Objective

The project aims at supporting multilingual and multimodal negotiation in e-commerce and e-service by providing a robust, flexible, scalable and portable speech-to-speech translation system. NESPOLE! will also provide for multimedia presentations, shared collaborative spaces and multimodal interaction and manipulation of the objects in the joint e-commerce spaces. Results will be integrated and demonstrated in two showcases. Scalability will be evaluated by enlarging the application domain, i.e. tourism; cross-domain portability by porting the system on a second domain, i.e. video help-desk; robustness, by evaluating the system on data collected in realistic conditions; and multimodality by testing showcases against experimental data. The project will take advantage of extensive common research experience among the partners.
Objectives:
In order to be effective in e-commerce/service scenarios speech-to-speech translation systems need to be improved with respect to:
1) robustness, namely the capability of coping with the dis-fluencies of spontaneous speech including interruptions, corrections, repetitions, false starts, etc;
2) scalability, namely the possibility of extending the application domain in a cheap and effective way;
3) cross-domain portability, making it easier and more cost-effective to implement a speech-to-speech translation system to a new domain;
4) multimedia and multimodality.

The system we envisage will provide multimodal support for negotiation, by allowing a close integration of, and interaction between speech-based communication and visual cues and content. The project will produce two showcases demonstrating the advantages and viability for e-commerce and e-service of integrating the developed multilingual, speech-to-speech translation techniques with multimedia and multimodal supports.

Work description:
The project will last 30 months. Two showcases will be implemented: the first after 14 months, demonstrating the results obtained with respect to robustness and multimedia integration. The second showcase, at the end of the project, will be devoted to scalability, portability and multimodality. The systems to be developed for the showcases will be centred around an intermediate representation format. In view of the mentioned technological and scientific objectives, the consortium will explore a number of different approaches both to the analysis of the input and to the generation of the output. This means that solutions based on single-engine architectures will be experimented with, as well as multi-engine approaches which, by combining several different translation modules attempt to maximise the benefits of their combined performance in terms of robustness and translation quality. The approaches to be implemented in the showcases will then be chosen according to the results of the experimental phase, with the only constraint being that they intermediate representation-based. Concerning multimodality, the consortium will start by performing careful and detailed studies of the domains of interest for NESPOLE!. The objective is a better understanding of the ways multimodality can be used within the context of multilingual human-to-human communication mediated by speech-to-speech translation systems. Then, the architectural implications will be studied in order to solve the pointing-referring expressions synchronisation problem, and new requirements for the speech-to-speech translation will be provided. Finally, in the second showcase some selected multimodal functionalities will be demonstrated. Each single module and each showcase will be evaluated by using data reflecting the real tasks.

Milestones:
NESPOLE! will deliver three different speech-to-speech translation systems at different stages of the project: - a first speech-to-speech translation system geared towards tourism and embedding multimodal features - a second speech-to-speech translation system for tourism, with a larger coverage of the domain, richer interaction modalities, more sophisticated multimodal interaction, demonstrating progress on the scalability issue - finally, and simultaneously to the second system, a speech-to-speech translation system for an advanced multilingual help desk, demonstrating results concerning cross-domain portability.

NESPOLE! Prototype is a communication system based on speech to speech translation. NESPOLE! has delivered three different human-human communication systems:
- a first speech-to-speech translation system geared towards tourism and embedding multimodal features;
- a second speech-to-speech translation system for tourism, with a larger coverage of the domain, richer interaction modalities, more sophisticated multimodal interaction, demonstrating progress on the scalability issue;
- finally, and simultaneously to the second system, a speech-to-speech translation system for a distance medical assistance of first level, demonstrating results concerning cross-domain portability.

Programme(s)

Topic(s)

Funding Scheme

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