Aladdin's Lamp: Understanding New from Old

by: Masitah Ghazali
Supervised by: Prof. Alan Dix

Rationale I

Why study the real physical controls?
>> to understand the features of **physical interactions & physical-logical mapping** that make them comprehensible and natural

>> the **naturalness** is called **fluidity** [Dix], and is related to both **natural affordances** [Gibson] and **culturally informed affordances** [Gaver & Norman]

>> most explicit design exhibits **strong affordances**, which enable how to manipulate the devices

>> but there are **more** to this!

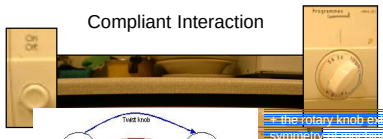
Rationale II

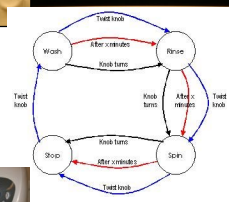
>> there are additional aspects of devices that exploit their physical form to inform users' interaction with the **logical function** they control: **inverse actions, compliant interaction, exposed state** and **hidden state**

>> this study and incipient set of physical-logical design principles compliment other work in **tangible interfaces** and **augmented reality**

>> Shneiderman's **direct manipulation principles**, are effectively about trying to harness the naturalness of physical interactions in the digital domain

Compliant Interaction





+ the rotary knob exhibits symmetry of reversible, system interaction

+ the user sets the programs by turning the dial, the operation also turns the dial to the program position

+ external [illegible] there is no device, but [illegible] interacting the [illegible]

Inverse Actions

+ in many of the physical devices' controls, the inverse effects, like the dial, exploit natural physical inverse actions

+ this is especially important if the user does not have a perfect knowledge of the **physical-logical mapping**

+ the **visibility** of the physical appearance plays an important role that this supports the **gulf of evaluation**

Reflection

>> in real world we have physical devices with an Immediate physical effect

>> in direct manipulation we have logical device and logical effects

>> in this studies, tangible and some ubiquitous computing we have **physical devices** and **logical effects**