Tangible User Interfaces... (TODO)

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Abstract

In this paperl compare and analyze different Tangible User Interfaces. TUIs move away from the common input devices like mouse and keyboard and towards a direct interaction with physical objects in order to make the operation with devices more natural. This includes for example the handling of physical objects on tabletops, projections of information onto pieces of paper [Holman et al. 2005] or using additional devices to get more detailed data. The examples we are going to cover in this paper include applications in architecture, information visualization and learning tools.

CR Categories: K.6.1 [Management of Computing and Information Systems]: Project and People Management—Life Cycle; K.7.m [The Computing Profession]: Miscellaneous—Ethics

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1 Introduction

In common user interfaces the ineraction is limited to indirect input methods such as mouse and keyboard. A more natural way of interaction would be to be able to directly touch and manipulate the objects of interest. One of the main goals in using Tangible User Interfaces is to combine visualization of data with direct interaction.

In this paper we first give a general overview on how Tangible User Interfaces (TUI) work and what the main challenges are.

In the next section we will give some examples of TUI and describe how some of the challenges can be solved.

2 Typical designs of Tangible User Interfaces

3 Overview of Tangible User Interfaces

In this section, we give an overview over Tangible User Interfaces and their applications. We will present several TUIs that we regard as extraordinary and explain the techniques behind them, as well as their area of application. Most of the presented TUIs are aimed at collaborative tasks.

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3.1 The reacTable

The reactAble, presented by [Jordà et al. 2007], is a musical instrument based on a tabletop TUI. Fiducial Markers represent musical objects, which generate sound according to their relation to each other. The markers are tracked by an IR camera. According to their attached symbol, each object has a dedicated function. The objects can be categorized in six different functional groups: audio generators, audio filters, controllers, control filters, mixers and global objects. [2007]

4 discussion

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