Enhancing Creativity with (Groupware) Toolkits

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Effective toolkits not only make it possible for average programmers to develop groupware, but also enhance their creativity. By removing low-level implementation burdens and supplying appropriate building blocks, toolkits give people a 'language' to think about groupware, which in turn allows them to concentrate on creative designs. This is important, for it means that programmers can rapidly generate and test new ideas, replicate and refine ideas presented by others, and create demonstrations for others to try.

To illustrate the link between toolkits and creativity, I describe example groupware toolkits we have built and how others have leveraged them in their own work. These include toolkits for: distributed groupware (Roseman and Greenberg 1996), multimedia-based groupware (Boyle 2003; Boyle and Greenberg 2002), single display groupware (Tse and Greenberg 2004; Diaz-Marino et. al., 2004), and collaboration-aware tangible interfaces. I will demonstrate many of the creative systems programmers have built upon them, including applications evolving from initial proof of concepts to fully featured systems, and applications that support purposeful work, play, and artistic expression.

Resources

The various toolkits described in this talk are all freely available at http://grouplab.cpsc.ucalgary.ca/software/. All toolkits include easily installed executables, documentation and examples. These include:

- **Groupkit** for conventional distributed groupware

- **Collabrary** for distributed groupware that includes multimedia objects such as video, audio and images

- **SDGToolkit** for building single display groupware applications involving multiple mice and keyboards and (optionally) tabletop displays

- **Grouplab DiamondTouch™ Toolkit** for building single display groupware applications atop a multi-touch surface

The final toolkit also includes hardware, which cannot be given away (although the software is free). Consequently this toolkit has been commercialized. Its cost to developers have been kept modest to promote the toolkit's use and dissemination. The site is www.phidgets.com/

- **Phidgets™** for building physical user interfaces. Through it, designers can easily create computer controlled physical interfaces including servo motors, sensors, LEDs, switches, actuators, accelerometers, RFID tags, LCD displays, and so on.

Videos demonstrating many of the examples are also available on-line. Most are at grouplab.cpsc.ucalgary.ca/papers/videos/ . While this site includes some of the Phidget examples, a complete archive of Phidget projects produced by undergraduate students at the University of Calgary is available at grouplab.cpsc.ucalgary.ca/phidgets/gallery/

Finally, a full paper summarizing this presentation is available through Greenberg (2003)

References

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