Manchester DiamonTouch Application Research

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Research into the application of DiamondTouch technology in the Interactive Systems and Information Systems Group (ISIS) of the Manchester Business School revolves around three distinct strands of investigation. The first strand focuses on investigating the potential for Information Push applications in the form of so-called Interactive Coffee Table. The idea is based on the newspapers and magazines often found on tables in cafés and pubs. An Interactive Coffee Table offers a naturalistic interface for pushing content that is relevant to the context of use in terms of both its location and its users. For this purpose a circular interface has been developed to support serendipitous information discovery through involuntary and opportunistic browsing (Figure 1).

The second strand of investigation focuses on basic factors that determine the ubiquitous nature of interactive tabletops for supporting collaborative activities. One of the defining qualities of ubiquitous technology is that the use of the tool becomes a background activity, allowing users to concentrate on collaborating to achieving the task at hand. Several studies have been conducted by Norlaila Hussain as part of her PhD research programme. She found evidence to suggest that users naturally adapt the way they coordinate the available resources on the table depending on the perceived affordances offered by those resources. For example, the functional allocation of the table surface changed naturally as a result of a change in the appearance of the documents dragged onto certain regions. Thus, it appears that configuring of the perceived affordances of table resources offers an alternative to the implementation of explicit restrictions on interactions as a way of enforcing collaborative work practices that does not violate the ubiquitous nature of the interface.

The third strand of investigation aims to design and implement a tabletop application for preschool children (ages 3 to 5 year-old) called My World(s), as part of Evi Mansour’s PhD research programme. My World(s) provides an interactive environment to support peer-to-peer or individual fantasy play offering children the opportunity to act out and create their fantasies. Fantasy play is a leisure activity where children shift from real into imaginary worlds. The research challenges that will be addressed are: 1) To support fantasy play within a digital context; 2) To allow the children to be the author of their fantasies and not the receiver of pre-set stories; 3) To analyse the feasibility of tabletop as an interaction tool for young children. A prototype of My World(s) tabletop application will be developed based on the data gathered through literature review, ethnography studies (observations of kindergarten children in nature environment) and interviews with nursery teachers and parents, and it will be evaluated empirically (Figure 2).

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**Figure 1:** This Figure shows the set up of the Interactive Coffee Table (left) and the circular interface to support serendipitous information discovery (right).

**Figure 2:** Schematic representation of the MyWorld(s) setup showing the DT table, the projector position and children standing on modified conductive pads.