RAFT

A Role-Based Appliance for Collaborative Learning

We project to promote new forms of **contextualized learner collaboration**, embedding learning and teaching activities in **real world context**, with the help of real time video conferencing and audio communication.

Instead of managing a trip for 30 students, small groups from the RAFT partner schools go out to the field, while the other students and classes from **remote schools participate in real time** interactively from their classrooms.

Bridging the World and the Classroom...

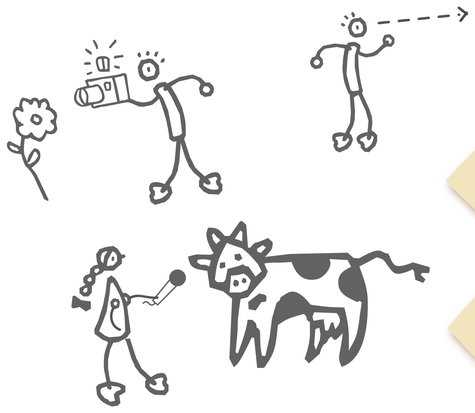
Data Gatherers

The Data Gatherer works together with the Annotator in the field to collect samples and material that can be forwarded to the Task Manager and further elaborated by the students in the classroom. In this case, the team players are distributed over different places and can use different devices due to the necessary mobility.

Scouts

The Scout searches for interesting points in the field and needs to be informed about tasks; to be able to send information about interesting locations (hotspots); to communicate with other users in the class and in the field. A device suiting these requirements is a GPS, GPRS enabled handheld device, providing features of portability and trackability.

Fieldtrip Site

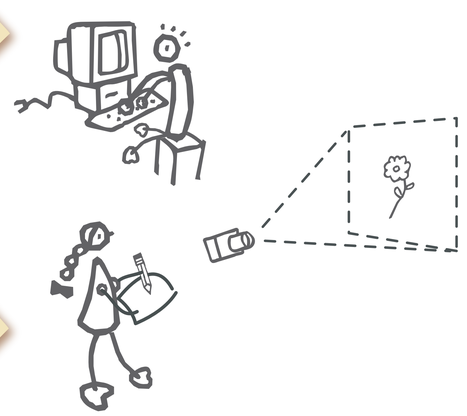


send gathered data like pictures, sounds and annotations

provide feedback on gathered data and additional task information

real-time text, audio and video messaging

Classroom



Researchers

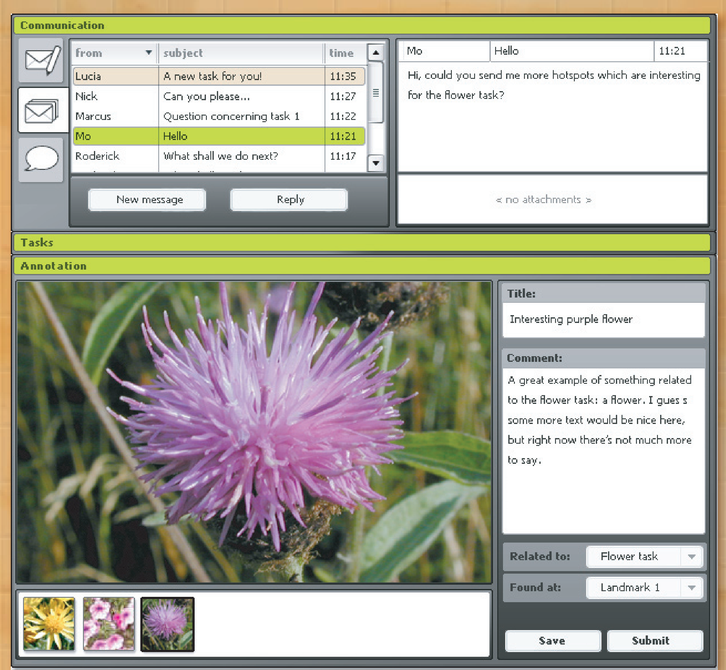
Researchers try to answer questions raised by the teams working on the tasks and augment the collected material mit background information. They receive their information from the team members on the fieldtrip site as well as from books, the web or the teacher. They pass their results to the archivists, who will store them along with other selected data for later learning use.

Task Manager

Awareness about changes in the state of tasks and data collections for tasks plays an important role for the collaborative work and the design of the appliance. The Task Manager evaluates the data and the metadata of the collected material and decides whether e.g. more scouting is needed or the data gathering and annotation can start .

Annotators

Annotators add contextual metadata to the collected material and submit it to the repository. Other team members working on the same task have instant access to the provided information and can elaborate more on the material. Annotators use a tablet pc for their task.



By identifying patterns of collaborative learning we adopted a flexible **role-based architecture** in order to support the learning activity and **simplify** the complexity of accomplishing the learning goals. Roles allow specifying a context model enabling to foresee the diverse ways in which different users access and process the available information to accomplish a shared goal, depending on their due contribution.

The user interfaces combine **generic** and **role-specific modular widgets**. This approach provides consistency and rich functionality without creating overloaded "swiss-knife" applications.

The goals of the field trip are specified in a task list. Inter-role teams cooperatively work on answering the questions by hands-on experience and own research.

Fraunhofer FIT Institut Angewandte Informationstechnik

Lucia Terrenghi
Marcus Specht
Moritz Stefaner