

SAMPLE COMPLETED CAPSTONE PROJECT FORM

PROJECT NAME:

Compact Tactile Skin Stretch Feedback Device

PROJECT SPONSOR:

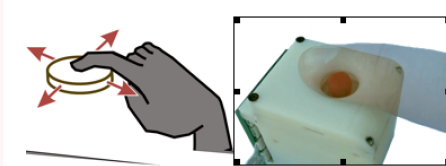
ACME Company

**PROJECT
DESCRIPTION:**

Our lab has recently developed a new form of tactile feedback that can be used to provide direction cues. The device incorporates a small moving contactor that interfaces with the user's fingerpad. Direction cues correspond to the direction of contactor motion. Displacements of a millimeter or less are easily interpreted by users. Further background on the project can be found at: <http://heml.eng.utah.edu/index.php/Haptics/ShearFeedback>

Now that basic research has shown the merits of this type of tactile feedback, we are now interested in embedding these devices in consumer products such as music players, cell phones, or a steering wheel. For this to be practical, it is necessary to reduce the device's package size and power consumption. These requirements form the basis of this project.

**ATTACH PHOTOS
& DRAWINGS:**



Concept and device for providing direction cues by applying tangential skin stretch to the fingerpad.

**PROJECT OBJECTIVES/
DESIRED OUTCOMES:**

(Quantify objectives
if possible)

- Functioning prototype with total device package size to 1" x 1" x 0.5" with +/- 1 mm of motion on 2 axes while in contact with a user's finger (i.e., stretching the skin of their fingerpad)
- Power consumption less than 2 Watts from a 3.3-Volt power source

**ENGINEERING SKILLS
REQUIRED FOR PROJECT:**

(What skills will your
student team need?)

- Mechatronic design (electro-mechanical design and programming)
- Machine design
- Rapid prototyping, manual machining, and/or CNC machining



**EQUIPMENT AND
FACILITIES YOUR
COMPANY CAN PROVIDE
FOR PROJECT:**

- 3D Printer
- Some limited time in lab

SPONSOR NEEDS FROM STUDENT TEAM AND UNIVERSITY:

Please check all that apply.

- | | |
|---|-------------------------------------|
| Non-disclosure or other confidentiality agreement | ☐ |
| Student citizenship, permanent resident, or visa requirements | ☐ |
| Security-related requirements | ☐ |
| None | ☒ |

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