PuppyIR Annual Report 2009

An Open Source Environment to Construct Information Services for Children

Project website: http://www.puppyir.eu/

Project duration: 1 April 2009 - 31 March 2012

I. Project Description

Younger children like to chat, play games and access social networking websites like Facebook. However, research shows they find the existing information access tools difficult to use. Information retrieval interfaces are typically created for adults: the interaction styles are based on adults' modes of thinking, and information services are typically constructed based on adults' information needs. In a world where internet and technology play such an important role, it is crucial that children can understand the information offered to them and engage in interaction with content. PuppyIR aims to facilitate the creation of child-centred information access, based on the understanding of the behaviour and needs of children.

To achieve this goal, PuppyIR will create an open source framework in which advanced functionalities can be developed and deployed to create information services tailored towards the unique information needs of children and their style of interaction.

II. Summary of Activities

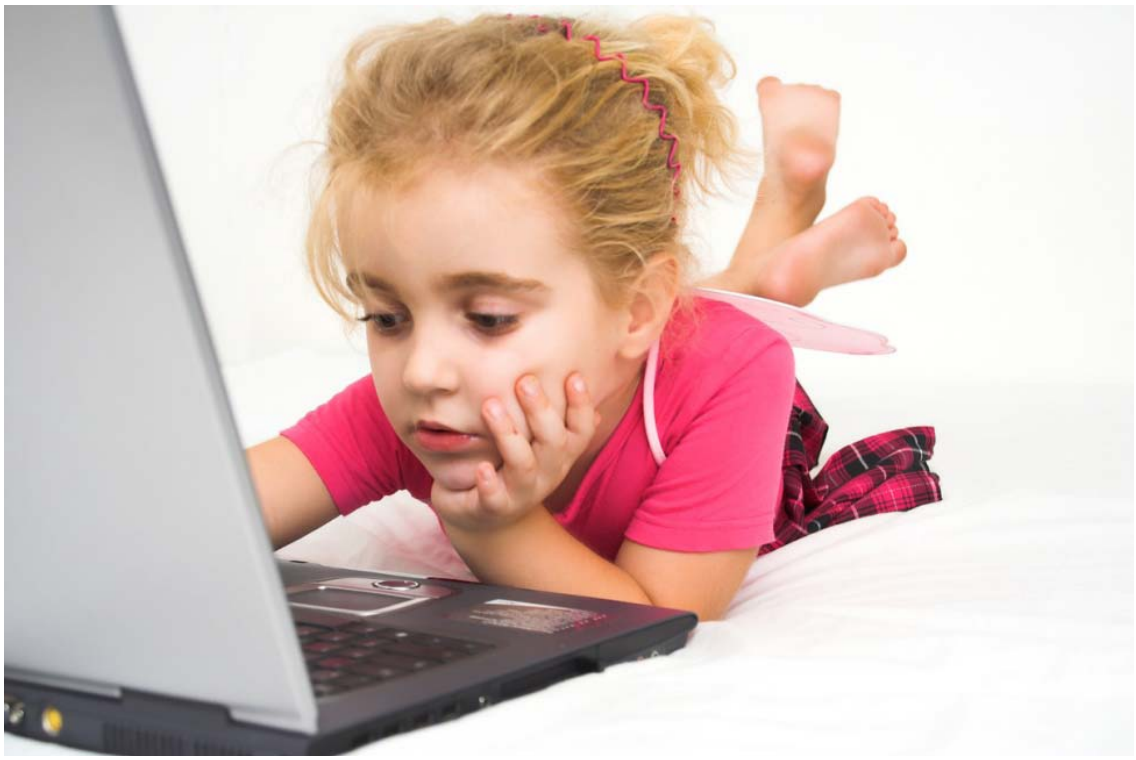
In the first six months of the project, the focus was on the specification of user scenarios and requirements, on the design of the open source framework and on writing the first versions of the ethics manual and dissemination plan. The user requirements were specified in close co-operation between the technical partners with expertise in for example software engineering, language technology and information retrieval, and the users, a museum and a children's hospital.

Framework for User Scenarios

For the definition of the user scenarios, a framework has been created that consists of variables relevant in the process of a child seeking information. The variables include user characteristics such as demographics, language skills, evaluation skills and physical states, context characteristics such as physical context or collaboration, goal or task characteristics such as subjects or origin of tasks, and system characteristics like information retrieval tasks, interfacing, and type of media. The framework also defines the level of dependency between the variables like ‘language skills increase with age’ or ‘navigating skills increase with higher motor skills’.

Open Source Framework

The initial design of the open source framework and the component-based architecture has been developed. Central to the architecture is the use of a data flow language to marshal information from source to the user and transforming this information appropriately depending on the needs of the user and the specification of the application. The architecture also utilizes layers to decouple the interaction between various levels in the application from the interface down to the information processing layer to the source layer. This means that development can proceed independently on each layer given the defined interface between layers.



PuppyIR will develop technology enabling children to search the internet in a tailored way. The PuppyIR open-source platform with child-friendly information services will be able to summarise content and moderate information for children, help children safely build social networks, and intelligently aggregate information for presentation to children. PuppyIR aims to facilitate the creation of child-centred information access, based on the understanding of the behaviour and needs of children. PuppyIR offers a package for designers to construct usable information retrieval systems for children and the opportunity for children to fully exploit the internet.

User Requirements

The users defined requirements based on the variables framework, the user scenarios and the following constraints:

- the age range of the children is between 4 and 12 years
- the considerable differences between children in this range, caused for example by the development stage and differences in skills, learning styles and intelligence, should be taken into account
- for the youngest children the system has to deal with limited reading, writing and motor skills
- for all children dyslexia and physical disabilities have to be taken into account.
- computer experience and familiarity with standard navigation tools should not be assumed.
- the system has to address that children can get lost in hyperspace easily and that it may be difficult for them to judge relevance, authority and reliability of information.

Examples of agreed user scenarios

"*Jim is 11 years old and he is at school; the teacher asks him to give a 15 minutes talk about dinosaurs. He has many books about dinosaurs and knows everything about for example their names and the period they lived in. The problem he has using current applications is that he is not able to formulate a query properly (words like palaeontology) and the language covering the topics that he is looking for is far too complex."*

"10 years old Fenia and Marcella visit a museum using a portable device. In the permanent exhibition, an interactive quest is offered, focusing on one of the leading exhibition themes: sustainability. This quest establishes a relationship between the physical exhibition and digital information. The goal is to find specific objects that are on display."

"Melody is an 8 year old girl with diabetes, whose mother signed her in for a vacation in a diabetes camp, where children with diabetes are educated about their illness. She does not know any of the other children who will be there, making her a little nervous, but also excited. She wants to know everything there is to know about the camp. She wants to meet other children with diabetes online"

Ethics Manual

The first version of the ethics manual describes existing regulations and requirements, and ongoing practices in institutions in the countries the PuppyIR consortium is planning to run user studies involving children. The manual describes how to deal with data storage, data processing and data disposal, which are essential to ensure confidentiality and individual right to privacy, and how to run the experiments in terms of:

- the recruitment of participants via informed consent
- the code of practice and the overall behaviour required by evaluators in running the study
- the protocol to be followed in order to engage users in a safe and friendly atmosphere where participants are under no form of pressure

Dissemination plan

A facetted strategy has been designed to raise awareness for the PuppyIR project, its objectives and expected results. It includes a plan for the publication of intermediate releases of individual software components in Open Source repositories (e.g., SourceForge) to create opportunities for other groups to work with the results and for the project to receive feedback from 'early adopters'.

III. The near future

The coming year, PuppyIR will, concentrate on building an early demonstrator: a baseline system covering at least one use case scenario. Furthermore the project will focus on the collection of data sets, the definition of interfaces, the implementation of the dissemination plan, the open source platform and the content summarization component.

IV. Further Information

Conference papers and presentations

- Leif Azzopardi, Richard Glassey, Mounia Lalmas, Tamara Polajnar and Ian Ruthven, 'PuppyIR: Designing an Open Source Framework for Interactive Information Services for Children'. In: *Proceedings* HCIR 2009. http://www.dcs.gla.ac.uk/~rjg/files/documents/papers/hcir2009.pdf
- Paul Moore (ATOS), project presentation at the CHORUS Conference in Brussels, 24 - 26 May 2009. http://dbappl.cs.utwente.nl/wiki/puppyir/upload/PuppyIR_EU_fj_10july2009.pdf

Flyer: http://dbappl.cs.utwente.nl/wiki/puppyir/upload/PuppyIR_diptico.pdf

Poster: http://dbappl.cs.utwente.nl/wiki/puppyir/upload/puppyir_poster.pdf

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Administrative details

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