Summary

The aim of this thesis is to answer the following research question; “How can a toolkit be constructed for students to develop novel concepts for haptic wearable textiles?” In more simple terms the goal is to develop a set of tools for students to create textile wearables. The students of Interaction Technology during their haptics course develop a wearable using a simple toolkit, this toolkit has been used as the base for the textile wearable toolkit.
The textile toolkit was developed after a literature review that looked at existing toolkits, use cases and existing wearables. It was found that textile wearables, especially the ones that can provide haptic feedback are still in an experimental development phase, and will take time for widespread adoption. After the literature review was conducted, interview sessions were held with stakeholders within the haptics course that helped further explore the possibilities and needs of the to be developed toolkit.
Based on the literature and the interview sessions, a set of requirements was developed that informed a first concept. This first concept contains multiple actuators and sensors, with the main contribution being a base prototype for the user to pin their wearable ideas to. Using Velcro and a set of wires, users can mount the sensors and actuators at any place on the upper body.
The concept toolkit was tested with two groups. First a group of haptics experts, students, healthcare workers and VR app-developers were asked their opinions on the toolkit and its applications. Second a more in-depth testing session was held with a student to judge the usability and ease of development. This resulted in a second set of requirements that, together with the requirement list resulting from the literature and first interview sessions, was used to create a recommendation for a final prototype that can be further developed into a product.

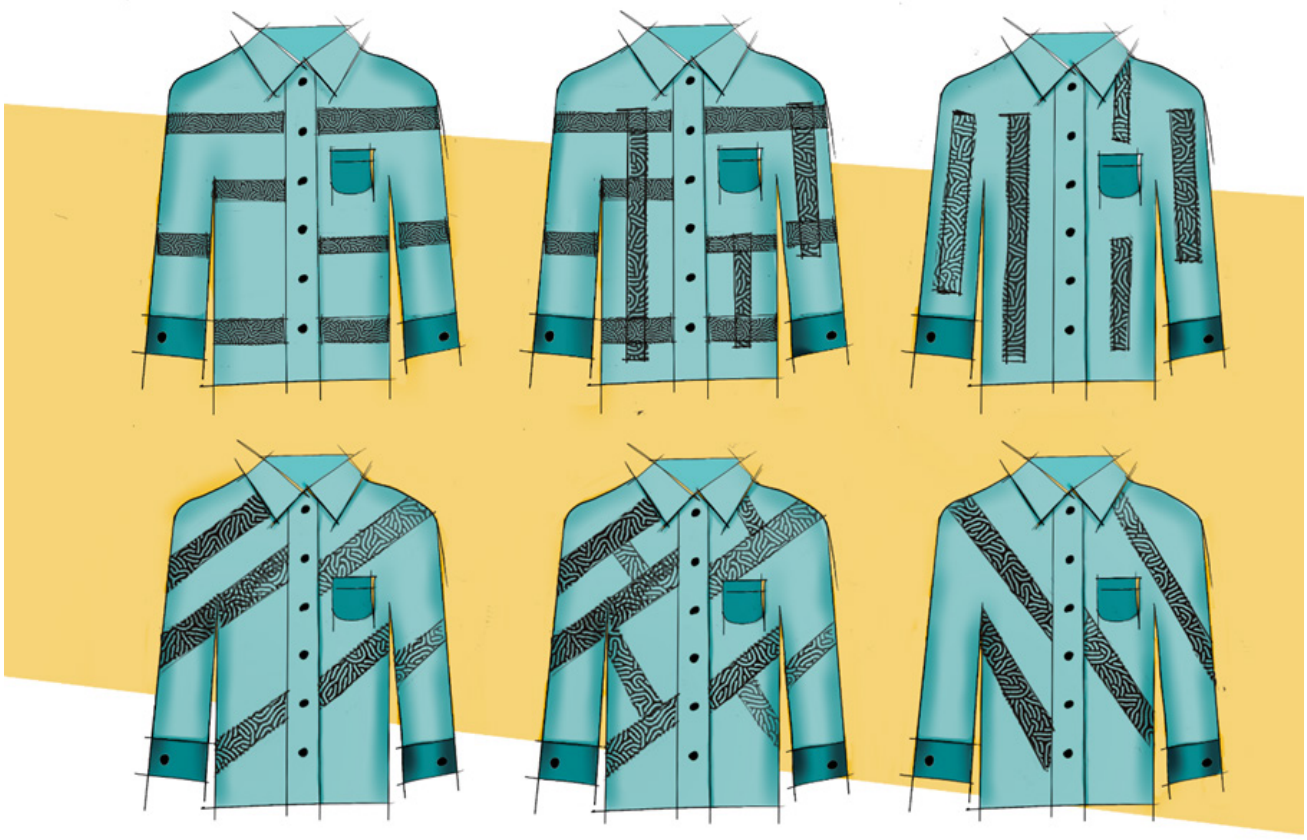

Figure 1. The shirt mounting idea