Core Operating System Elements for Embedded Interfaces
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RESEARCH MOTIVATION
The growing availability of relatively low cost hardware for Single Display Groupware (SDG), in the form of tabletops and large wall displays, is one of many emerging elements in a person’s digital infrastructure. This creates many opportunities and creates new user interface challenges.

THINGS AND ACTIONS
There are required basic things and actions (the structuring mechanisms for collections). This leads to:

• Users.
• Physical/Digital Artefacts.
• Structure of Digital Artefacts.
• Spaces (Personal and Public).
• Digital Ecosystem.
• Controllers.
• Contexts (Sessions/Workspaces).

PROBLEM BACKGROUND
The user interface for core operating system functions has had little research. This presents a unique opportunity to analyze the nature of tabletop interaction, identifying distinctive characteristics and uses.

THE HARD QUESTIONS
• What is the nature of tabletop interaction?
• Where do core user interface elements exist?
• What are the classes of use?
• How does interaction differ from a desktop?
• What structures are required?

VISION
A foundation for the principled design of user interfaces to support core operating system functions at tabletops.

RESEARCH ISSUES
• New Mental Models.
• Support of identification and, at times, authentication.
• Support for group coordination over the long term.
• Provision for effective mechanisms for grouping of digital artefacts, both at the table and in stores that are connected to the table.
• Support for privacy when it is needed (or wanted).
• Consistent support for managing settings.
• Integration of the tabletop, as just one embedded device, within the full digital eco-system of each of the users at the table.
• Support groups’ contexts within sessions and across workspaces.

DIGITAL ECOSYSTEM
The digital ecosystem for embedded devices is particularly important and represents a shift from desktops. Since people come to a tabletop to work together, that shared device will only be effective if people can, as needed integrate it into their lives seamlessly.