# Phygital Party Mode: A Relationship with Relationships

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## Abstract
In this position paper, I present an exploratory autobiographical design project, Phygital Party Mode, in which visitors' interactions with my website remotely control an Internet of Things light within my apartment. I reflect upon my relationship with the project as a 'thing' and explore the themes of active versus reactive agency, conditional relationships and designing the behaviors of objects. Finally, I end with discussion questions that address a transfer of agency due the democratization of the Internet of Things, the transformation of relationships with and because of connected 'things,' and the empowerment of people over objects.

## Author Keywords
Internet of Things; autobiographical design; participation; social engagement; agency; behavior.

## ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## Design Decisions

The key factor that contributed to the manifestation of visitor interactions with Phygital Party Mode into the color of a Philips Hue Go is that each project is associated with a unique color, whereas some projects are associated with the same sound. The individual color association was a deliberate decision unrelated to Party Mode to facilitate a visual mental mapping of projects relative to the portfolio as a whole. In contrast, the audio association is due to an initial technical constraint in which individual sounds from a limited array are reused as the number of projects is greater than the array length. Consequently, as a visitor interacts with Phygital Party Mode, I can discern which project they are interacting with based on color, without altering the preexisting technical configuration.

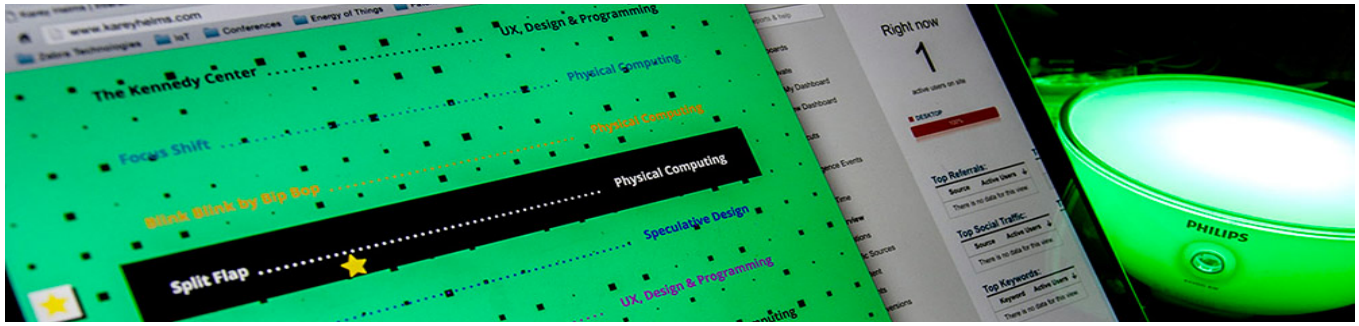


**Figure 1:** Each project name on the homepage is associated with a unique color. When 'Party Mode' is enabled and a user hovers over a project, the color, or hue, is emitted from a Philips Hue Go.

## Background

Phygital Party Mode began in fall of 2013 when I redesigned my online portfolio to include 'Party Mode,' a link at the bottom of my website that transforms a list of projects into a musical instrument. Upon entering Party Mode, an electronic beat and background animations play. As a website visitor moves their cursor over an individual project name, an associated sound plays and the background color changes.

The original intention of Party Mode was to make my portfolio a project that represented aspects of my personality alongside my academic and professional design work. After Party Mode went live in 2014, I soon noticed an increase in the frequency of which I was checking my website analytics, for which I was constantly curious of visitors' interactions and reactions. I wanted to experience their experience. This consequently led to Phygital Party Mode, an updated version in which user interactions within Party Mode not only control sound and color within the website, but also simultaneously control the color of a Phillips Hue Go, an Internet of Things light, in my apartment.

## Reflections

While this autobiographical design [5] project was not intended to serve as research, its process and results afforded me the opportunity to reflect upon my relationship with two initially disparate, yet ultimately connected 'things.' The first is my digital portfolio, or website, which prior to this project I never consider a 'thing' due to its immateriality but always considered mine as the maker, curator and owner. The second is the Philips Hue Go, hereafter referred to as the light, which allows for remote control operation from a smartphone or third party application. Together, the website and light form Phygital Party Mode, and it is my relationship with this combined condition of which I will reflect upon.

*Active Versus Reactive Agency*

Prior to Phygital Party Mode, accessing my website analytics or controlling the light, required a deliberate

**Technical Implementation**

Phygital Party Mode uses the following technologies: HTML, CSS, JavaScript, Firebase, Philips Hue API and an Arduino Yún.

The front-end website experience is constructed in HTML, CSS and JavaScript. When a user clicks on Party Mode, a status variable within a Firebase database is updated to 'on.' Subsequent hover interactions with individual projects update a secondary database table with the associated project color. An Arduino Yún watches the database and sends the most recent color variable over Wi-Fi to the Philips Hue Bridge, changing the light hue in real-time.

Firebase and an Arduino Yún are needed as intermediary technologies because the Philips Hue API is local and cannot be accessed outside of the Wi-Fi network.

intent and choreographed sequence of interactions. For example, if I recently updated content on my website or publicly shared the link in a new online venue, my resulting curiosity prompted me to seek specific statistics relative to subject matter and time based interaction within a third-party dashboard. In regards to the light, my objectives were both functional and contextual, including but not limited to, the calibration of changing hues to enhance the experience of watching a movie, or the necessity of additional illumination for a detailed task, all of which were directly administered from a smartphone application. After instantiating Phygital Party Mode, the aforementioned intent of satisfying curiosity relative to my website statistics took precedence, and through a sequence of programmatic commands, switched the light on when a visitor entered Party Mode, and changed its hue relative to individual project interactions.

As the digital connection and automated events between my website and light enabled a transfer of responsibility from myself to Phygital Party Mode, my participation and engagement shifted from active to reactive. Instead of consciously seeking, I was automatically shown. While I retained the ability to intervene, such as by removing the power supply, these reactions were often a disruption and distraction. For example, the programmatic setup did not account for personal desires or contextual considerations. Therefore, the light could turn on in the middle of the night, unwelcomely waking myself and my partner. As the maker of Phygital Party Mode, I have the technical capabilities to continuously rectify unwanted situations, but view my reactions as an inconvenient displacement of action.

*Conditional Relationships*

Through Phygital Party Mode, my website transitioned from a digital space to a digital place as public engagement became more valuable than personal representation. The state of the light embodied user interaction in real-time, and combined with its invasive physicality, accentuated external participation inward over internal portrayal outward. Consequently, 'on' meant presence and 'off' meant absence. Therefore, if presence was indicative of participation or dialogue [2], what was absence symptomatic of? This question signified a shift from a 'thing' to a threshold device [3] as I realized my relationship with Phygital Party Mode was contingent on others' relationships with my website.

*Designing the Behaviors of Objects*

An important component of Interaction Design is the designing of behaviors [4][7]. While there are many definitions of behavior, the most apt relative to my intent was 'the way in which something functions or operates [1].' This particular definition emphasizes operations over personality, object over a self. Though as previously mentioned, over time, as Phygital Party Mode lived in our apartment with my partner and me, we gradually began to reflect upon its consideration for us and our context. Gradually, we began to project positive emotion towards a pertinent performance and negative emotions for disobedient disturbances. Praise for the former and blame for the latter fluctuated between myself as the creator and Phygital Party Mode as the performer. Additionally, though we acknowledged, we most often absolved, human participants whose explicit interactions were out of sight.

## Future Iterations

Following reflection, in future iterations of Phygital Party Mode I would investigate synchronous and asynchronous interactions. In the current instantiation, real-time interactions are the focus, resulting in both delight and disruption. With the implementation of deliberate time-based thresholds, convenient interactions could be immediately enacted and inconvenient interactions could be strategically delayed. While this solution potentially dilutes serendipitous moments, it affords the exploration of behaviors from the intermixing of multiple user interactions in a single historical playback. Therefore, designing for synchronous and asynchronous interactions would further explore the themes of active versus reactive agency and designing the behavior of objects.

Recognition of our gradual anthropomorphism of Phygital Party Mode prompted further reflections regarding designing the behavior of 'things.' It is commonly proposed, and I've previously accepted, that it is the designer's role and responsibility to design the behavior of an object, often, though not always, through the allocation of predefined personality traits [7]. While an alternative approach might be to shift focus from objects to relationships, and thus personalities to propensities, both directions continue to embed explicit and implicit complexity of behavior within 'things.'

## Discussion

Based on the preceding reflections, I would like to discuss the following questions below:

- When disparate 'things' have the ability to connect via open source Internet of Things, agency shifts between designers, end-users, and the technology [6]. What are the consequences of democratizing configuration, participation, maintenance, and creativity?
- With data a material and participation a medium, our 'things' are not only physical and personal, but are also digital and social. How does this transform our relationships with 'things' and each other?
- The behaviors of 'things' are expected to become increasingly complex as they become technologically embedded and connected. Should the responsibility lie in the 'thing' to communicate status, symptoms, and intent or should designers focus on empowering people?

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