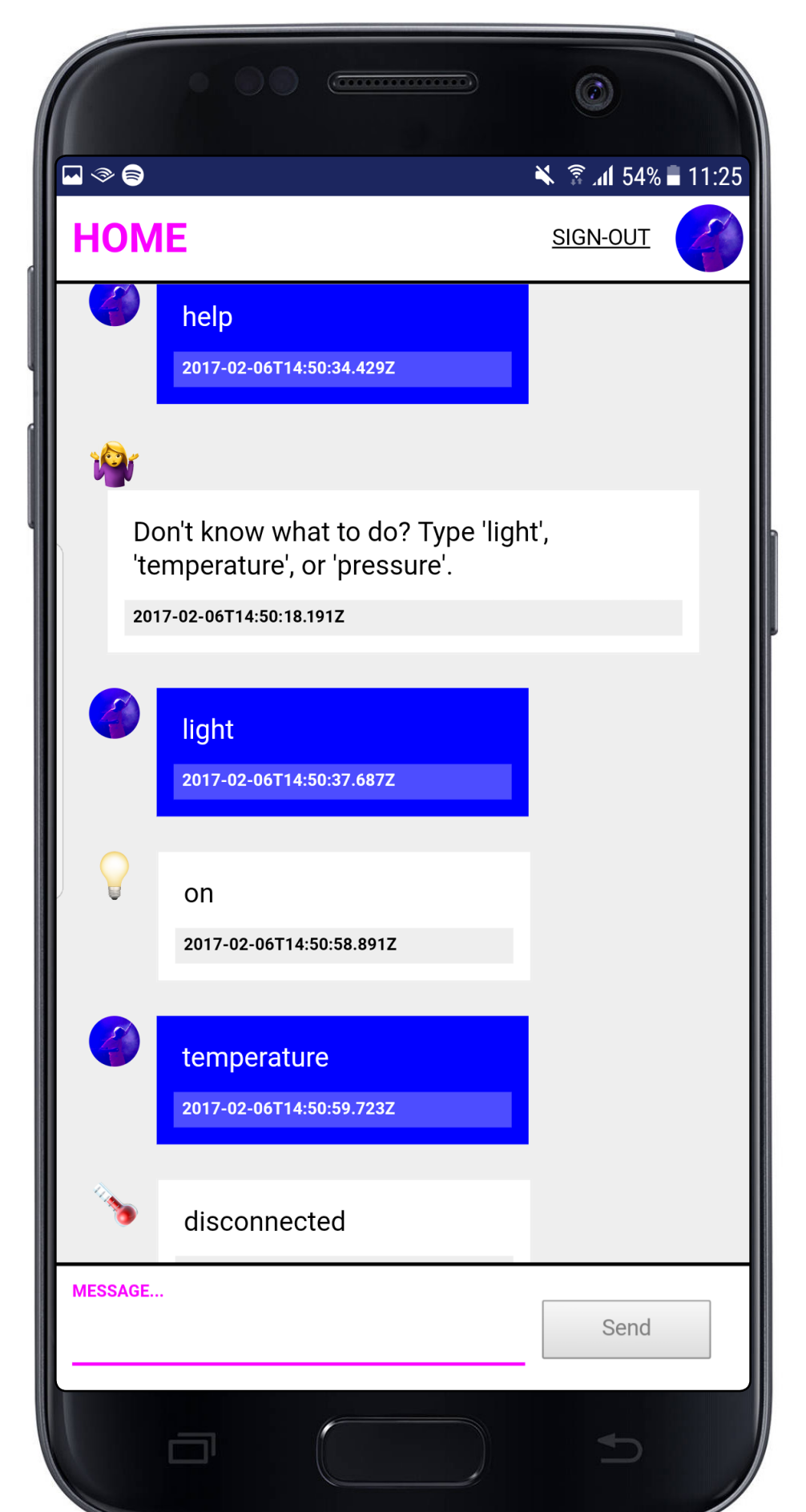


LEAKY OBJECTS

Implicit Information, Unintentional Communication

I propose the concept of *leaky objects* to describe the phenomenon in which shared objects unintentionally reveal implicit information about individual or collective users. This leaking of implicit information changes our individual interactions *with* objects to *through* objects, enabling expressive communication and ambiguous speculation.

*Is he awake or
still sleeping?*



*The light is on. He is
probably reading.*

Motivation

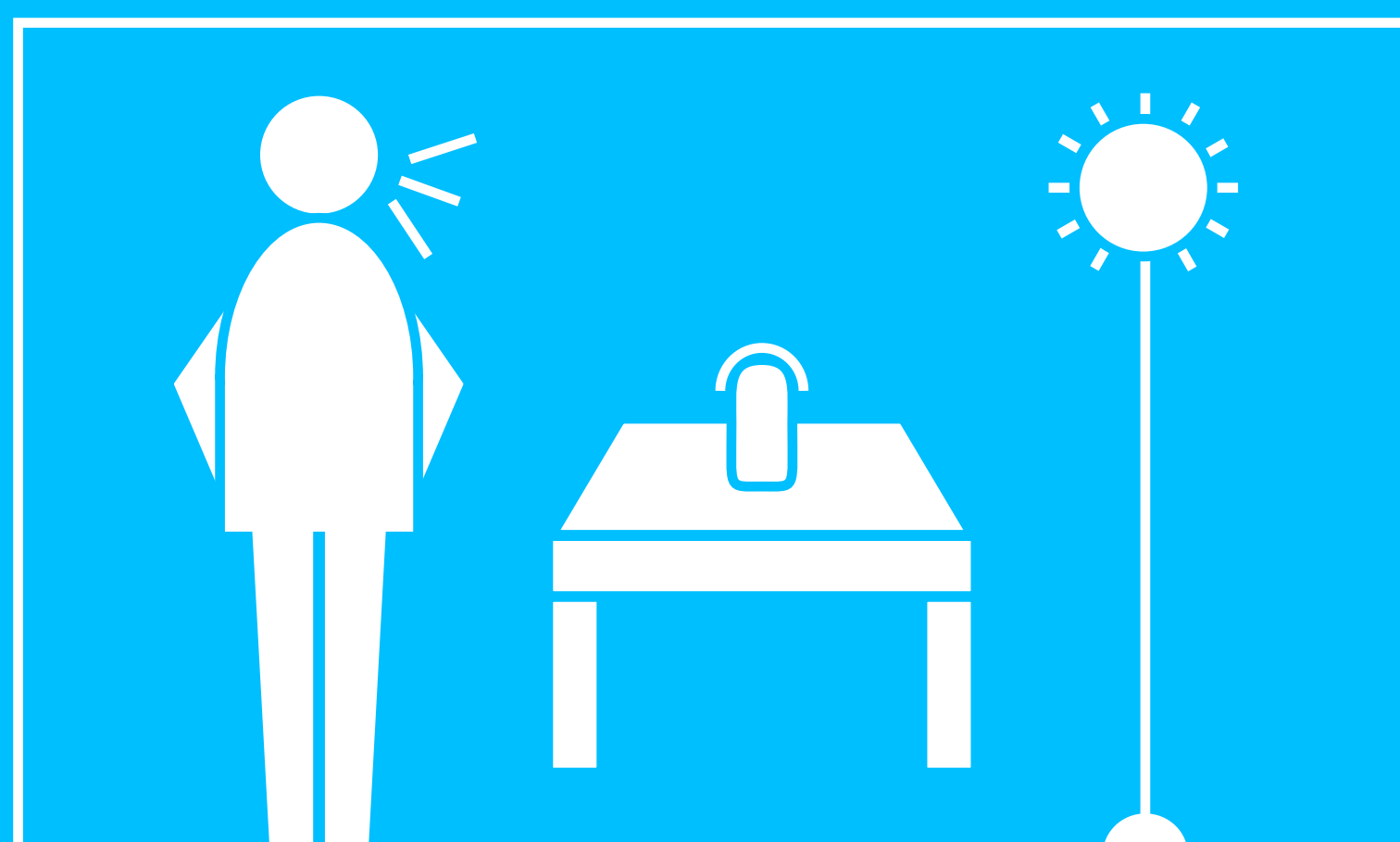
The autobiographical design probe that prompted the notion of leaky objects, was driven by a desire to communicate with shared objects about my partner. Following an international relocation for my employment, he has been subsequently unemployed with a contrasting flexibility in environment and routines. This variability shifted the nature of my daily thoughts about him from specific inquiries into known events to general curiosities about possible happenings and overall well-being. The former often explicitly elicited a lengthy dialogue, while the latter only necessitates a brief response.

Therefore, how might our method of communication correspondingly be adapted? Instead of directly communicating with each other, could we indirectly communicate with things about each other? What information already exists from our interactions with objects? And is this derived implicit data a viable form of communication?

The initial prototype consisted of a custom web-based chat application in which the status of three sensors embedded within our apartment could be remotely checked (i.e. photocell, temperature and pressure sensors). As this felt overly one-sided, the second prototype narrows the project scope to the photocell attached to a floor lamp and aims to equalize the power imbalance between the at-home and remote users. A custom power-switch has been appropriated into an awareness indicator using a 5V relay module connected to an extension cord, so that whenever the light status is requested, the power supply is briefly switched off, causing the light to flicker if already turned on.

The appropriation of a power-switch into an awareness indicator transformed our discussions of the probe from a device to monitor *with* to a device to communicate *through*. This transformation intertwines the two user-device paradigms of interaction (right). While the lamp maintains its lighting functionality with the added potential of automation through its newly connected status, it also purposefully enables non-symbolic communication between users on either side.

Many consumer-based Internet of Things (IoT) devices fall into two paradigms of user-device interaction:

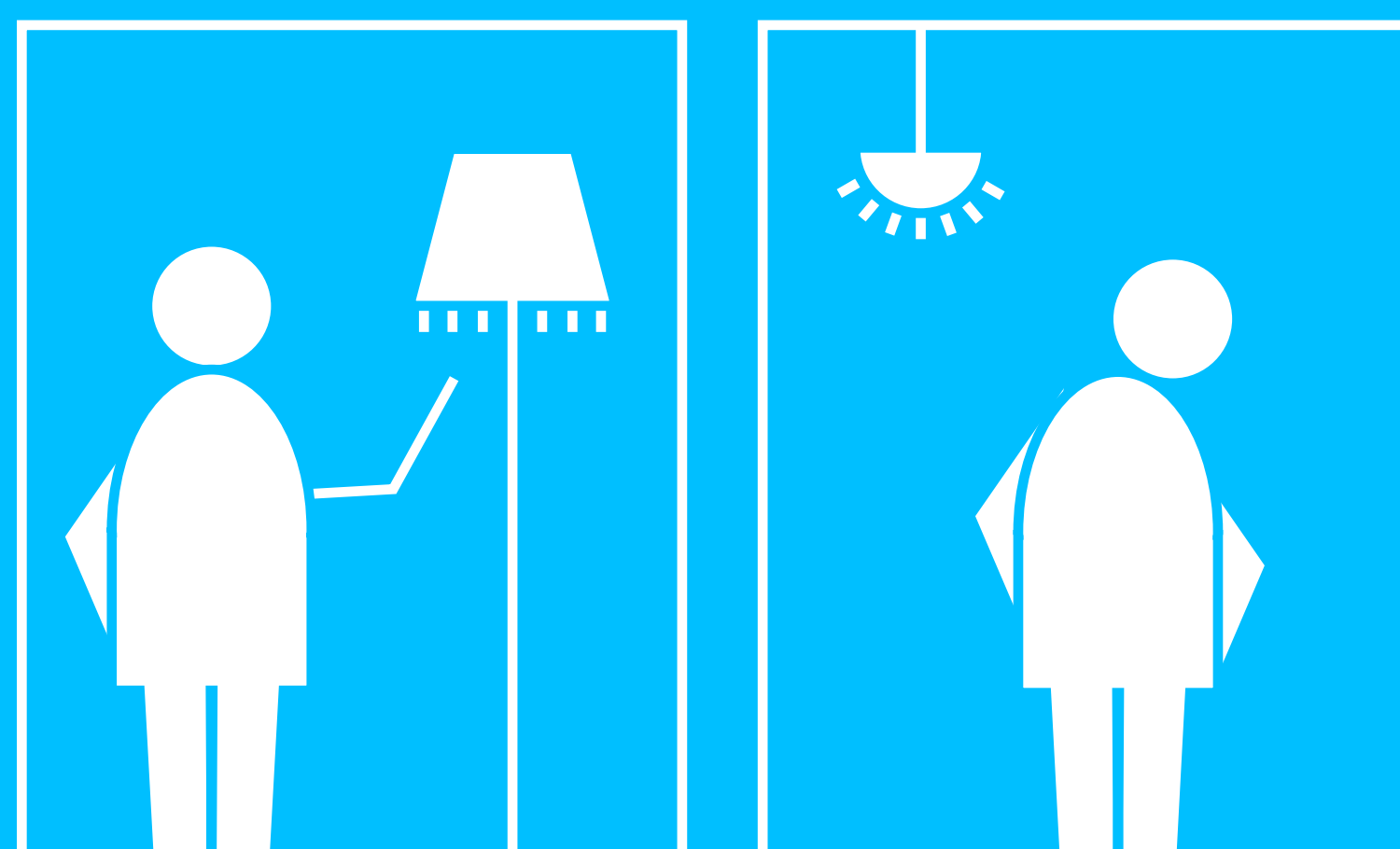


This paradigm is often the remote control of a technologically embedded object from a portable application or voice-based interface. This control-based model highlights the interaction of a user *with* a device while emphasizing efficiency. Potential implications include privacy concerns and challenges of agency between humans and machines.

User with a device

Users through a device

This paradigm employs a threshold-based model in which novel objects are intentionally designed for remote communication. While interactions can be synchronous or asynchronous, most often each user or location possesses one object from a family of connected objects. Potential implications include asymmetries of interaction and embedded meaning within technological malfunction.



The prototype is not novel in its appropriation, but in what it exposes: *leaky objects* and the prevalence of meaning-making embedded within the implicit information from interactions with shared objects, artifacts and devices that are not intended to be explicit communication tools.

Now knowing this phenomenon exists, how should designers approach connected objects, artifacts and devices moving forward in which implicit information is increasingly accessible?



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