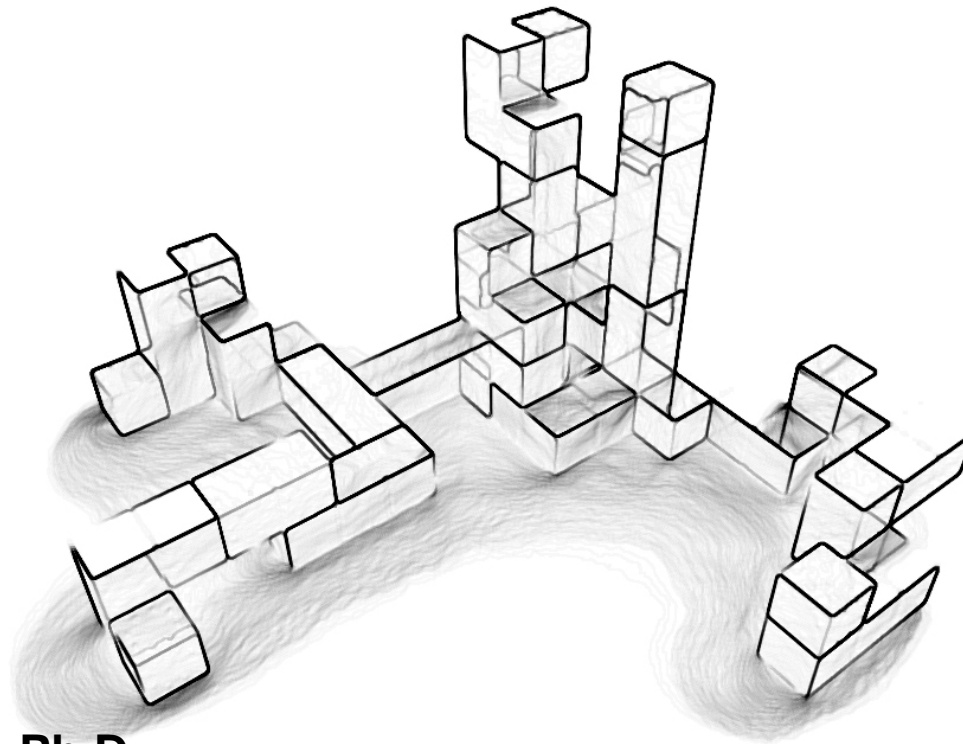

Building an 802.15.4 mesh network platform



Pamela Jennings, Ph.D.

Research Manager

Advanced Research Technology Labs

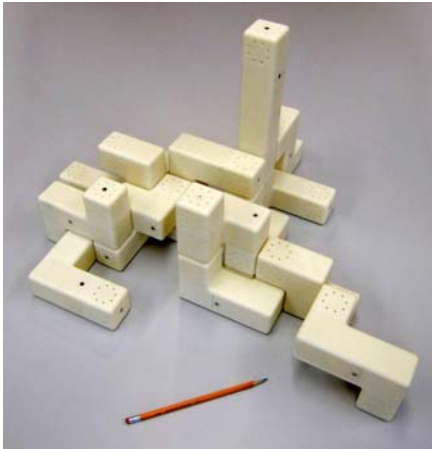
Banff New Media Institute, Alberta, Canada

pljenn@gmail.com

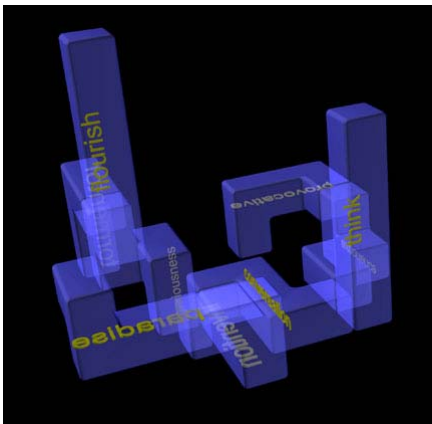
<http://www.pamelajennings.org>

Constructed Narratives Construction Kit

for building and annotating physical models



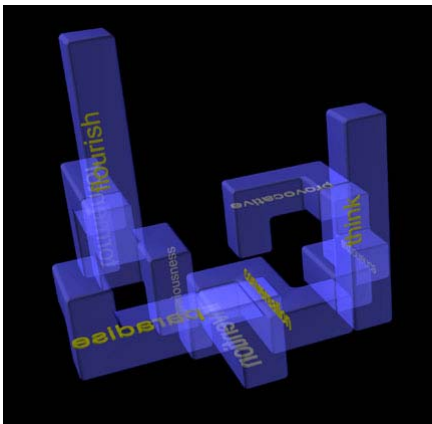
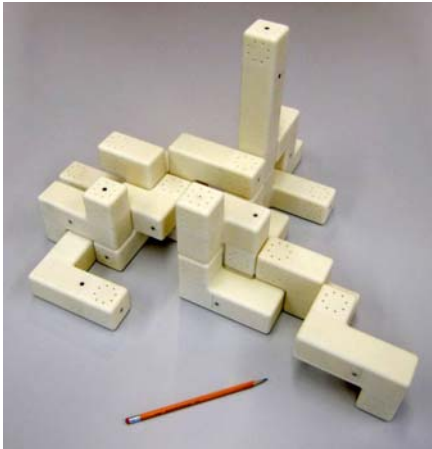
A cross between Scrabble™ and the Rubik Cube™, a physical Magnetic Poetry™ and exquisite corpse, the Constructed Narratives construction kit is a mechanical puzzle and a language game designed to encourage exchange of ideas, information and knowledge as a collaborative social networking activity.



The Constructed Narratives Construction Kit is a tangible game interface built on the 802.15.4 wireless protocol designed for supporting players social awareness of others who are also engaged in the collaborative building activity.

Constructed Narratives Construction Kit

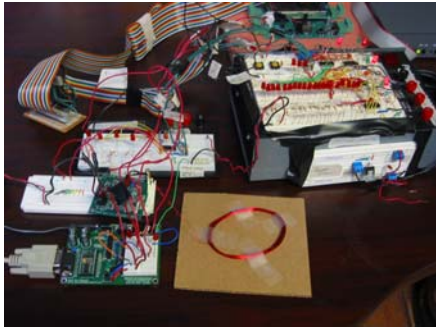
for building and annotating physical models



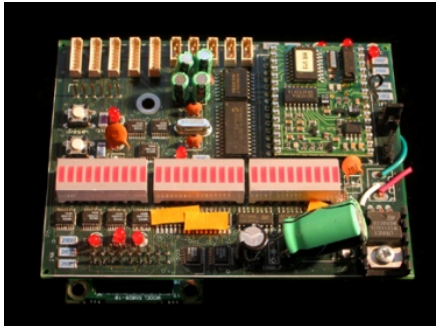
Application and technical goals for this project include:

- Develop a tangible game that encourages discourse, negotiation and collaboration between players.
- Develop an intuitive physical interface that encourages learning through discovery and exploration.
- Develop a component tracking system that requires a minimum of external devices beyond core interface devices.
- Develop a tangible system for building and annotating physical models.

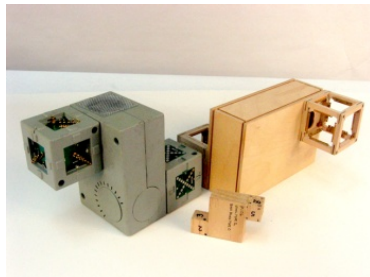
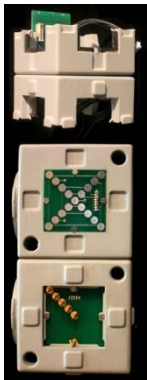
Hardware Prototype Sketches



a.



b.



c.



2008 Prototype

- Fuse-deposition blocks.
- 802.15.4 Wireless SoC (system on a chip) 8-bit MCU, 2.4 GHz transceiver to support Mesh Networks (pictured)
- Integrated hardware / software power management system.
- Gender neutral connection technology.
- Charge base designed for parallel component recharging.
- Software architecture built on Comet Way Agent Kernel for Java™ platform. (www.agentkernel.com)

Early Prototypes 2001 - 2004

a. First circuit design sketch

b. Refined hand soldered board with SMD parts based on fig. a.

c. Early block designs in wood and 3D stereo lithography molds

Hardware and Software Integration

Introduction (58 sec)

Network (2:10)

Integrated Web Client

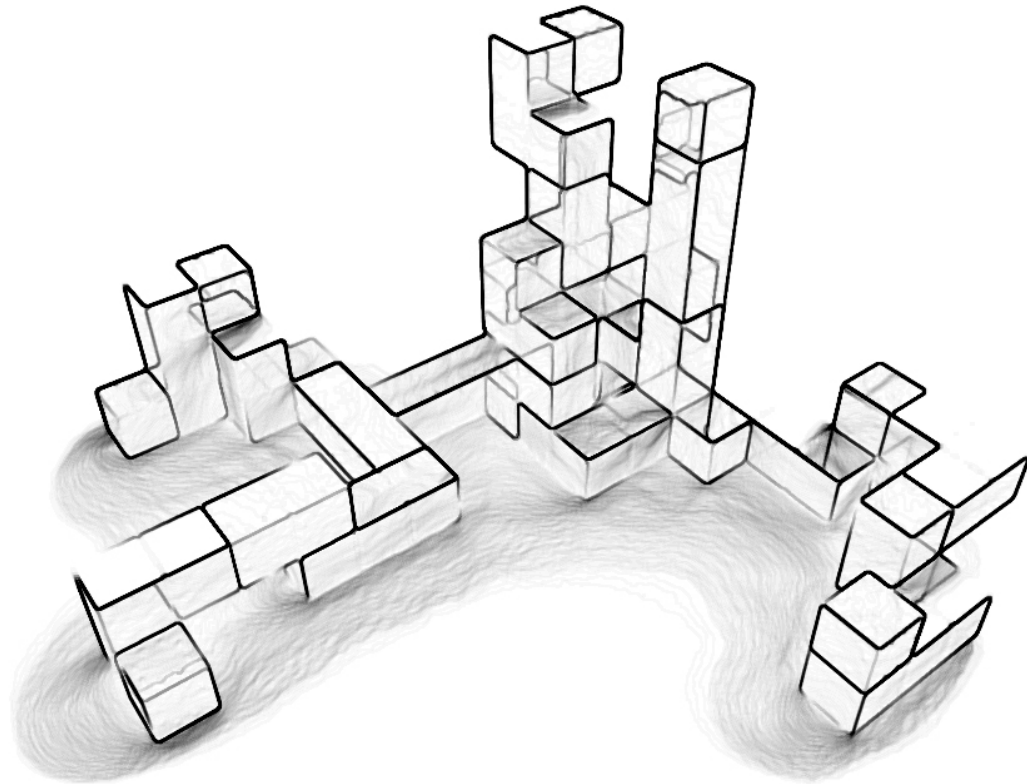
Word Play (4:10)

Agent Kernel (4:02)

[ACM CHI Demo](#) (2:21)

NOTE:

Please contact pljenn@gmail.com for
copies of the videos above



Team and Funding

Lead System Architect

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Senior Software Engineer

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Product Design

Daedalus Excel, Inc.

<http://daed.com/>

Funded by:

National Science Foundation Creative IT Program



iCORE – Informatics Circle of Research Excellence, Alberta, Canada



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Rockefeller Foundation

Carnegie Mellon University Faculty Development Fund

Pennsylvania Council on the Arts

Dean's Office School of Computer Science, Carnegie Mellon University



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