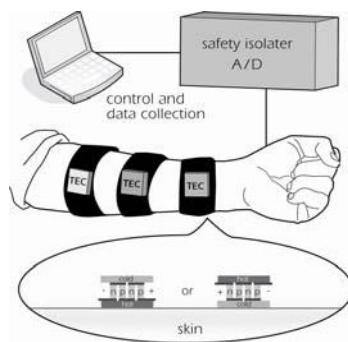
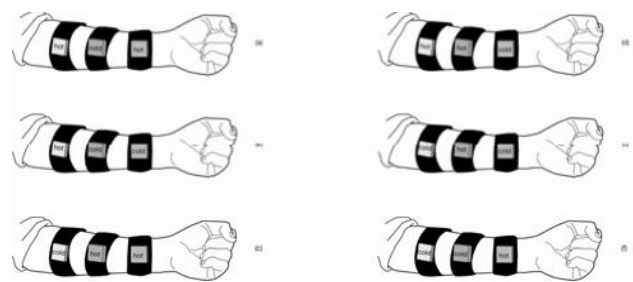


Thermoelectric Tactile Display

Tactile displays have been implemented with a variety of technologies to stimulate tactile sensations. In this application, we propose a novel modulation modality based on the tactile sensation known as the Thermal Grill Illusion (TGI). TGI stimulation can generate a variety of perceived sensations, including stinging, burning, electrical currents, and non-painful heat. The different sensations are obtained by manipulating spatially adjacent, alternating warm and cool stimuli. A set of thermoelectric coolers that create the thermal stimuli comprise the display. The signals can be modulated on more than one plane, e.g., locus and time. Spatial organization of the warm and cold components is the primary manipulation.



Thermoelectric Tactile Display



Spatial configuration of display with three thermal stimuli mounting on the forearm

Goals and Benefits

- Enriches the utilization of tactile sensation with a novel medium - (“a different ping”)
- Generates signals that can convey gradual changes in the severity of an alert
- Generates sensations of electrical currents, stinging, and burning, none of which are painful or invasive

Potential Commercial Uses and Market

Gaming — Incorporable in both the controllers and the wearable outfits of home and arcade gaming interaction devices to enhance the gaming sensation

Industrial and operational environment — Display of covert alerts and warnings

Development Stage and Development Status Summary

A prototype based on thermoelectric cooler system has been developed. Preliminary experimentation has provided data on the characteristics of the sensation, mostly in terms of spatial manipulation of the stimuli.

Researcher

Dr. Tal Oron Gilad, Dep. of Industrial Engineering and Management, Ben-Gurion University, Beer-Sheva, Israel;

Patent Status

Patent Pending

Contact for Licensing Information

Zafir Levy, Director of Business Development, BGN Technologies, E-mail: zafir1@bgu.ac.il