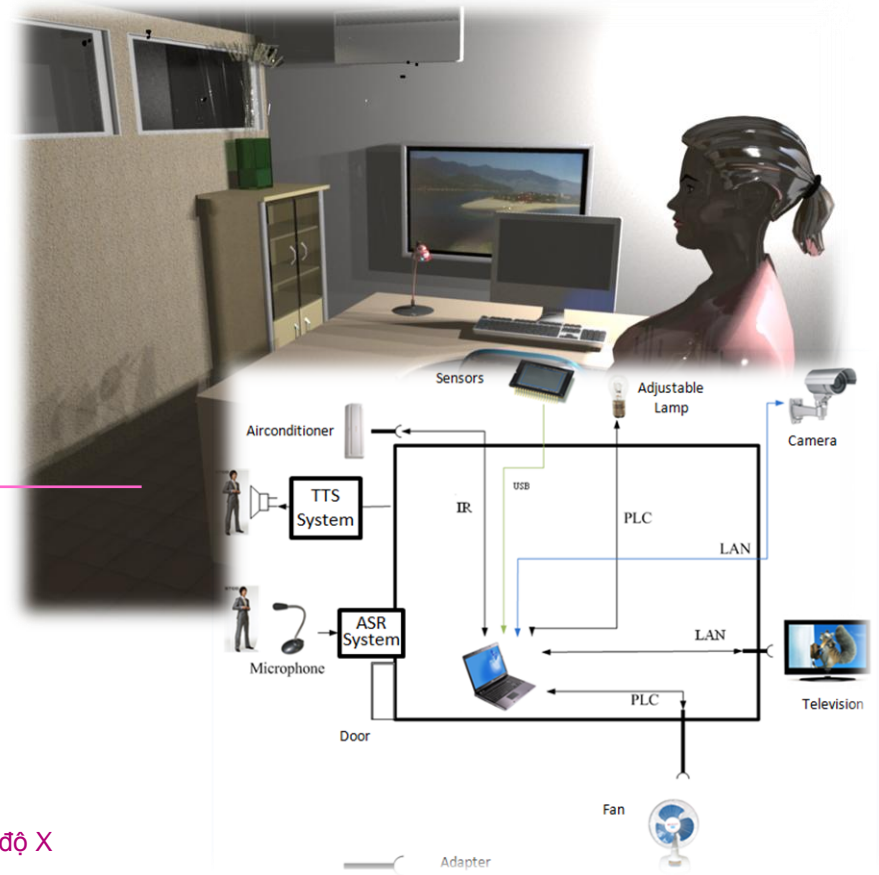
VIVA

Vietnamese
Voice **A**ssistant
system



Smart Robot

Intelligent room controlled by voice

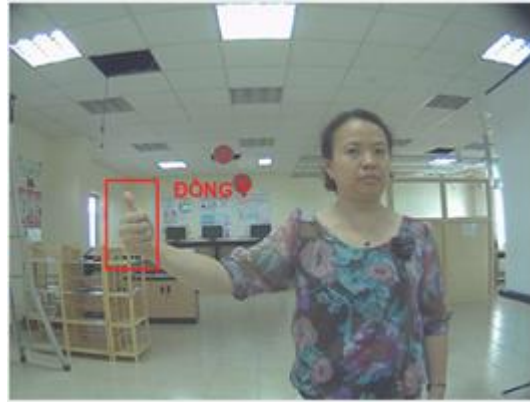


	Commands
Door	cửa mở / đóng
Lamp	đèn bật / tắt đèn sáng lên / tối đi
Camera	camera bật / tắt camera phải / trái
Airconditioner	điều hòa bật / tắt điều hòa tăng / giảm điều hòa thiết lập nhiệt độ X
Television	tivi bật / tắt tivi tăng / giảm âm tivi tăng / giảm kênh tivi kênh một / hai / ba / bốn / năm

MICA activities 2

Vision based human-robot interaction

- Study the **human behaviour** in human-machine interaction
- Design **visual vocabulary** for interaction
- **Understand interaction**
 - ◆ **Hand gesture** recognition
 - ◆ **Facial expression** recognition



MICA activities 3

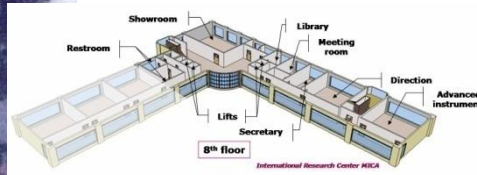
User and devices localization for location-based services LBS

■ Multimodal localization

- ◆ Test platform → 3 floors (MICA building)

■ Localization of

- ◆ User
- ◆ Robot
- ◆ Drone
- ◆ Etc.



MICA related publications

■ Book chapter

- ◆ LE T.L., THONNAT M., BOUCHER A. (2012) Recent Developments in Video Surveillance InTech, chap. Appearance-based retrieval for tracked objects in surveillance videos, pages 39-56 - April 2012

■ Journals

- ◆ DAO T.K., PHAM T.N.Y., NGUYEN T.L.H. (2012) Development of a device controller using voice recognition based on Beagleboard embedded platform Journal of Science and Technology Technical Universities pages 27-31 vol. 89 - July 2012
- ◆ NGUYEN T.T.M., NGUYEN V.S., TRAN T.T.H. (2011) Designing a hand gesture vocabulary for human-robot interaction applications Journal of Science and Technology Technical Universities pages 22--29 num. 83B - July 2011
- ◆ TRAN T.T.H., DO N.T. (2011) Multiple objects tracking for video surveillance Journal of Science and Technology Technical Universities pages 16-21 num. No 83B/201 – 2011 issn: ISSN-0868-3980

■ Conferences

- ◆ DAO T.K., CASTELLI E., NGUYEN H.L. (2013) “Home appliance control system based on robust indoor user localization using Wifi signals,” Human Machine Interaction conference HMI2013, Chennai, India, 3-2013. (accepted)
- ◆ DAO T.K., LE T.L. (2012) “A mail delivery robot based on room number plate recognition,” The 6th Vietnam Conference on Mechatronics, Hanoi, Vietnam, 12-2012.
- ◆ NGUYEN Q.C., LE T.L., NGUYEN V.T., TRAN D.D. (2011) Interactive Museum Tour-Guide Robot based on Multimedia Technology, Vietnamese Conference on Control and Automation, VCCA 2011, 11-2011.
- ◆ NGUYEN V.T., PHAM T.N.Y. (2001) Integration of human-machine interaction in automation control, Vietnam conference on Control and Automation, 2011