

examined the already existing works, defined a set of parameters for jewelry design and created a non-working prototype as a design speculation according to those parameters. We also presented our implementation plan and steps for turning this speculation into an actual working-prototype. We believe that Snowflakes can be a valuable tool for smart jewelry designers to create new expressions which can blend aesthetics and functionality. Moreover, our design parameters which were set to create this concept can inspire and guide designers and researchers of the smart jewelry.

Limitations and Future Work

For future research, workshops with jewellery designers are going to be conducted to identify major use cases. Then, we plan on demonstrating each electronic hardware and software module and compiling a library of sensor/microcontroller pairs with their packaged module for Snowflakes. After implementing and testing a functional set of modules, a visual software programming and iterative design interface is going to be implemented. A hardware and software library of packaged electronic sensor/microcontroller pairs (such as microcontrollers, Bluetooth transceivers, LED's, resistors, capacitors, batteries of different sizes) are going to be available for plug-and-play testing by designers and a software kit for 3D visualization is going to be implemented. After the production of the artefact, we are also curious how this can serve as a medium that can start a discussion on social, cultural and ethical implications of existing and emerging technologies.

References

1. Adafruit. Flora - Wearable electronic platform: Arduino - compatible - v3. Retrieved March 17, 2017 from <https://www.adafruit.com/product/659>.
2. James Auger. 2013. Speculative design: crafting the speculation. *Digital Creativity* 24, 1: 11–35.
3. Ayah Bdeir. 2011. Electronics as Material : littleBits. *Proc. TEI '11*: 3–6.
4. Leah Buechley, Mike Eisenberg, and Jaime Catchen. 2008. The LilyPad Arduino: Using computational textiles to investigate engagement, aesthetics, and diversity in computer science education. *Proc. CHI '08*: 423–432.
5. Leah Buechley and Craft Technology Group. 2006. A Construction Kit for Electronic Textiles Leah Buechley Craft Technology Group , University of Colorado at Boulder Department of Computer Science. 1–8.
6. Eva-sophie Katterfeldt, Nadine Dittert, and Heidi Schelhowe. 2009. EduWear : Smart Textiles as Ways of Relating Computing Technology to Everyday Life. *Proc. IDC '09*: 9–17.
7. Majeed Kazemitabaar, Liang He, Katie Wang, Chloe Aloimonos, Tony Cheng, and Jon E. Froehlich. 2016. ReWear: Early Explorations of a Modular Wearable Construction Kit for Young Children. *Proc. CHI EA '16*: 2072–2080.
8. Cameron S. Miner, Dm Chan, and Christopher Campbell. 2001. Digital jewelry: wearable technology for everyday life. *Proc. CHI '01*: 45–46.
9. G Nanda, A Cable, V Bove, and M Ho. 2004. bYOB [Build Your Own Bag]: a computationally-enhanced modular textile system. *Proc. MUM '04*: 1–4.
10. Grace Ngai, Stephen Chan, Hong Leong, and Vincent Ng. 2013. Designing iCATch: A multipurpose, education-friendly construction kit for physical and wearable computing. *ACM TOCE* 13, 2: 1–30.
11. Vasiliki Tsaknaki, Ylva Fernaeus, and Martin Jonsson. 2015. Precious Materials of Interaction - Exploring Interactive Accessories as Jewellery Items. *Nordes'15* 1, 6.