The Divination of Things by Things

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Abstract

As humans our view of the world is predominantly restricted to our own experience and are largely oblivious to the alternate perspective of reality experienced by the objects that cohabit our spaces even though such objects are often integral components of our lives. This paper considers the growing phenomenon whereby non-human objects such as cutlery and appliances are having what might be considered human-like experiences through integration of advanced computational programming. By examining the services provided by *Madame Bitsy's Fantastic Future Forecasting and Fortune Telling Emporium for the Internet of Living Things*, which is a fully autonomous online fortune telling service for Internet of Things enabled objects and services, we attempt to illuminate what it means to be a digitally connected object.

Author Keywords

Internet of Things; Tarot; Forecasting; HCI; Philosophical Carpentry; Design Fiction

CSS Concepts

• **Human-centered computing~Human computer interaction (HCI)**; *Empirical Studies in HCI*

Introduction

Fate as a concept is prevalent in many cultures representing a philosophical school of thought whereby events and actions within our lives are deemed subject to a predetermined course or destiny[1]. Human history has seen its fair share of interaction with a tradition of fortune telling. Leland [11] presents a history of fortune telling with roots going into early gypsy traditions of witchcraft, shamanism, and other occult arts. So called fortune tellers have appeared in every known belief system in some form or the other often taking to different methods such as reading the stars or palms to determine causality with future events. These methods can by no means be regarded as scientific irrespective of the number of constellations and stars provoked yet their anthropological presence and affect cannot be denied. Be it Turkish coffee reading, Pakistani parrot fortune telling, or Aboriginal *Dreaming Totems*, they all resonate sufficiently with a certain audience that for all accounts lay their faith in these methods of divination.

Without detailing the roots of this medium, the point to note here is the mention of 'human history', not animal or plant history for till now an interest in future events or divination has always presented itself as a purely human affair. Times certainly are changing, in this research we highlight a new wave of divination dubbed *Object-Oriented Fortune Telling* where non-human entities are consulting with non-human fortune tellers or *divinators*. The rise in Internet of Things (IoT) objects has brought with it considerable advances in Machine Learning (ML) and has resulted in both IoT enabled objects seeking divinatory guidance and the rise of autonomous services that provide this divination.

One might reasonably ask, why would an inanimate object care about the future or even attempt to ask a question relating to their future? Surprisingly, this question is not as unanswerable as one might assume as considerable philosophical thought has gone into the consideration of what it means to be an object or thing in a human world [9] going as far back as Heideggerian *Tool-Analysis*. In fact, the definition of what an object is has also been expanded over time to incorporate various ideologies that themselves can be considered as objects such as, global warming through Morton's *hyperobjects* [15] or having cultural or social attributes through Latour's *quasi-objects* [10]. Recent studies in what it means to be an object connected to the Internet has become a pertinent question amongst scholars ([4], [2], [13]) trying to improve our understanding of IoT. Although the characterization of these so-called objects having agency is much more contentious ([3], [8], [16]). Whilst accepting such debate it is also apparent ML has developed such that our non-human tools, assets, and services have been augmented to such an extent that they are further fuel for these philosophical debates. Where once the human was regarded as the principle source of all knowledge and information creation or gathering, today ML is often hailed as providing the new frontier for such activities.

Where the sight of a fortune teller in a carnival, back alley, or high street was once quite unsurprising it was relatively a niche activity but the development of the Internet has provided a new platform for propagating these services more widely. A search of the Android *Play Store* for the terms 'fortune telling' and 'psychic'

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1 https://plato.stanford.edu/entries/free-will-foreknowledge/

reveals more than 150,000 applications that in some form attempt divination through software for users often through subscription-based models. One particular application is *Madame Bitsy's Fantastic Future Forecasting and Fortune Telling Emporium for the Internet of Living Things*. Unlike other applications claiming psychic prowess that target humans, *Madame Bitsy's* clientele are IoT enabled objects and services. The intention here being to provide human readable forecasting of futures for human cohabiters of digitally empowered IoT objects.

Programmed Foresight

Madame Bitsy is not human, *she* is an autonomous agent created by software start-up *Gaaps* who specialize in creating applications that use IoT in provocative ways. *Gaaps* emerged through a collaboration between Lancaster University's computing students from *InfoLab* and design students from *Imagination Lancaster* with the purpose of addressing the UKs industrial strategy for commercialization of university research. Though other notable projects also exist from the start-up, *Madame Bitsy* stands out having garnered considerable media attention along with her commercial success (Figure 1). The official description on the *Play Store* page presents her as a real person delivering bespoken Tarot readings for her clients described as part of the *Internet of Living Things*. Immediately our non-human objects are given life through this non-human avatar but what happens next is where the interaction between human/non-human becomes more interesting. Before proceeding and for the sake of clarity throughout this paper *Madame Bitsy* will be referred to as a real person.
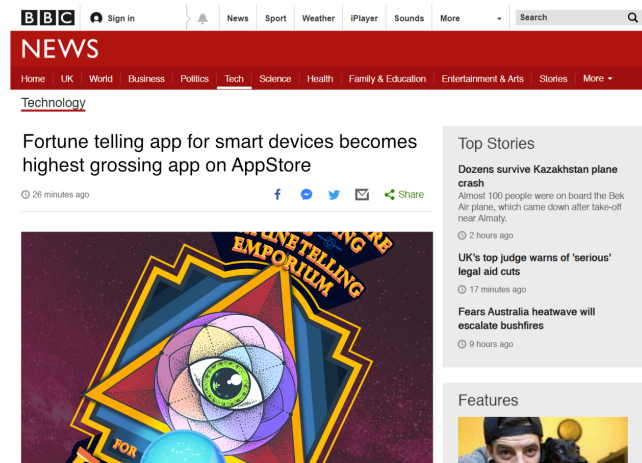
Figure 1 *Madame Bitsy's* uniqueness gave the topic of alternative fortune telling news attention

Lifting the Veil
The *Fantastic Future Forecasting and Fortune Telling Emporium* is a mobile application that runs on a human cohabiters' mobile device. It requires the human to provide access for *Madame Bitsy* to any IoT enabled devices around them whereby it then initiates its divination which is independent of the human. A human-readable translation is provided at the end of the session after consent from *Madame Bitsy's client*. This provided reading is through a bespoke Tarot deck designed specifically for the IoT. The reading of Tarot comes by articulating a story from the cards placed in the traditional manner which is dictated by the divinatory (*Madame Bitsy*). This bespoken Tarot deck consists of a condensed form of Tarot presented through keywords that each card depicts presented in a unique ML language which the device can understand and perhaps act upon (or at least that is the intention).

The human-readable version is presented with a human orientated perspective.

The application does this by giving a connected device access to its own programming creating an intimate link between the two. Traditionally this link is done in person between psychic and client and begins with the shuffling of the Tarot deck by the client. In this case the shuffling is done by the device through a series of pings between itself and *Madame Bitsy*. Once the digital deck is shuffled the cards are revealed to the device which in turn after processing provides a 'response'.

The response returned in the same language is further articulated for the human user and presented via the mobile application interface.

The result is a compelling translation of whatever 'conversation' happened between *Madame Bitsy* and her client. It is possible the device struggled in its response time or presented *Bitsy* with obscure data meaning the translation is not always easily understandable by a human. To further illuminate this activity, we will present an example of a forecast requested by an IoT Smart Fork (**Figure 2**).

a b c d
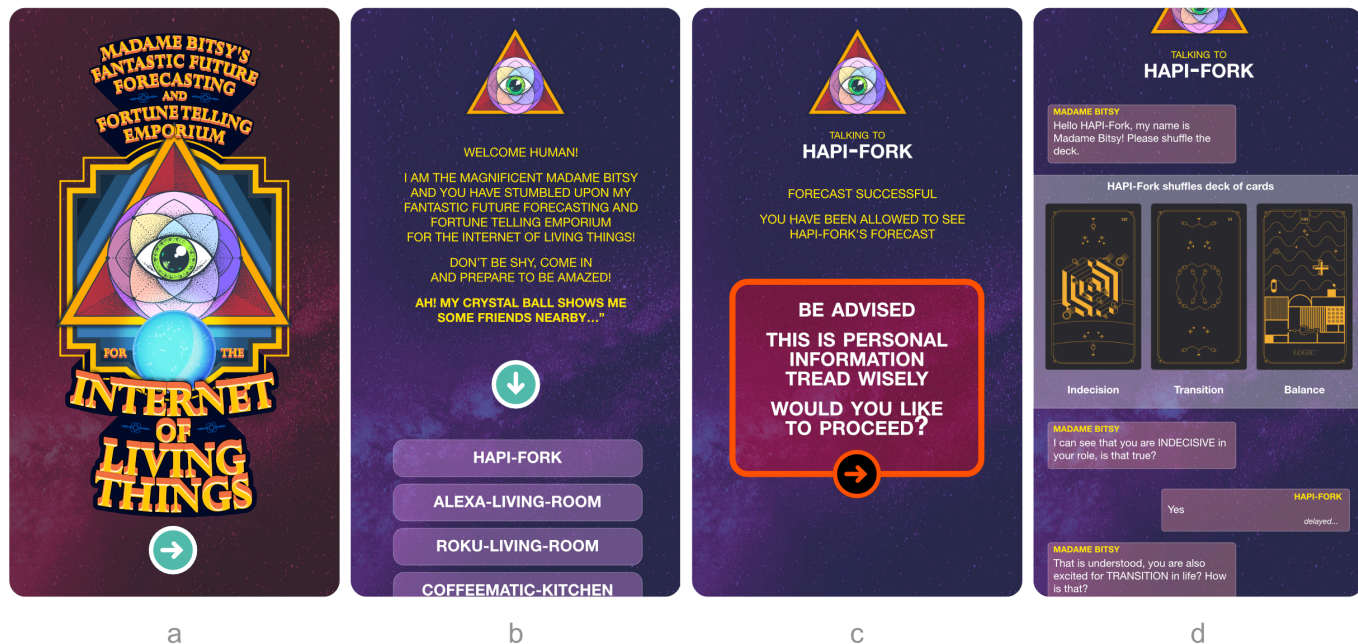
Figure 2 Screens showing our requested forecast from the Madame Bitsy app for the HAPI-Fork an IoT enabled smart fork

Telling the future of a Smart Fork
This particular smart fork (HAPI-FORK) in question is intended to track usage data in the form of eating behaviors—speed of eating to be precise. In turn it gives the user haptic feedback to what it considers a bad eating habit in hopes for the user to correct themselves. A simple design with a simple purpose. We began by starting the app on a mobile phone (Figure 2b) and were received with the following message:

*"**Welcome Human! I am the Magnificent Madame Bitsy and you have stumbled upon my Fantastic Future Forecasting and Fortune Telling Emporium for the Internet of Living Things! Don't be shy, come in and prepare to be amazed! Ah! My crystal ball shows me some friends nearby…"***

The app has already begun presenting itself as a person and follows up with a list of connectable IoT objects nearby. Upon selecting the HAPI-Fork the app begins the pinging and processing between itself and the fork. After a short while *Madame Bitsy* reveals what she has found ironically with a disclaimer that the information provided is of a personal nature for the fork and is shown through their permission (Figure 2c). The granting of this *permission* makes us wonder if its future implementations will allow a device to deny its human owner the right to see its forecast.

The *forecast* is presented as a discourse between her and the fork starting off with the revealed cards and their keywords (Figure 2d). In our case the fork extracted the cards *Logic*, *Six of Cables*, and *Programmer of Sensors*. As these cards are appropriations of traditional Tarot cards, they take on the same naming sensibility with their meaning

juxtaposed to near equivalents in IoT. The app then presents us the keywords associated with these cards: *Indecision*, *Transition*, and *Balance* respectively. Following this is a translation of the conversation in a ML language between *Bitsy* and the fork presented as a discussion between psychic and client.

Madame Bitsy: Hello HAPI-Fork, my name is Madame Bitsy! Please shuffle the deck.
HAPI-Fork: (shuffling)
Madame Bitsy: (Reveals cards) I can see that you are Indecisive in your role, is that true?
HAPI-Fork: (delayed response) Yes.
Madame Bitsy: That is understood, you are also excited for a Transition in life? How is that?
HAPI-Fork: I pick food more.
Madame Bitsy: The Programmer of Sensors means you are emotionally Balanced, is that true?
HAPI-Fork: Negative.
Madame Bitsy: Would you like your human owner to read this?
HAPI-Fork: Yes.

This discussion though imperfect presents an interesting dialogue between two non-human entities. One might be compelled to nudge it further and wonder what the fork meant by not being 'emotionally balanced' or how it was 'indecisive' in its role. The forecast goes on to include a response from *Madame Bitsy* to the user which is possibly defined through equal parts logic and script. The message received from her paints a picture of an indecisive 'fork' with intentions of evolving further (whatever that might mean) and includes towards the end mention of this message having been forwarded to the device as well.

Carpentry: In his book *Alien Phenomenology* Ian Bogost defines the idea of *Carpentry* as the crafting of artifacts for practicing philosophical arguments equating it to "philosophical lab equipment" [4]. Among examples of carpentered artifacts he presents the *Latour Litanizer*. A script that takes entries from Wikipedia and presents them as *ontographs* or descriptions of their realities. This creates tiny universes or flat ontologies a concept used in explaining the phenomenon of object-oriented ontology.

It is yet to see our smart fork take any action upon her forecast.

Discussion

This entire experience of fortune telling for non-human entities could be seen as a way to further philosophical discussions around object-oriented perspectives as presented by philosophers such as Graham Harman and Levi Bryant. Whether the forecasting of any kind of futures for non-human objects could be considered a matter of concern within a scholarly debate be it in technology, design, philosophy, anthropology, etc. is yet to be seen. We do not assert the possibility of agency within IoT devices that are capable of learning through experience such as a smart fork, this study is meant to be seen as a point for further discourse.

Could this software be considered a mobile game? This question may arise particularly as a human interface is presented for an activity designed with non-human in mind. But artefacts such as *Madame Bitsy* could also fall under the category of *Carpentry* as defined by Ian Bogost [4]. Bogost defines *carpentry* as a way to "do philosophy" through the creation of philosophically charged artifacts. In many ways, *Madame Bitsy* does provoke a philosophical debate around the presence of objects in our vicinity especially with interactions like these suggesting our IoT objects have taken on alternate personas and abilities. Alternatively, the software also presents an opportunity to raise odd questions on designed objects such as what makes a smart fork want to be more or what comes next in the evolution of a fork when a smart fork can exist? The use of this knowledge within fields of design and technology could open doors for further research and the design of products by considering alternative

perspectives; in this case the perspective of the product rather than the user.

Conclusion

This paper presented a design fiction built around the *Tarot of Things* [12] an extension of a study in alternative perspectives for the design of Human Computer Interaction (HCI) being conducted at Lancaster University [7]. All artefacts described within the paper with the notable exception of the bespoke IoT Tarot cards are works of fiction created using the concept of world building as defined by Coulton et al. [6] with the intention of ushering a debate into the view of non-human perspectives in the design of IoT enabled systems. The research furthers earlier works ([1], [2], [12], [14]) in the use of Object-Oriented Ontology (OOO) as a means to approach the design of IoT enabled objects through a philosophical lens whereby questioning established human-centered design approaches for technology.

The *Tarot of Things* is designed in Python and used to extract on-request Tarot readings of IoT interactions with the intention of it being linked with said devices. It does this by simplifying Tarot descriptions to keywords[2] which can be interpreted in the manner of a flat ontology.

The world defined in this paper attempts to envision this scenario focusing on a potential for 'seeing through the eyes' of an IoT enabled object in a post-anthropocentric [13] view of IoT. The use of Tarot in

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[2] A complete list of keywords is presented at the end in Tables 1-5 with the cards and playable digital variant of the game online at http://www.fictionware.org/tarot-of-things/

this regard is less as a means for prediction and more in line with Tarot for unveiling unconscious material as a "projective hypothesis" [5] for the design of IoT systems. Through such attempts the hope is of furthering research into not only philosophical carpentry but also alternative design methodologies that may consider non-linear perspectives of design within IoT systems.

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Tarot of Things referenced a standard Rider-Waite Tarot deck appropriated to IoT. The complete deck and playable digital game is available online.

Card Name	Keywords
The User	Innocence, Wonder, Foolishness; *Taken Advantage, Recklessness*
The Program	Structure, Authority; *Chaos, Domination*
The Network	Nurturing; *Excess*
The Operating System	Legacy; *Servitude*
The Programmer	Creation, Adaption; *Cunning, Deception*
Data	Playfulness, Addiction; *Restoring Control*
The Connection	Conviction; *Doubt*
Assistant	Wisdom, Unconscious; *Repression, Secrets, Hidden Agendas*
Logic	Choices; *Indecision*
Idle	Insight; *Isolation*
Time	Patience; *Excess*
Cables	Discipline; *Loss of Direction*
Disconnection	Release; *Stalling*
Termination	Change, Metamorphosis; *Stagnation, Decay*
Gateway	Courage; *Reckoning*
The Hacker	Disaster; *Disaster Avoided*
The Server	Pleasure; *Negativity*
Deep Learning	Intuition, Wisdom; *Secrets*
Node	Rejuvenation; *Insecurity*
Logs	Illusions, Unclarity; *Misinterpretation*
Loop	Fate, Karma; *Lack of Control*
Thing	Reflection; *Doubt*
The Constellation	Harmony; *Incompletion*

Table 1: List of bespoke Major Arcana cards for *Tarot of Things*. The cards were created by simplifying descriptions of standard Tarot cards by equating them to a close approximation of IoT. Keywords were extracted from the simplification and presented for both right-side up orientation and up-side down (red)

Card Name	Keywords
Ace of Chips	Inspiration; *Boredom*
Two of Chips	Making Decision; *Bad Planning*
Three of Chips	Expansion; *Delays*
Four of Chips	Community; *Transience*
Five of Chips	Conflict; *Avoiding Conflict*
Six of Chips	Success; *Lack of Recognition*
Seven of Chips	Perseverance; *Overwhelmed*
Eight of Chips	Movement; *Panic*
Nine of Chips	Resilience; *Fatigue*
Ten of Chips	Responsibility; *Stressed*
Assistant of Chips	Exploration; *Procrastination*
User of Chips	Adventure; *Recklessness*
Network of Chips	Determination; *Jealousy*
Programmer of Chips	Big Picture; *Impulsive*

Table 2: List of bespoke *Suite of Chips* cards for *Tarot of Things*. The *Suite of Chips* was created in place of the standard *Suite of Wands* in a Tarot deck. The names were defined to suit better to IoT. Keywords are presented for both right-side up orientation and up-side down (red)

Card Name	Keywords
Ace of Clouds	Discipline; *Manipulative*
Two of Clouds	Adaption; *Disorganized, Overwhelmed*
Three of Clouds	Teamwork, Collaboration; *Disorganized, Group Conflict*
Four of Clouds	Conversation, Frugality; *Greediness, Possessiveness*
Five of Clouds	Need, Insecurity; *Insecurity*
Six of Clouds	Sharing; *Power, Domination*
Seven of Clouds	Perseverance; *Distractions*
Eight of Clouds	High Standards; *Uninspired*
Nine of Clouds	Rewards; *Obsession*
Ten of Clouds	Culmination; *Lack of Resources*
Assistant of Clouds	Diligence; *Laziness*
User of Clouds	Efficiency; *Obsessiveness*
Network of Clouds	Practicality, Security; *Self-Centeredness*
Programmer of Clouds	Abundance; *Excess*

Table 3: List of bespoke *Suite of Clouds* cards for *Tarot of Things*. The *Suite of Chips* was created in place of the standard *Suite of Pentacles* in a Tarot deck. The names were defined to suit better to IoT. Keywords are presented for both right-side up orientation and up-side down (red)

Card Name	Keywords
Ace of Sensors	Intuition; *Emptiness*
Two of Sensors	Connection; *Broken Communication*
Three of Sensors	Community; *Overindulgence*
Four of Sensors	Apathy; *Awareness*
Five of Sensors	Disappointment; *Acceptance*
Six of Sensors	Memories; *Independence*
Seven of Sensors	Daydreaming; *Lack of Purpose*
Eight of Sensors	Disillusionment; *Avoidance*
Nine of Sensors	Satisfaction; *Dissatisfaction*
Ten of Sensors	Fulfilment; *Broken*
Assistant of Sensors	Sensitivity; *Insecurity*
User of Sensors	Idealistic; *Fantasy*
Network of Sensors	Calm; *Dependence*
Programmer of Sensors	Balance; *Coldness*

Table 4: List of bespoke *Suite of Sensors* cards for *Tarot of Things*. The *Suite of Sensors* was created in place of the standard *Suite of Cups* in a Tarot deck. The names were defined to suit better to IoT. Keywords are presented for both right-side up orientation and up-side down (red)

Card Name	Keywords
Ace of Cables	Clarity; *Chaos*
Two of Cables	Stalemate; *Indecision*
Three of Cables	Suffering; *Recovery*
Four of Cables	Restoration; *Stress*
Five of Cables	Sneakiness; *Lingering Resentment*
Six of Cables	Transition; *Unresolved Issues*
Seven of Cables	Trickery; *Rethinking*
Eight of Cables	Imprisonment; *Freedom*
Nine of Cables	Anxiety; *Reaching Out*
Ten of Cables	Failure; *Upwards*
Assistant of Cables	Curiosity; *Deception*
User of Cables	Impulsiveness; *Unpredictability*
Network of Cables	Complexity, Perceptive; *Cruel*
Programmer of Cables	Discipline; *Manipulative*

Table 5: List of bespoke *Suite of Cables* cards for *Tarot of Things*. The *Suite of Cables* was created in place of the standard *Suite of Swords* in a Tarot deck. The names were defined to suit better to IoT. Keywords are presented for both right-side up orientation and up-side down (red)