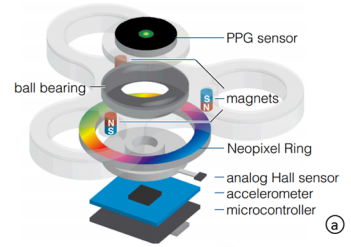

Figure 1: Hardware design of a BioFidget prototype.

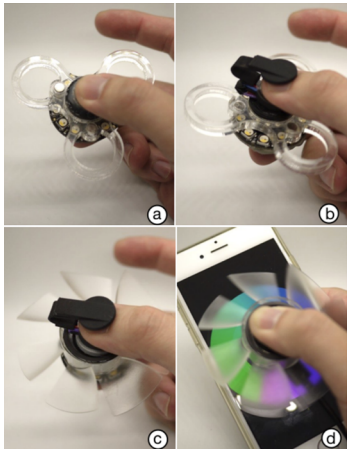

Figure 2: Alternative BioFidget designs.

BioFidget Video: Biofeedback for Respiration Training Using an Augmented Fidget Spinner

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Abstract
This video presents BioFidget, a biofeedback system that integrates physiological sensing and display into a smart fidget spinner for respiration training. We present a simple yet novel hardware design that transforms a fidget spinner into 1) a nonintrusive heart rate variability (HRV) sensor, 2) an electromechanical respiration sensor, and 3) an information display. The combination of these features enables users to engage in respiration training through designed tangible and embodied interactions, without requiring them to wear additional physiological sensors. The results of this empirical user study prove that the respiration training method reduces stress, and the proposed system meets the requirements of sensing validity and engagement with 32 participants in a practical setting.

Author Keywords
Biofeedback; physiological sensing; fidget spinner; stress; respiration training; tangible interaction

ACM Classification Keywords
H.5.2. Information Interfaces and Presentation (e.g., HCI): User Interfaces