

RFID-enabled End User Development Toolkit for Designing Fashionable Wearables

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CCS CONCEPTS • Human-centered computing • Human computer interaction (HCI) • Interactive systems and tools • User interface toolkits

Additional Keywords and Phrases: Fashion wearable, Fashion technology, RFID, End user development, Design

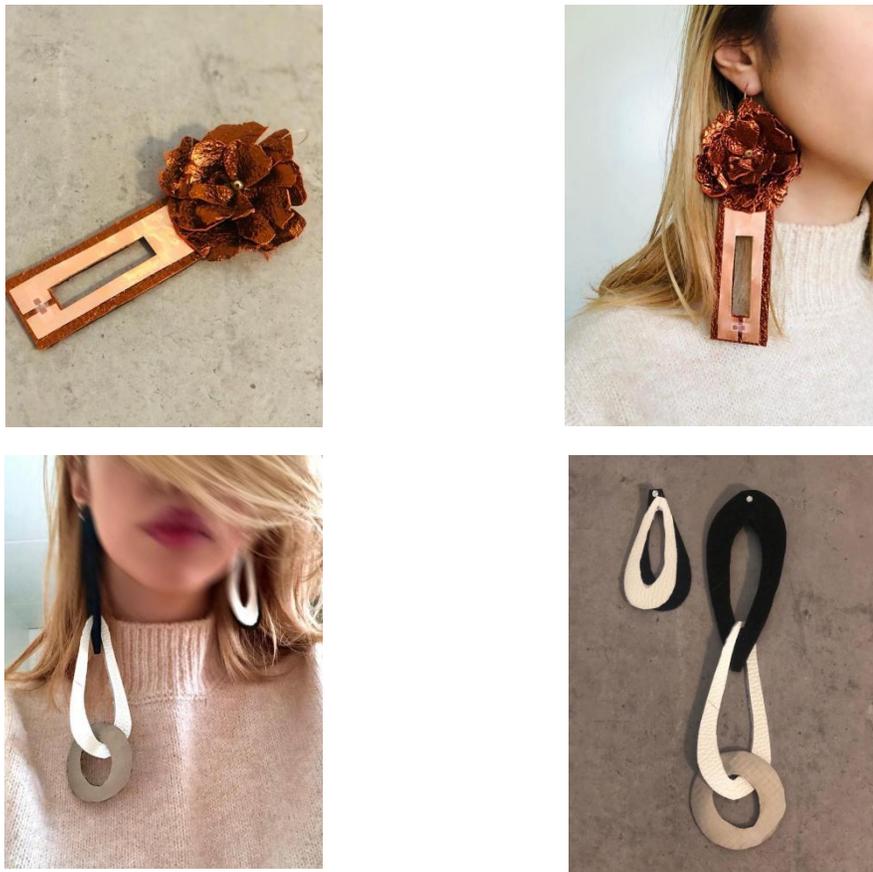


Figure 1: Handmade Cloth fashion wearable accessory embedded with RFID.

Fashionable wearables is gaining great momentum from the convergence of fashion design, ubiquitous computing, novel fabric and materials [1]. Within this emerging domain, however, the design and development of hardware, software and user interaction atop remains rather an open research space to be explored. Passive Radio Frequency IDentification (RFID) technology, due to some of its features like being battery free, low cost, (some of them) washable and stretchable, is considered specifically appealing to fashionable wearables [2]. Our research intends to propose a passive RFID-enabled, end-user-oriented toolkit to support fast prototyping of fashionable wearables with easy and quick implementation of different types of RFID elements. Our target users include fashion designers, wearable designers and developers either with or without specialized knowledge of RFID and related technologies.

The toolkit will provide: 1) a set of mashup-able RFID-embedded hardware gadgets, including but not limited to buttons, zippers, patches etc., which are ready to be adapted to different sizes, shapes, forms and integrated with various fabrics and materials; 2) compatible software tool that allows end users to swiftly configure and customize their own control logic among different components via simple unified interface; 3) support for the recognition and realization of multiple user interactions associated with the gadgets, e.g. press, hover, swipe, interactions with clothing (folding, zipping) etc.

With the toolkit, fashion wearable designers and developers will be able to quickly establish and experiment on a rich repertoire of experience prototypes, without much distraction by the underlying technologies and off-bottom details. This sort of hands-on End User Development (EUD) [3], we believe, is of great significance specifically in the early design stage, by facilitating the design team and personnel to identify their design requirements and restrictions, communicate and share design ideas, envision different application scenarios, as well as test and evaluate diverse design possibilities [4].

Currently, the development of the toolkit is in the generation phase. Our team had developed different RFID elements, had trials to understand fashionable applications, developed the software infrastructure which allows us to map different interactions through RFID components to a variety of different output modalities. We aim to get to the next step by turning these components into a coherent toolkit that can be used by a wider audience including designers with less knowledge and skills in technical details. We believe that the Wearables Toolkit workshop proposes a unique environment where we can discuss this toolkit and also learn preferences of a wide range of expert stakeholders with a wide array of backgrounds and knowledge.

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