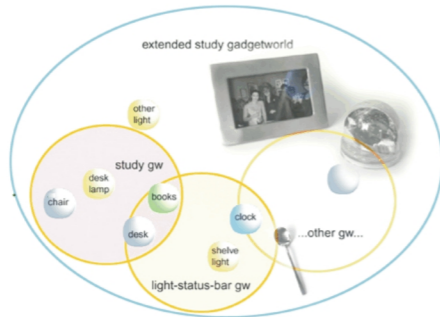


An eGadget

is an autonomous artefact able to locally process information; nevertheless its' tangible self may be detached from its' digital self.



A Gadgetworld

is a functional cluster of collaborating eGadgets, which exhibit collective behaviour that exceeds the sum of their individual capabilities. People purposefully associate the ability-Plugs of different eGadgets and synthesize Gadgetworlds as ordered sets of Synapses. A Gadgetworld is an autonomous entity that has an internal state and exhibits dynamic behaviour, with respect to time and capabilities. People can subsequently save, restore, edit or destroy a Gadgetworld.

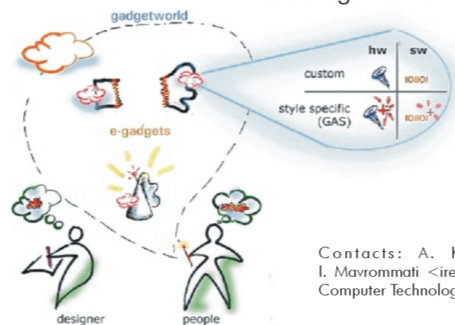


Gadgetware Architectural Style

GAS is the architectural style developed for creating eGadgets and Gadgetworlds.

GAS lies:

- ◆ in the head of eGadget manufacturers in the form of design guidelines and APIs
- ◆ in the head of people-Gadgetworld designers in the form of configurational rules and constraints for composing Gadgetworlds
- ◆ in the collaboration logic of eGadgets in the form of communication protocol semantics and algorithms.



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the disappearing
COMPUTER

eGadgets
www.extrovert-gadgets.net

adapting the notion
and principles
of software architecture
to the world
of tangible artefacts

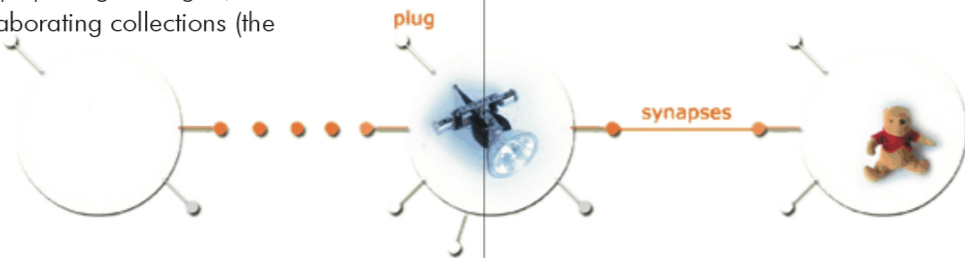


e-Gadgets

e-Gadgets (e stands for extrovert) is an EU IST/Future Emerging Technologies Research project that belongs to the Disappearing Computer initiative.

It seeks to adapt the notion of component-based software systems to the world of tangible objects by transforming objects in people's everyday environment into autonomous artefacts (the eGadgets). The eGadgets range from simple objects (tags, lights, switches, cups) to complex ones (PDAs, stereos) and from small ones (sensors, pens, keys, books) to large ones (desks, TVs).

Because eGadgets can communicate and interact, peoples' environments exhibit a highly dynamic, emerging, possibly intelligent behaviour. Any person could actively shape his/her environment simply by using eGadgets, associating them into collaborating collections (the Gadgetworlds) and re-arranging their associations.



extrovert-Gadgets

The e-Gadgets project will develop and validate GAS (Gadgetware Architectural Style), an architectural style for engineering eGadgets and Gadgetworlds. The project will also deliver GAS-OS, a system (software and hardware) implementation of GAS as a distributed system, a set of concepts defined within GAS, and the tools to manipulate them.

The transformation of an object into an eGadget requires the design of a novel hardware / software architecture that will support localised computation with limited resources, ad-hoc networking, and collaborative capability. The project will deliver an implementation of this platform that will be cheap, fast, reliable and small enough to be embedded into everyday objects without drastically altering their physical form.

In order to use eGadgets, people will have to adapt their task models to include the newly offered possibilities. The project will integrate intelligence into GAS and GAS-OS. Intelligent mechanisms will be employed, which will:

- ◆ Ease the formation and manipulation of a Gadgetworld by people,
- ◆ Learn from people's use of a Gadgetworld and transparently optimize it,
- ◆ Optimize a Gadgetworld (i.e. by optimizing the performance of established inter-eGadget associations or by establishing new associations in order to take advantage of ambient services)

e-Gadgets is a three-year project coordinated by CTI (RU3), who will design GAS and develop GAS-OS, with the participation of the University of Essex (Intelligent Buildings Group), who will design the intelligent mechanism, and NMRC (University College Cork), who will develop hardware solutions and build the actual prototypes.

