TELEMETA, Web project for handling academic research sound archives

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Abstract. The abstract should summarize the contents of the paper and should contain at least 70 and at most 150 words. It should be written using the *abstract* environment.

Keywords: Sound archives, Ethnomusicology, Database, web platform, Metadata

1 Introduction

In social sciences like anthropology or linguistic, researchers have to work on multiple type of multimedia documents like photos, videos, sound recordings or databases. The need to easily access, visualize and annotate such materials can be problematic given their diverse formats, sources and given their chronological nature.

Accessing audio archives materials with numerous collection of items of arbitrary duration ranging from a minute to several hours was a common issue shared by some laboratories from the french National Center on Scientific Research (CNRS) and involved in research on Ethnomusicoly. Those laboratories, the Research Center on Ethnomusicology (CREM),the Musical Acoustics Laboratory (LAM, UMR 7190) and the sound archives of the Mediterranean House of Human Sciences (MMHS) have decided to join together to develop a solution for managing, preserving, accessing and broadcasting their sound archives.

Beside the audio data, an efficient and dynamic management of the associated metadata is also required. Consulting metadata provide both an exhaustive access to valuable information about the source of the data and to the related work of peer researchers. Dynamically handling metadata enable to further and continuously improve the materials or to add new information in a collaborative manner.

In light of those considerations, as no existing *open-source* application was available, the need to specify and develop one has emerged. Since 2007, the CREM laboratory has been developing *Telemeta*, a innovative, collaborative and

* This work was partially done inside the DIADEMS project funded by the national french agency ANR

interdisciplinary framework that both fits the professional requirements from sound archivists and human sciences researchers.

With the help and expertise of Parisson, a company specialized in the management of audio database, a first prototype of this web-based multimedia platform, named *Telemeta* has been online since 2008 and enable to access sound archives of the CREM laboratory and their associated documentations [5].

2 Telemeta architecture

The main goal of *Telemeta* is to facilitate the work of both researchers and archivists and to provide a convenient way to broadcast or distribute the digital audio collections.

Telemeta architecture is flexible and can easily be adapted to particular database organization of a given sound archives. The compatibility with other systems is facilitated by the integration of the metadata standards protocols *Dublin Core* and *OAI-PMH* [2,4].

Telemeta features multi-criteria text-based search engine and functions to easily navigate inside an audio item. + audio analysis (via TimeSide) + time markers for annotation and segmentation of instant or temporal region of the audio data.

Online sharing of the data enable a collaborative work of different partners with complementary skills and thus optimize the continuous process of knowledge gathering and enhancement of the database.

2.1 Web interface to Audio database

Django Database model Audio player with annotation capabilities see section 2.2

2.2 Metadata

One of the major challenge is the standardization of audio and metadata formats with the aim of long-term preservation and usage of the different materials.

- Geographic and cultural informations (Location details, population/social group, ethnographic context)
- Musical informations (style, composition, interprets, ...)
- Archiving data (code and reference to the item)
- Technical data (media type and duration)
- Related media (any other material (images, video or text document associated with the audio item)

3 TimeSide

3.1 Audio management

Gstreamer, web player with enhance visualization (waveform, spectrogram)

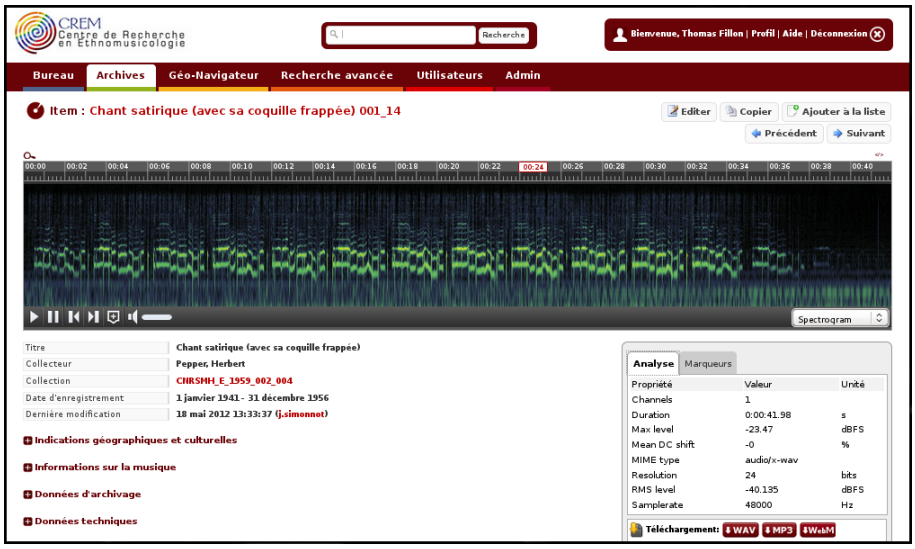

Fig. 1. Telemeta

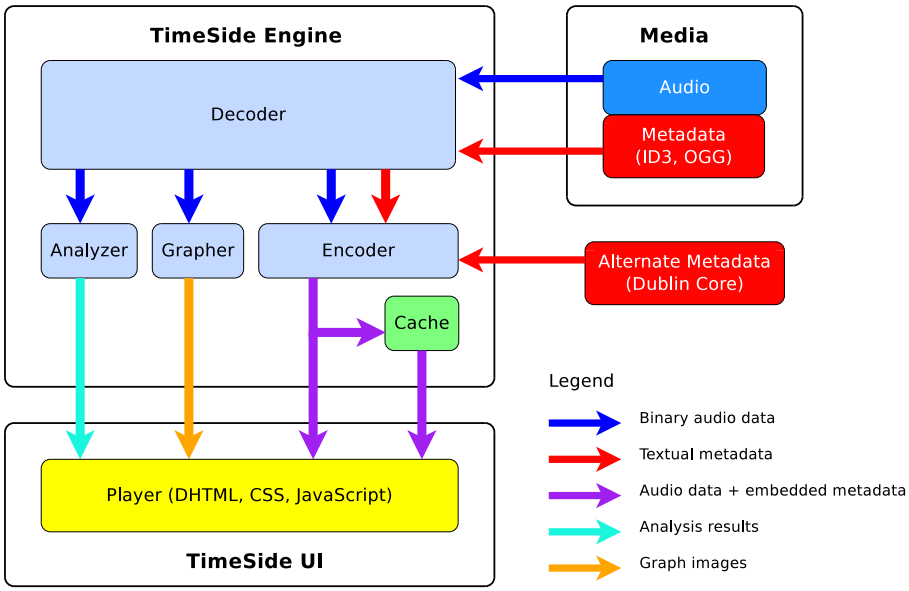

Fig. 2. TimeSide architecture

3.2 Audio features extraction

Include reference audio feature tools : Aubio + Yaafe + Vamp [3,1] flexible architecture

4 Current development and perspectives

interdisciplinarity is further enhance by the Music Information Retrieval, Speech technology Diadems project

4.1 Audio analysis

Development of tools to offer new audio analysis tool to ethnomusicologis research studies + music similarity

4.2 Automatic segmentation and classification

- singing / talking voice segment
- ...

Acknowledgments. The authors would like to thanks all the people that have been involved in *Telemeta* specification and development or have provide appreciated thoughts during discussions.

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