Flexible and Extensible Architecture

VITALAS is built on a flexible, Web Service architecture specifically designed for multimedia processing components. It therefore allows the integration of independently designed components, and facilitates integration of the best breed of modules. Speed of application development, integration and deployment is also significantly improved.

This approach facilitates integration with potential customers’ existing systems; this is highly significant, as it means VITALAS can be introduced such that new customers can benefit from new functionality without disrupting existing business workflows.

As Web Services remove technical heterogeneity problems (without resolving semantic heterogeneity), we developed a specific exchange model that supports interoperability of heterogeneous multimedia components. The framework employs secure SSL-based transport for communicating between components. Logging facilities can be used to record user activity, which can be exploited by the profiling components to ultimately provide more relevant results.

Performance and Scalability

Technologies enabling searches in very large and heterogeneous databases is one of the main target challenges of VITALAS. The system validation will be performed on real and archive databases, up to 10,000 hours of television archives and 3,000,000 of political/societal news content images.

More information: Go and visit the project web site
http://vitalas.ercim.org
VITALAS is a use-case driven project that aims to deliver a pre-industrial prototype allowing intelligent access to large scale multimedia professional archives, through personalized services coupled with new technological functionalities.

**VITALAS Objectives**

- **VITALAS** identifies the most relevant document set in an automatic process, and prioritizes the manipulation of results sets. To facilitate this process, **VITALAS** improves existing approaches such as visual feedback exploiting the user's capability to group documents perception. **VITALAS** makes more intuitive what should be done next, supports user actions, and really allows users to feel they are controlling the navigation.

- **VITALAS** offers personalisation that allows the system to adapt to a user’s context of operation. Knowledge about the users and their goals is key to retrieve the most relevant documents for a particular context. The results in a system that can be customized according to the needs of a specific user.

**VITALAS** is the Next Generation Multimedia Search Engine

**VITALAS** enables content-based retrieval and browsing of very large audio and visual datasets without pre-existing metadata through different advanced technologies:

- Automatic retrieval of video results through advanced content-based speech recognition.
- Automatic annotations through generic “object” recognition allowing post-editing of multimedia content.
- Context based filtering, re-ranking and browsing of visual contents.
- Automatic structuring of video streams.
- Automatic, duplicative and non-duplicative retrieval.

**Advanced Visual Interfaces**

- **Local Interactive Similarity Map Navigation**
- **Global Map Visualization**

**Advanced Visual Interfaces**

**Automatic Annotation**

**VITALAS** uses advanced machine learning techniques to identify concepts based on audio, visual and textual features.

**VITALAS** allows for a professional annotator to be fully involved in the process. The annotator benefits because the system greatly reduces the amount of effort required by automatically suggesting classifications and annotations. The system in turn benefits and learns from the experience of the skilled professional annotator.

**VITALAS** is the Next Generation Multimedia Search Engine

**VITALAS** is developing cross-media indexing techniques that consider all media inputs – visual, from a content-based analysis of visual features, audio analysis providing word and phonetic transcription, and detecting acoustic concepts such as the gender of the speaker; and text, derived from still image captions and speech-to-text transcription services to video content. **VITALAS** is targeting to go beyond current best practices in the development of efficient scalable cross-media indexing techniques. **VITALAS** is developing machine learning methods together with new content description methods. A large set of concepts, statistically derived from image, video, captions, previously search logs, and post-edited by content providers, will generate the concepts that people are searching for. The production of a large set of annotated ground-truth data needed for training and testing machine learning techniques has been facilitated by a new annotation tool, which first clusters images to speed up manual annotation.

**Scalable Cross-Media Retrieval**

**VITALAS** develops cross-media probabilistic retrieval methods, matching all media inputs up to an effectively retrieve relevant images and video which satisfy users’ multimedia information needs. Retrieval results are refined by taking into account the explicit and implicit relevance feedback users provide during their interactive retrieval sessions. These search interactions are logged so that they can be better explored by the retrieval model, to enhance retrieval results based on the collective experience and knowledge of past users. Search logs are also used to adapt retrieval results to the users’ context, focusing them on each user’s particular interests and task at hand. The **VITALAS** cross-media retrieval techniques are currently being implemented in national environments and evaluated in international benchmarks and **VITALAS** users’ trials.