



Sparkling Science >

## Science linking with School School linking with Science

### Research Project

30.11.2009 – 31.08.2010

### Sparkling Fingers

Participatory design of assistive technology  
in the educational context

#### LEADING INSTITUTION

Vienna University of Technology, Institute  
for Design and Assessment of Technology  
ao. Univ.Prof. DI Dr. Peter Purgathofer  
purg@igw.tuwien.ac.at

#### SCHOOLS INVOLVED

SZU – School Centre Ungargasse, Vienna  
Federal Institute for the Blind, Vienna

#### SCIENTIFIC CO-OPERATION PARTNER

Vienna University of Technology, Institute  
'integrated study' (ISTU)



## Basic Information about Sparkling Science

Sparkling Science is a research program of the Federal Ministry of Science and Research (BMWF) which started in 2007 and adopts an unconventional way in the promotion of young scientists that is unique in Europe.

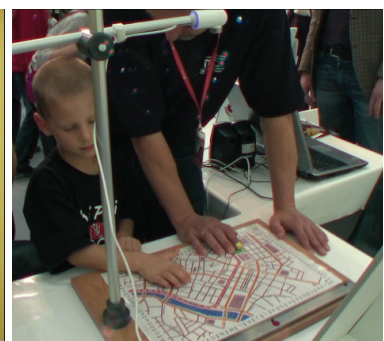
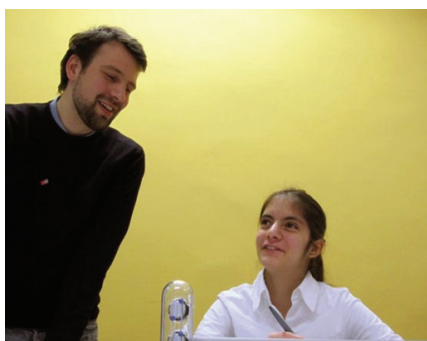
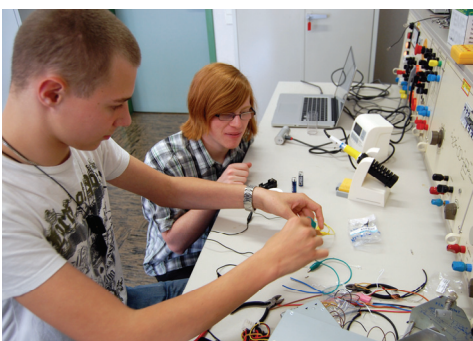
The specific characteristic of the program: so far 168\* projects (94 of them have already been completed) scientists work side by side with young people in current scientific research projects: Sparkling Science supports big research projects and supported from 2007 until 2010 also smaller school research projects.

In the 114 big research projects (42 have already been completed) the young colleagues take an active part and work independently on parts of the research projects. As junior colleagues they introduce important suggestions into the research approach. They collaborate in the conception and conducting of investigations, conduct polls, collect data, interpret these together with the researchers and present the results at schools, universities and even at scientific conferences.

In a second initiative within the Sparkling Science program the BMWF awarded grants to smaller projects that were submitted and conducted not by the involved research institutions, but by the schools, who designed and lead the projects themselves. In these projects, too, schoolchildren worked closely together with researchers, supporting state-of-the-art research activities and contributing to the results.

Both sides of the program is/were open to a broad thematic spectrum. Research is carried out on all sorts of different topics: from mechatronics and molecular biology to migration research, from acoustics and biometrics to literature research.

\* Status quo: January 2012



## One Example out of 168

### Sparkling Fingers

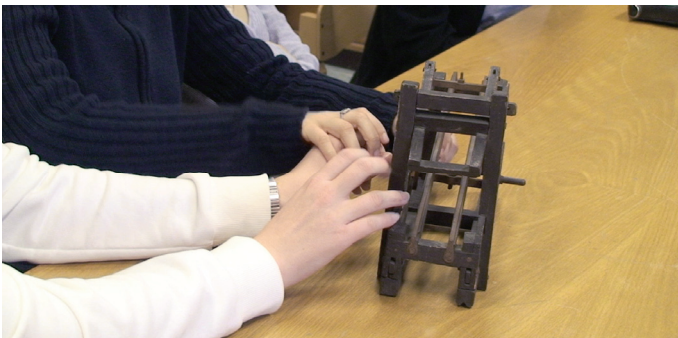
The initial concept is a setup providing multimodal content while the user explores a two or three dimensional object with his hands. The system includes a placement area for the model, a computer, and several webcams. Using one or more cameras and a marker, one finger of the user can be tracked by the computer, which returns relevant information, if certain hotspots are reached. Interfaces for pupils as well as teachers are provided, thus allowing generation and retrieval of educational content in a comfortable way.

Especially for visually impaired pupils tangible objects are an important part of their teaching. Potential users of the system are now invited to take part in the development of new ways of computer assisted learning.

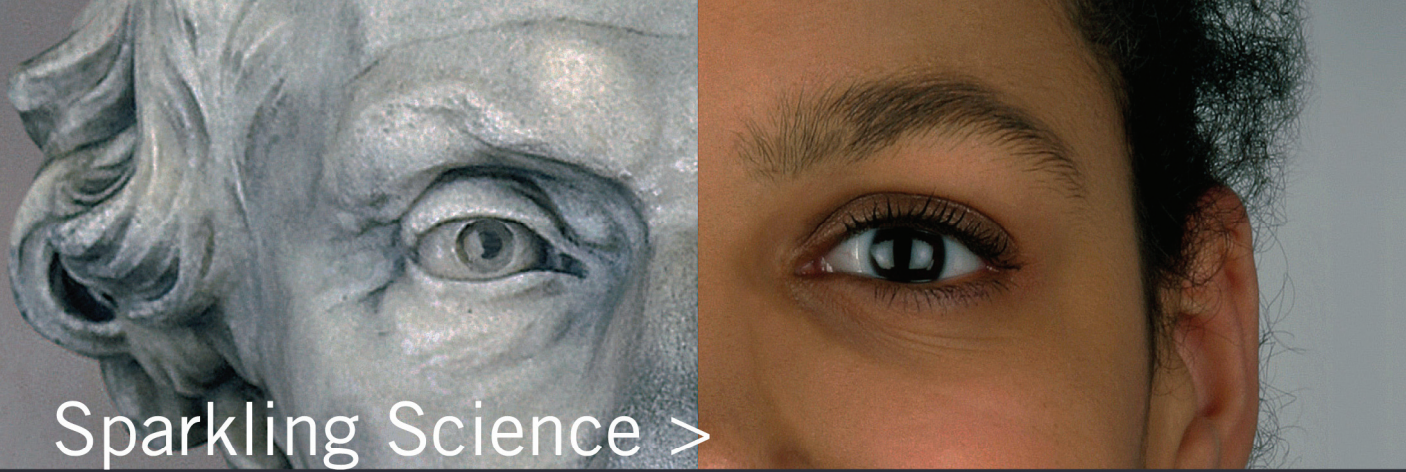
Using a “participative design“-approach, ideas and interests of pupils and teachers alike are brought in during several iterative development phases. This gives pupils the opportunity to take part in a scientific design process as actively involved design partners.

#### **Further Information**

[http://www.is.tuwien.ac.at/index\\_en.html](http://www.is.tuwien.ac.at/index_en.html)







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[www.bmwf.gv.at](http://www.bmwf.gv.at)  
[www.sparklingscience.at](http://www.sparklingscience.at)

BMWF<sup>a</sup>

Austrian Federal Ministry of Science  
and Research