Indigenous Knowledge and Resource Management in Northern Australia (IKRMNA) - ARC Linkage Project

School of Australian Indigenous Knowledge Systems – Charles Darwin University

Charles Darwin University
Innovation in Education

Australian Government
Australian Research Council

http://www.cdu.edu.au/centres/ik/

Software Requirement Document - Jan 2005

Description of the Problem: Why the software needed

There are a number of initiatives that have begun to deal with the rapid loss of indigenous languages and traditions. Many of these initiatives are based on the model of the archive to inform their development. Groups have developed databases with rich metadata schema in an attempt to record and document oral knowledge traditions. One of the underlying assumptions of such systems is that knowledge can exist and be located within a collection through a priori ontological structures of metadata. The danger is that these collections become *graveyards of objects* which are no longer accessible to the practices of indigenous knowledge traditions, and that such knowledge is even more in danger of being lost. If we assume rather that knowledge is produced at the point of performance of situated understandings we come to the conclusion that the producers of knowledge are to be inextricably involved in its production and reproduction. This project seeks to explore computing solutions that will allow as much as possible the owner/users to employ a simple and ontologically free system whereby they can produce, organise and re-purpose digital objects in ways congruent with their knowledge traditions. The database is not a repository of knowledge, it is a digital context for knowledge production. It is work done together within the environment (digital and nondigital) which produces knowledge. The database is ontologically flat, it is the users who encode the relations between objects and the metadata which enriches them.

Background

The School of Australian Indigenous Knowledge Systems at Charles Darwin University is involved in research into digital technologies and the intergenerational transmission of traditional indigenous ecological knowledge. Some of this work has involved looking at ways in which information in already existing official archives (eg the Land Councils, the Darwin Herbarium) can be repatriated and re-figured for local use. The research is also looking at how people are currently using digital technologies on the ground, and the ways in which contemporary software (including databases) and hardware environments can help or hinder this work. We have begun to develop a variety of solutions which come from an interaction between our theoretical work (on knowledge, and technology) and our discussions with Aboriginal people on the ground and our other research partners who work with them in natural and cultural resource management.. Some of this work is described on the project website www.cdu.edu.au/ik. We see the various projects arranged along a continuum with at one end, official archives with all their formal structure and metadata protocols, and at the other end a completely fluid file management and database system which bears with it no western assumptions about knowledge or the ecology, and which maximises the possibility for the user to creatively relate and annotate assemblages of resources for their own purposes. We call the system TAMI.

General Description

- TAMI (Text, Audio, Movies and Images) is a database and file management system for indigenous use. TAMI is cataloguing type software aimed at providing a visually based system for people to manage their own digital resources for perpetuating collective knowledge traditions. The focus is on an easy to use, assumption -free system, to view, organise, find, and assemble digital resources.

Objectives

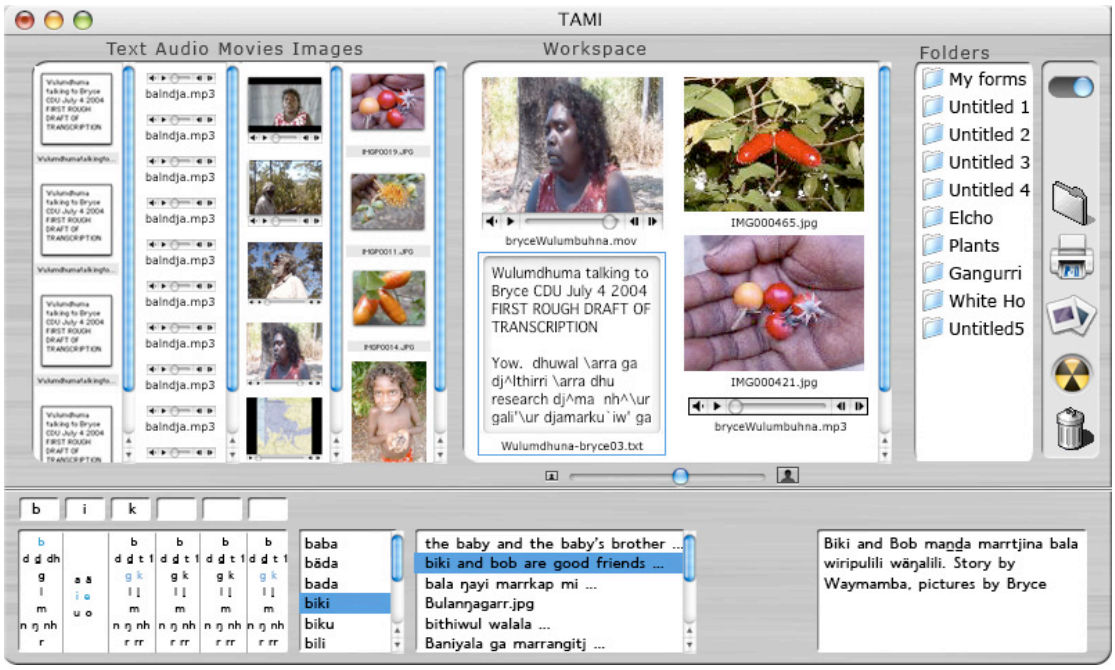
- TAMI's objectives are
- to remain faithful to the principles and practices of indigenous knowledge production,
- to be useful for people with little or no literacy skills
- not to store large amounts of repatriated resources, but to make smaller amounts of valued resources easily augmented for the purposes of collective memory making.

- to be ontologically flat: as far as possible it encodes no assumptions (eg through metadata structures) about the nature of the world or the nature of knowledge, it is the user who encodes structure into the arrangements of resources and metadata.
- for the users to become the designers as they bring together resources, then group and order them, and create products (like DVDs and printouts).
- for the ways in which truth claims are assembled and validated collectively within particular indigenous knowledge traditions, can be left fluid.
- wherever possible existing conventions from software solutions which are already familiar to indigenous users are employed.

People/Groups involved

The ARC Linkage Project group is working with various Indigenous groups (eg Gulumerrgin Larrakia, Yothu Yindi Foundation, Galiwin'ku Knowledge Centre) who are interested in exploring the use of computers and the management of collective knowledge traditions.

TAMI draft concept interface diagram



Features and Functions

- one single interface screen enables search, building presentations, upload, metadata creation and amendment and view.
- a workspace enables different objects to be viewed simultaneously, and arranged into folders.
- users will be able to upload resources into TAMI by a simple drag-and-drop as well as through accessing other software (such as iPhoto and iTunes).
- the only a priori ontological distinction at work in the database is the distinction between texts, audios, movies, and images. Apart from that there are no pre-existing categories (as there are in other database where metadata are sequestered into fields). This provides a certain ontological flatness so indigenous knowledge traditions are not pre-empted by western assumptions.

- objects can be uploaded and searched without metadata. (metadata can be added at any time. Its purpose is to enrich the resources and to help text-based searching)
- where there is metadata, there is a simple 1-1 relation between objects and metadata. Each object or assemblage has only one set of metadata and vice versa.
- however, individuals can make assemblages, (ie, 'folders' of resources) and give these folders metadata. So the database can hold collections of resources based on a theme and these folders can be labelled and found through text-search. This work of producing assemblages and linking and labelling them through metadata is a crucial function of the database, providing the possibility for the development and enrichment of collective memory in a digital context.
- the natural way to find objects in the database is without a text-string search, that is, without a text driven FIND function. Texts, audio files, movies, and images can be searched by flicking through the full set of thumbnail resources.
- Text icons display the first characters of their text, audio and video files can be played as thumbnails when selected.
- interface 'skins' can be tailored to reflect the identifying characteristics of the user (individual or group).

Text-based searching will also be available and is guided by a few principles:

- a glossariser produces a list of all the words which are already in the metadata (including file names)
- the list contains English and vernacular words
- the list is always partially visible on screen
- users can scroll and click words for both instigating a search, and adding metadata.
- key-in and drop down menus work to reduce the glossary list to help search. (key in b and only b- words remain, key in a and only ba- words remain etc)
- metadata for objects displayed in the workspace can be altered at any time. The glossariser continuously updates the list of searchable words.

Business and Financial

While the ARC Linkage Research project has employed funds to research user requirements and develop conceptual frameworks for TAMI we will be seeking to develop TAMI through securing specific software development funding. Charles Darwin University holds the IP which comes out of this research. (The IP over the indigenous content and the encoded relationships among the resources at work in of any of our software systems is retained by the original owners). Initially we envisage developing a proof of concept animation of TAMI as well as a supporting functional specification document and budget. We are seeking funding to continue the development to the point of useability testing and deployment of a workable UNIX/OSX version.

Description of software solution

TAMI is envisaged as an application window that will provide a view of digital resources stored on the computer. The TAMI drag and drop window interface will allow for collections of resources to be made and presented in various ways. Thumbnails of resources will provide the main organising form and options for text based metadata and searchability will also be available.

Competitive analysis

A number of software products are already available that have some of the functionality that TAMI is seeking. Notably the Apple iLife products are already successfully in use in similar contexts to where this project is working ie in small indigenous communities. iView Media Pro is another 3rd party product that has some of the functionality that TAMI seeks. The key aspects where TAMI differs from all these solutions is that TAMI integrates them into one, it marginalizes the centrality of text, and situates the work of memory production in the negotiations over assemblages and their enrichment through metadata.