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ABSTRACT

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# Designing a *Radio – Tuner – Thing*; Transparency as Metaphor for our Experience of Objects and Things

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**Abstract**

The exhibited work explores how *Thing Theory* can be used in the design of interactive artefacts. In particular, it takes the metaphor of transparency used by Bill Brown to distinguish between *objects* and *things* as a creative stimulus. The resulting object allows the designers, and users, to explore nuances in how we might engage with objects as *things* and points to a rich conceptual framework that might enable new qualities of interaction.

**Author Keywords**

Thing theory; serendipity; tuning; IoT

**CSS Concepts**

- Human-centered computing~Interaction design~Interaction design theory, concepts and paradigms

***Thing Theory and design***

Bill Brown's *Thing Theory* proposes a critical theory that examines human-object relations and addresses how the materiality of things shapes our lives [1]. Fundamental to the theory is a distinction between *objects* and *things*. Objects are the great mass of

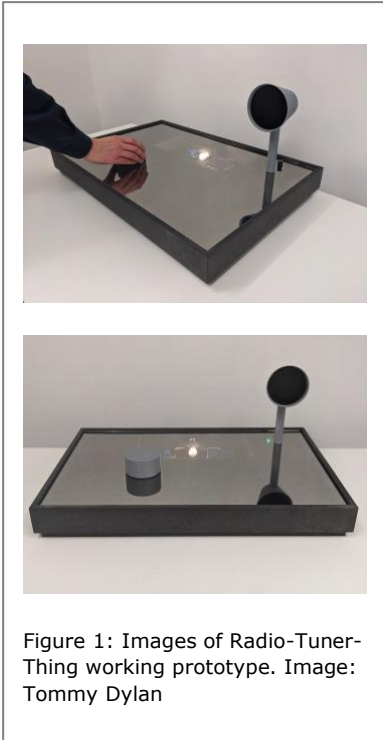


Figure 1: Images of Radio-Tuner-Thing working prototype. Image: Tommy Dylan

everyday items which we barely notice in our preoccupation with getting on with daily tasks. So, for example, when drinking a glass of water, we pay little attention to the glass or, for that matter, the water itself. By contrast, *things* are objects which we come to notice because they interrupt these usual, unregistered interactions. This might happen where, for example, the glass breaks or we note that the glass has a particular significance (eg. because it was inherited). Ironically, as we come to pay more attention to an object as a thing, it becomes both more knowable and more inscrutable. We see it properly but, in so doing, we become aware of the inexhaustible wealth of meanings it may represent.

Brown uses a metaphor of transparency to reinforce the distinction between *objects* and *things* – objects are transparent to us because we see through or past them while engaged in everyday activities. Things, by contrast, become opaque to us when we come to notice them. The shift from object to thing is thus one of relative transparency, from see-through to opaque.

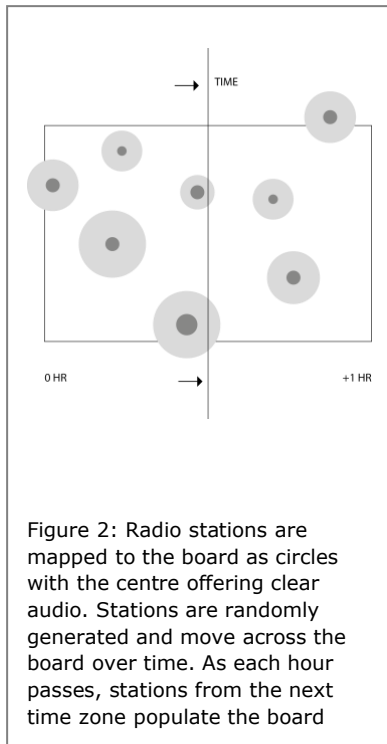
Brown's theory is based on the understanding that our experience of artefacts is a subject-object dynamic; that the object has not necessarily altered so much as our experience of it. This close attention to how we interact with material artefacts, whether simple or technologically advanced, provides a useful conceptual framework for thinking about how we interact with objects, and in the case of human-computer-interaction it offers new ways of thinking about our qualitative engagement with the devices we use.

### The Radio-Tuner-Thing

The exhibited work is a digital radio tuner that enables users to tune into digital radio streams by moving a hand-held 'dial' across a board.

The device uses a one-way mirror film to visually denote the tuning process. By moving the dial across the surface, a user can go from playing static to locating a broadcast. As the user moves closer to a signal, a light illuminates to reveal the internals of the device and displays the location of the station as a URL along with ongoing debug statements outputted from the code that is running on the device.

The device randomly selects URLs from the Shoutcast API directory of 50,000 stations [2]. Though we have deliberately removed any kind of digital interface, the tuning experience has been implemented by creating an invisible landscape of zones that is navigated with the dial. These are represented as circles (Figure 2) that are mapped to the board. Only the epicentre of each circle provides clear audio while the space in between plays static. To provide a constraint around the randomness, an element of travel is introduced. With each passing hour, the available stations change to the corresponding time zone (with the stations/ time zone being reset to the home location at midday each day). As the day progresses, the listener will pick up stations from more distant locations. This might mimic the experience of using shortwave radio and evoke how distant stations could be received at night due to changing conditions in the ionosphere (a layer of Earth's atmosphere which bounces short wave radio transmissions back to surface).



We discounted further controls. This was to foreground a sense of serendipity and to emphasise the sense of feel to the experience of tuning by moving the dial, as it were, unsighted. The user is directed to focus on the fine movements and the sensory cues of the changing audio (gradual emergence of clear audio from static).

### Observations

Brown posits the shift from transparent object to opaque thing as an abrupt stop, or jolt, in which the conscious attention we give to an artefact alters markedly. To some extent, the radio conforms to this shift. When untuned, it is opaque - the mirror finish adding a degree of inscrutability; when it is tuned to a clear signal the device itself becomes transparent with the illuminated LED revealing the inner workings of the device. The metaphor of transparency also has a parallel in how the sound is produced – the static is the sonic equivalent of opacity while the clear signal can be likened to transparency. Left in a tuned state, the object would remain transparent to us according to Brown's metaphor (we do not think of radios as material things when we listen to the transmission).

But the tuner reveals other qualities. Firstly, the act of tuning through subtle movements implies not an abrupt change from object to thing but highlights an *in-betweenness* in which the transparency alters slowly. Through finesse, we must *feel* our way toward a tuned state. In turn, the signal strength might diminish over time. This intermediary state might be experienced as either satisfying (a sense of employing a degree of manual dexterity to find a station) or as frustrating (static) and the exhibited work is used to explore this space.

Further, the tuner explores the *thingness* of radios as typologies more specifically. When objects become visible to us as things, it is not only their physicality which comes to the fore but also the values and meanings they represent. Radios have a rich cultural heritage and the tuner prompts engagement with these associations<sup>1</sup>. For the authors, the tuner recalls childhood experiences of searching for stations broadcast over shortwave.

As with tuning into shortwave radio, there is still an element of unfamiliarity – the serendipity of tuning into a signal broadcast from a distant place, whose language or music might be both evocative and strange. This is compounded by the fact that signal strength might waver (reproduced here by the random selection of URLs and sense of travel with shifting time zones) we might happen upon a station and remain tuned for just a snippet of a conversation before the station drifts away and the device becomes opaque again.

There is then, a degree of serendipity and a sense of the poetic which complements our more prosaic use of radios. And as a media device, the radio reveals a further level of thingness. While thingness is most immediately associated with the physical and tangible, we can also regard the intangible and imperceptible as things. In a sense, radios materialize radio waves for us, they render audible what is inaudible. In terms of our metaphor, the radio makes the transmission visible

<sup>1</sup> For an example of the cultural significance of radio, see Anthony Doerr's Pulitzer Prize winning novel, 'All the Light We Cannot See' in which the power of radio, for good or ill, is a central motif.

to us (for a discussion of how the design of interactive devices can reveal 'immaterials', see Arnall [3]).

### Conclusions

The work takes the critical, conceptual framework offered by *Thing Theory* and applies it to the design of an interactive artefact. More specifically, it explores the metaphor of transparency as a way to consider how the theory might allow us to conceptualise new forms of interaction. In taking the act of tuning, the device points to degrees of nuance that helps to expand the basic binary of *objects* and *things* and provide a fuller conceptual framework that might be used to understand, and inform the design of, new forms of interaction.

### References

- [1] Bill Brown. 2001. Thing Theory. *Critical Inquiry*, 28: 453-469.
- [2] Shoutcast API. Directory of streamed radio stations. Retrieved March 5, 2020, from <https://directory.shoutcast.com>
- [3] Timo Arnall. 2014. Exploring 'Immaterials': Mediating Design's Invisible Materials. *International Journal of Design* 8, 2.

The work itself has no other purpose than to allow users to engage in the act of tuning and to draw their own inferences and interpretations. But it is hoped that the experience of using the device, and an understanding of the underlying metaphor, might point to further applications in the design of interactive artefacts, whether whimsical or ludic [4] or more directed and purposeful.

- [4] William W. Gaver, John Bowers, Andrew Boucher, Hans Gellerson, Sarah Pennington, Albrecht Schmidt, Anthony Steed, Nicholas Villars, Brendan Walker. 2004. The Drift Table: Designing for ludic engagement. Proc. CHI'04 Design Expo. New York: ACM Press.