TacRead: A Low-Cost Refreshable Braille Display for Persons with Blindness

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Refreshable Braille

Existing Commercial Devices are based on Piezoelectric Actuation. Each Braille cell has a retail cost of $30-35.

End-user products typically have 40 such cells, and cost to users $2500 – 5000. Per cell cost thus comes at $62 - 125
Solution

- TacRead is a low-cost Braille display, with a price point expected to be lower than 1/10th.
- TacRead is based on Shape Memory Alloy (SMA) based actuation. SMAs are relatively new smart materials and are lower in cost.
- TacRead is similar in functionality, operation and performance to existing devices.
- In future applications, it is possible to extend the technology to develop small-scale refreshable graphic displays.
Current Status

• Functional prototypes have been developed and demonstrated to limited users.

• Currently, the SMA-based Braille cells are being developed further for improved functionality.

• Daisy Consortium’s Transforming Braille Project has evaluated TacRead. It has identified as a potential solution to the global hunt for a low-cost Braille display.
# Development History

<table>
<thead>
<tr>
<th>Month</th>
<th>Event Description</th>
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</thead>
<tbody>
<tr>
<td>Jan 2012</td>
<td>Technology &amp; concept proven</td>
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<tr>
<td>Jun 2012</td>
<td>Lab-scale prototypes developed &amp; tested</td>
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<tr>
<td>Oct 2012</td>
<td>User feedback, Design reviewed and optimized</td>
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<tr>
<td>Dec 2012</td>
<td>Final design developed</td>
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<tr>
<td>Mar 2013</td>
<td>Electronic Systems Developed</td>
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</tbody>
</table>

Tactile Readout Device

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