

How do we balance exploration and intuitiveness when creating meaningful interactions in IoT systems?

Annotated portfolio – DCM110 – A designerly perspective on IoT; a growing systems approach

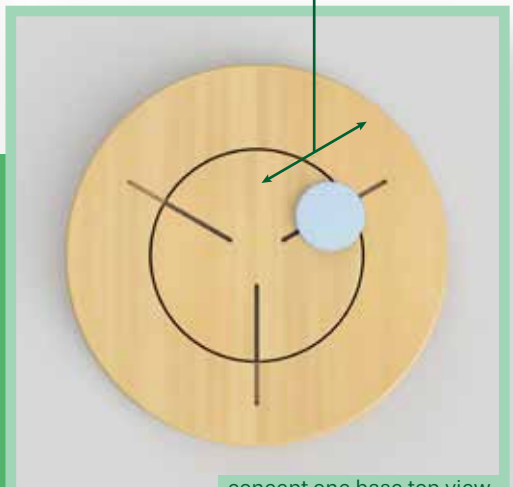
Gijs Vogels – 1577514

Body storm to explore different interaction possibilities related to bodily movements



bodystorming (photo courtesy of Nina Ziaei)

Slits provide inherent feedforward to slide the controls to the out- and inside [16]



concept one base top view



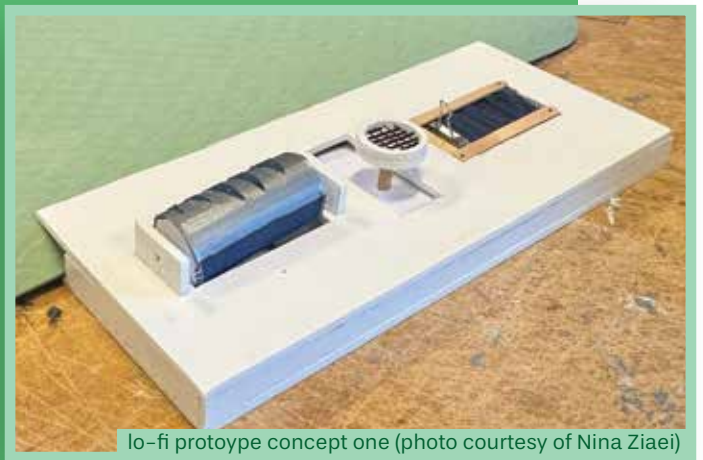
exploring controls closed (photo courtesy of Dominique Franken)



exploring controls open (photo courtesy of Dominique Franken)

Experience prototyping to explore perceived affordances regarding control grouping [1] [3]

Ecological perception is used, e.g. materials that hold different amounts of heat, speaker grid and curtain that blocks light [4]



lo-fi protoype concept one (photo courtesy of Nina Ziaei)

Form of the controls were adjusted to decrease direct mapping and increase unity



concept one controls

The abstracted information of use [7] reduced embodiment and intuitiveness, making it harder for users to rely on bodily skill.

I believe that avoiding direct mapping can risk unnecessary abstraction, making interaction less intuitive without adding meaningful depth or enhancing user experience.

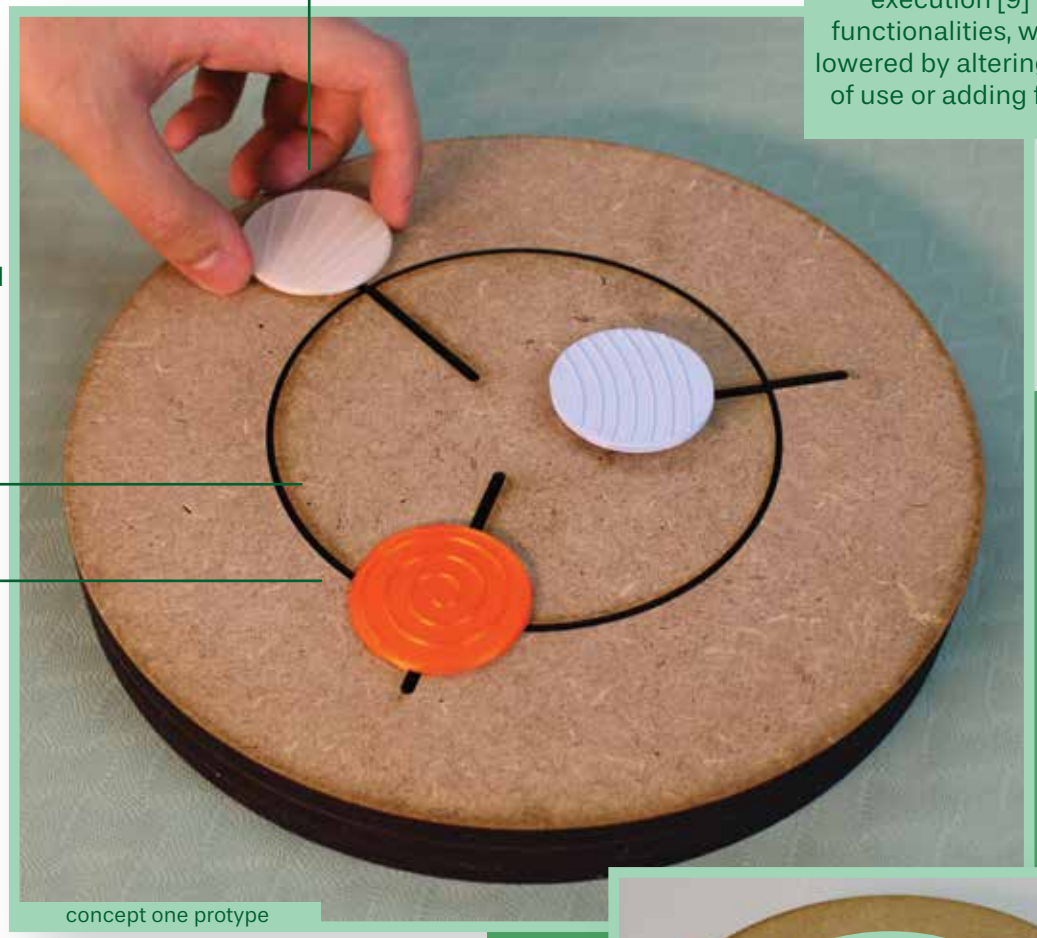
When combined, the multiple elements in the concept create many perceived affordances [1] that were not intented by the designers, e.g.

the user rotates the inner circle to change the mood while controls are in the outer circle

Concept has a high gulf of execution [9] for some functionalities, which can be lowered by altering parameters of use or adding feedforward

user rotates inner circle more than three times, not knowing what mood they are in afterwards

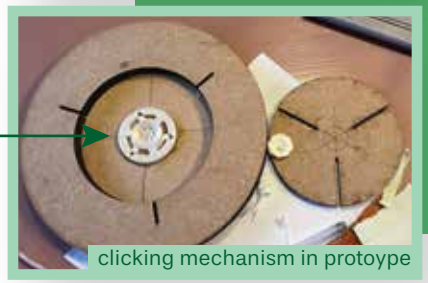
the user slides the control half way



concept one protype



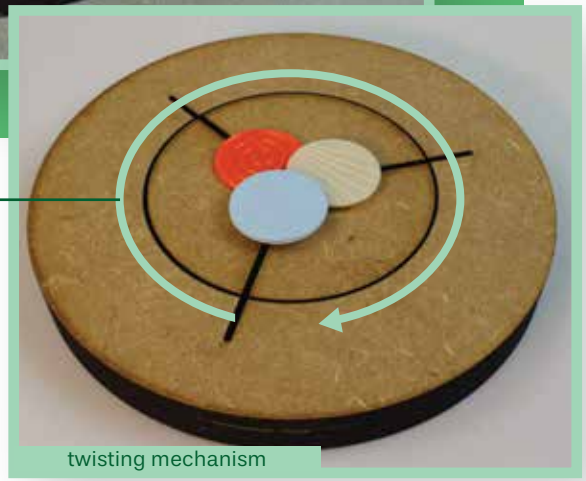
clicking mechanism render



clicking mechanism in protoype

Three point clicking mechanism creates satisfying experience by using multi-sensory feedback during rotation (tactile and auditory), enhancing user perception [10].

The disconnected circle invites twisting, after which the changing environment provides functional feedback [16].



twisting mechanism

Do not disturb function is based on a peephole, the pin affords gripping and rotating the cover



peephole inspiration. Note. From " *The hand opens the door peephole cover in the front door of light oak.*" Sarapultseva, S. (2019, April 29) iStock, https://www.istockphoto.com/nl/foto/de-hand-opent-de-deur-kijkgat-deksel-in-de-voordeur-gm1145272633-308227429



do not disturb funtion (photo courtesy of Sophie van der Burg)

The concept connects a diffuser to a coffee machine to evoke social behaviour [14]



concept two protoype (photo courtesy of Sophie van der Burg)

Some might argue the indent serves as augmented feedforward because understanding the indentation's purpose relies on cognitive skills [16]

Obrist [2018] highlights the importance of using sensory modalities such as scent, due to their strong link to memory and emotion

Involves whole human being by respecting their emotional skills (recognizing the smell of coffee) [12]



cup and platform (photo courtesy of Sophie van der Burg)

However, the feedforward is built into the form itself and invites action relying on perceptual motor skills, making it inherent.

Although feedforward clearly communicates the intended afforance [1], Tom Djajadiningrat mentioned that the lack of feedback makes it difficult to communicate the function of the objects

(during the 'Demoday' not in a paper)

Frens [2006] argues that it might be possible to design products that can be gradually explored, relying on skills beyond memory

Our concept may have presented too many action possibilities, leaving many functionalites to be explored and creating excessive ambiguity.

The emergent functionality increases certainty in social connectedness since the user is sure that multiple people are up for a break

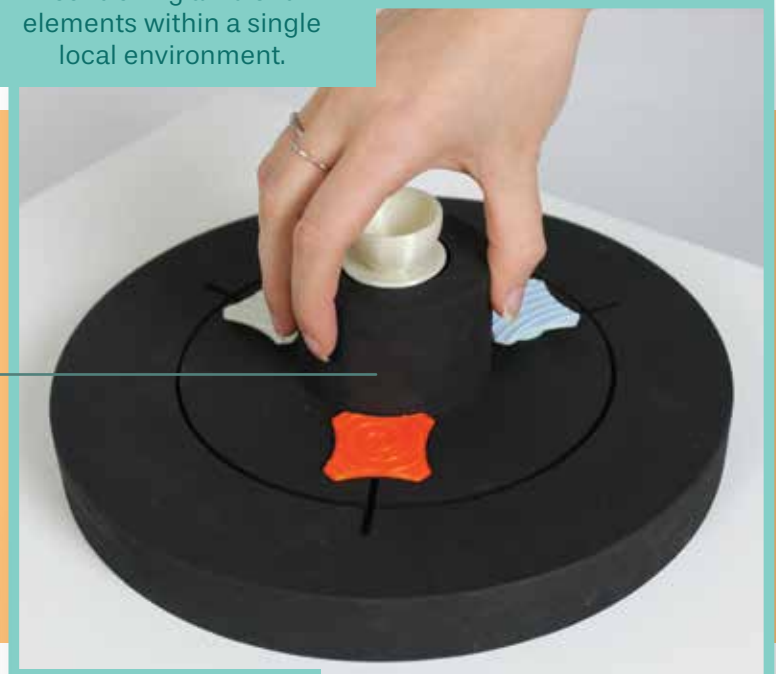
The miniature cup serves as a social interface in a shared ecosystem of users and devices [2]

When used individually, the concept functions as a centralized system, controlling ambient elements within a single local environment.



coffee scent (photo courtesy of Sophie van der Burg)

In contrast to methods such as the modular approach [6], this concept merges previous ideas to reveal the emergent functionality



concept three protoype (photo courtesy of Sophie van der Burg)



concept three controls (photo courtesy of Sophie van der Burg)

The hidden cup is revealed when pressing it, exploring unexpected events in user experience [8]



cup down



cup up

The concept becomes distributed when users raise their cups, connecting multiple devices as nodes in a shared network [15].

Cut-out arcs afford connection to the central platform, visually cueing functionality through physical form [5].

Two different states show the user a transition between a passive object and an active signal

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However, based on our concept, I believe that too much exploration leads to many perceived affordances, resulting in ambiguity and confusion [1]

maybe because info of use [7] can be too much abstracted?

I think that avoiding direct mapping sometimes harms intuitiveness more than it enhances experience

I agree with Frens that products can rely on skills beyond memory to support gradual exploration [7]

In my view, abstraction without added meaning increases the gulf of execution unnecessarily [9]

Weiser [1991] states that "the most profound technologies are those that disappear" into everyday life. However, I think that this invisibility reduces opportunities for exploration.

Current IoT design favors efficiency, which often conflicts with exploration and open-ended interaction

In explorative interactions, feedforward can be open-ended, which could be balanced by clear (inherent/functional) feedback that guides the user toward their goal [16].

I wouldn't argue using cognitive feedback because it counters using exploration and relying on skills beyond cognition

Conclusion

I think that explorative interactions can use open-ended feedforward, as long as clear feedback can guide the user toward their goal

This allows for balancing exploration and intuitiveness in IoT systems, enabling gradual discovery without sacrificing too much efficiency or clarity.

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