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Designing Haptic Interfaces to Uncover Gestural Patterns in Children

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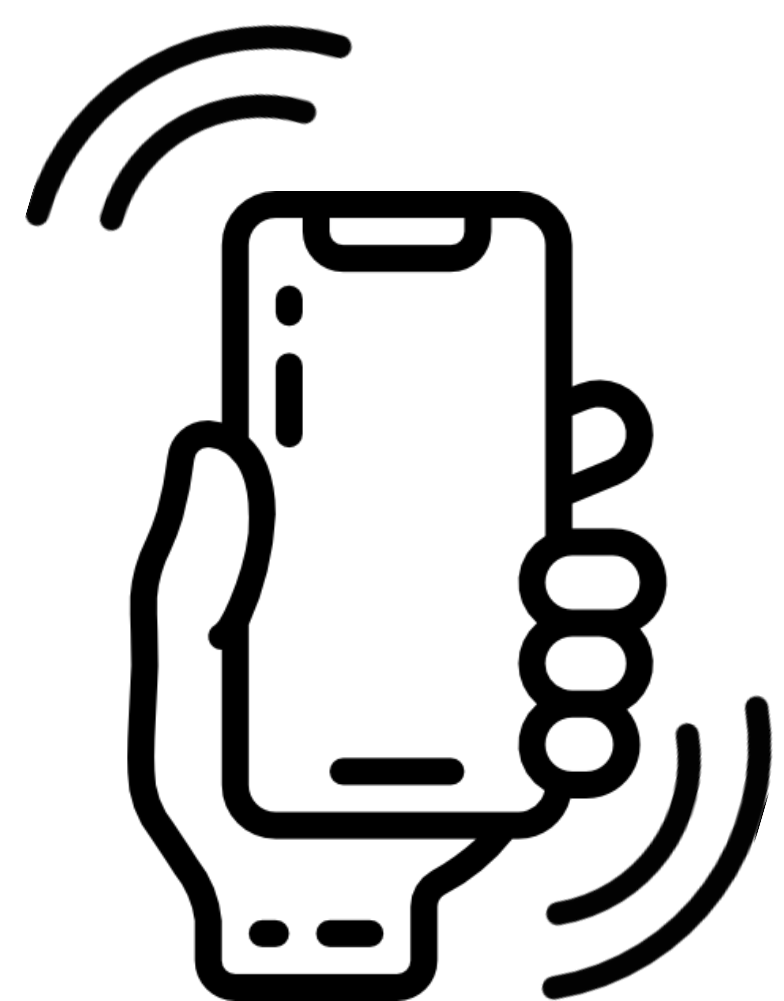
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Introduction

- **Haptic interfaces:** tools that transmit information through touch
- **Haptic interfaces** allow the design of vibrotactile patterns that can affect how the users interact with them.
- **Vibrotactile patterns:** a function of intensity, rhythm, and sharpness representing the shape of a vibratory waveform.
- There is an opportunity to design **haptic interfaces** to collect, analyze and uncover **gestural patterns** in children, particularly children with sensory processing differences such as those exhibited by **autism**.

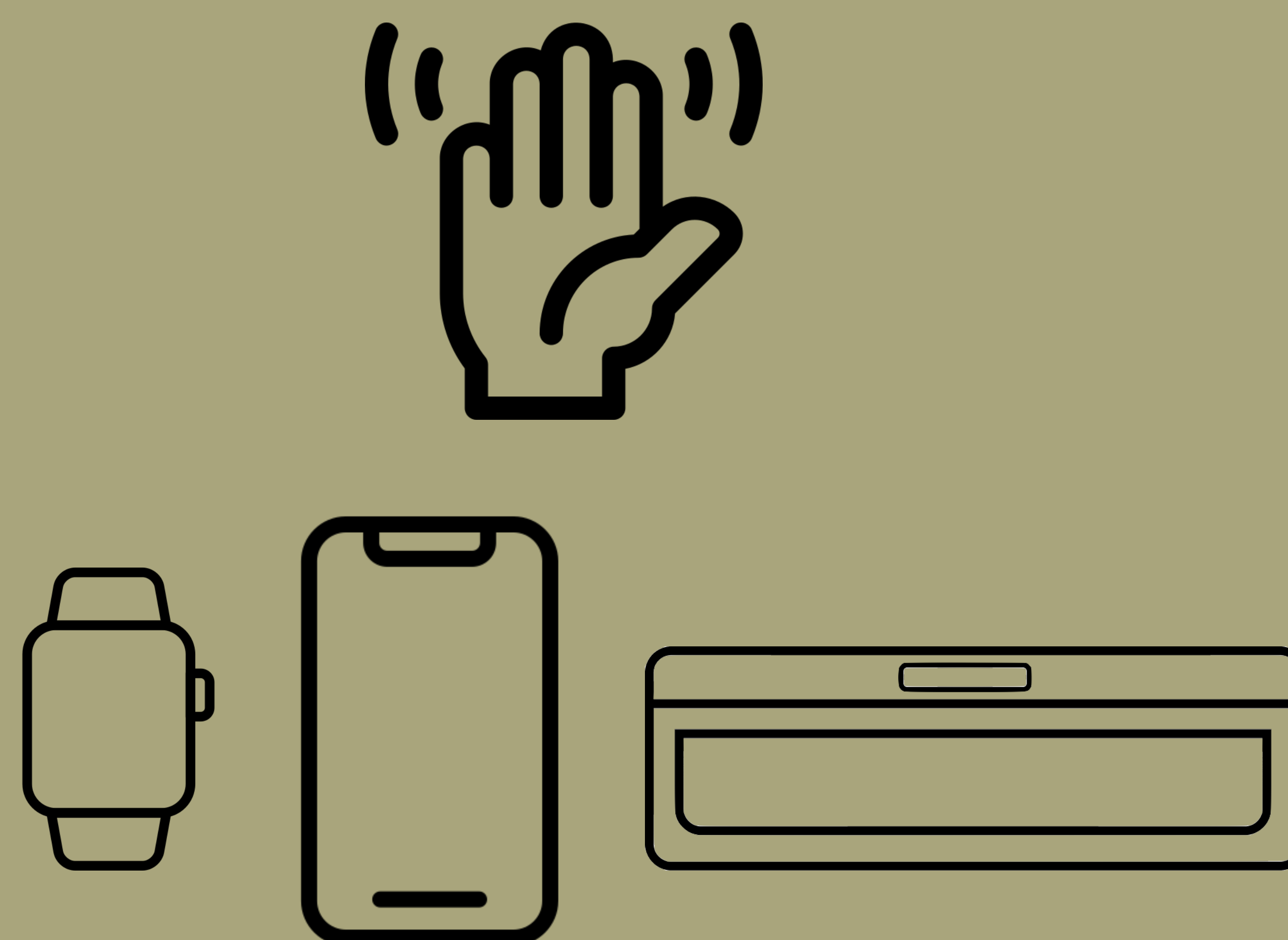


Methodology

Design Thinking methodology.



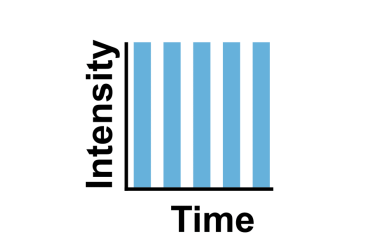
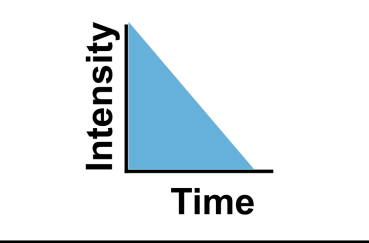
Designing haptic interfaces that support the assessment of tactile processing in children



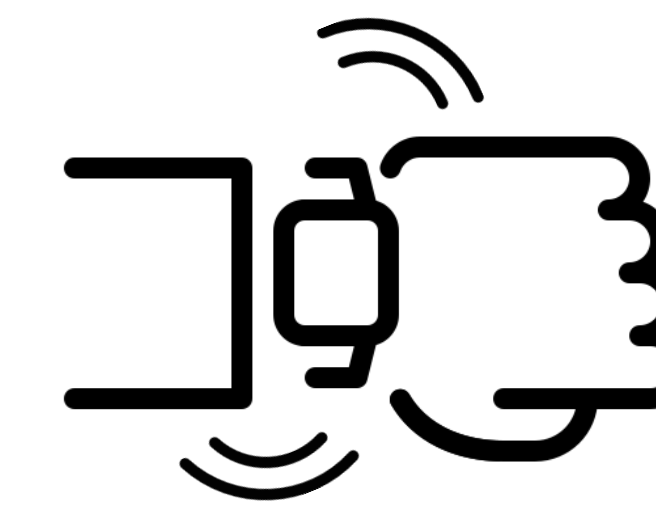
Results:

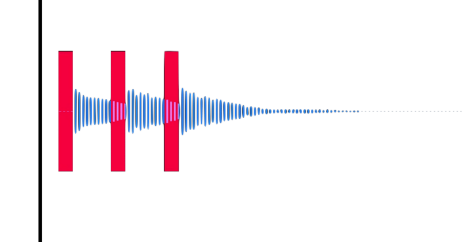
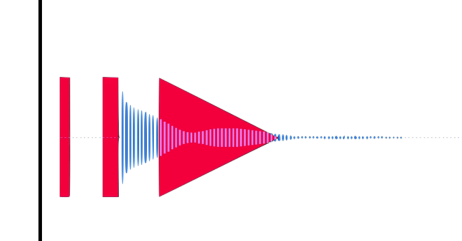
Relationship between gestures and vibrotactile patterns, as well as the intensity values for each pattern.



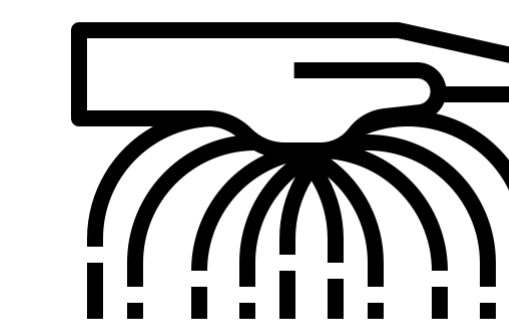
Gesture	Vibrotactile pattern	Example of Vibrotactile pattern
Tap	Flat	
Drag	Ramp	


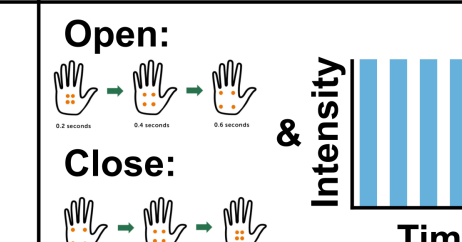
Apple Watch



Gesture	Vibrotactile pattern	Example of Vibrotactile pattern
Tap	Varied	
Drag	Varied	

Ultraleap



Gesture	Vibrotactile pattern	Example of Vibrotactile pattern
Hand Tap	Click	
Subtle Swipe "flick from left to right"	Open → Close	

Feel and Touch:

A mobile haptic game augmented with vibro-tactile patterns to assess tactile processing

