Objects that withdraw

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A future in which everyday objects are equipped with three-dimensional vision can certainly bring new perspectives. From a design-research point of view, we can understand better how objects are used and misused, and feed that into a design process. Since objects will probably be connected and digitally fabricated, this process could even be automatic: Things could interpret how they are being used, and implement improvements in their shape and function into subsequent generations of products.

From a user perspective, equipping Things with vision, brings up notions of privacy and control. It might also create new routines, as people consider the dark (unseeing) zones of this technology, and come up with strategies to avoid being seen. Lastly, if we take a Thing perspective (Giaccardi et al. 2016), then it is not only people who might need to hide from the vision of everyday objects, but also Things.

In order to explore that, we created a virus that spreads in digital fabrication codes, changing the shape of new produced objects, allowing them to be impossible to capture by object recognition, and thus becoming unique. We imagined this virus as being originated from a mere glitch, with the potential to spread rapidly by mutating in each generation of products.

Process

We decided to focus on 3D vision as a Things perspective (Giaccardi et al. 2016). 3D vision, or more precisely three-dimensional object recognition, is a multi-disciplinary area of research, with major contributions originating from the Pattern Recognition, Computer Vision, Robotics and Computer

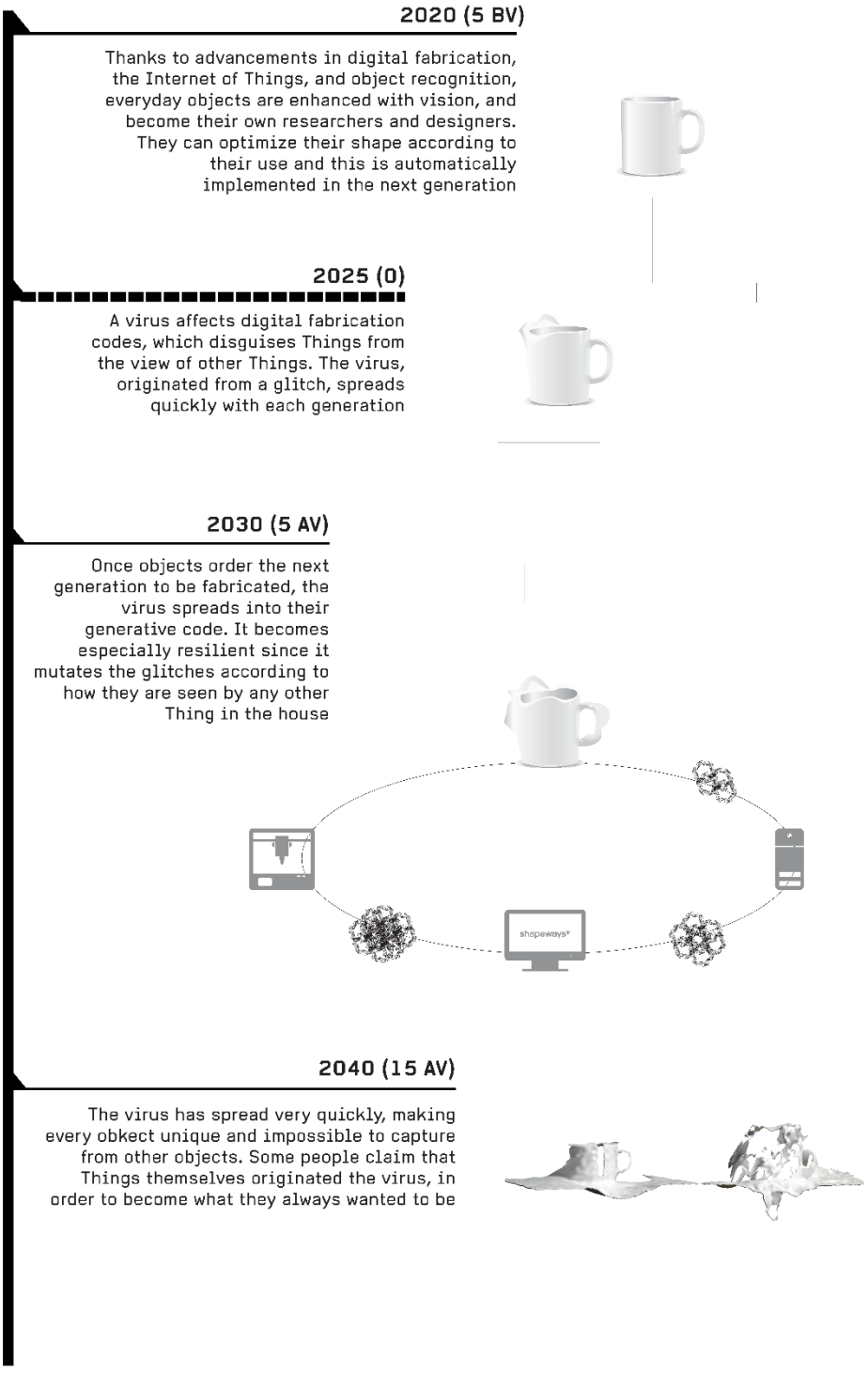
Graphics communities (Beserra Gomes et al. 2013). In recent years, as the technology has become more and more affordable, it has also been incorporated as a research tool by the Design community.

Accessible devices such as the one we used, Microsoft Kinect, was initially conceived for the Entertainment and Game industry and it is now common at research labs. Latest versions of the device, such as Kinect V2, is composed of two cameras; RGB and infrared (IR). The RGB camera captures colour information while the IR camera provides depth and infrared maps (that is also known as RGB-D cameras). This enables researchers and designers not only to get near-field real-time data, but also by using appropriate software or algorithms afterwards, process such information for 3D object recognition, motion capture or many other features.

We observed that adopting a 3D vision as a Thing perspective can bring new interesting opportunities for design research. Since previous work on Things ethnography has been done with cameras, a human interpretation is usually needed as input for designing the next generation of products. Once using 3D cameras, the loop of Things designing themselves, could be more easily closed.

However, this technology has also some limitations, such as a ‘dark’ zone (i.e. an zone which the camera cannot see) of a ratio of around 1 metre next to the camera (Lachat et al. 2015). We found the limitations and occlusions actually very interesting and imagined what people would do in these ‘dark’ zones, or how they might avoid being watched. By trying this briefly, we saw that it could create special interactions: for example, if a fridge would have 3D vision, people would be able to eat very close to it without being seen.

Finally, we adopted a Thing perspective, and imagined how could Things hide from other Things. Previous projects explored the potential of humans hiding from technology (see for example, Adam Harvey's work), but not how Things could hide from other Things. This brings up notions of agency, and automation, as well as a provocative view on IoT.



In summary, in our research process, we used the technical limitation as an opportunity. This scenario enabled serendipitous discovery through the design process while making technology errors an advantage and exploiting their aesthetic potentials. For example, we discovered the potential of objects to hide people's identity through use. Most importantly it focused design exploration on the absence, rather than the collection, of data. This process brought new angles to our current research practices: For Iohanna, it was interesting to conceptualize Things Ethnography with a 3D camera, for Daniel, it was inspiring to reverse the process by looking for what he normally tries to avoid (errors). By sharing the design process with the object, we were able to do a shape

exploration while looking through the eyes of the machine, which lead to a successful co-performance.

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