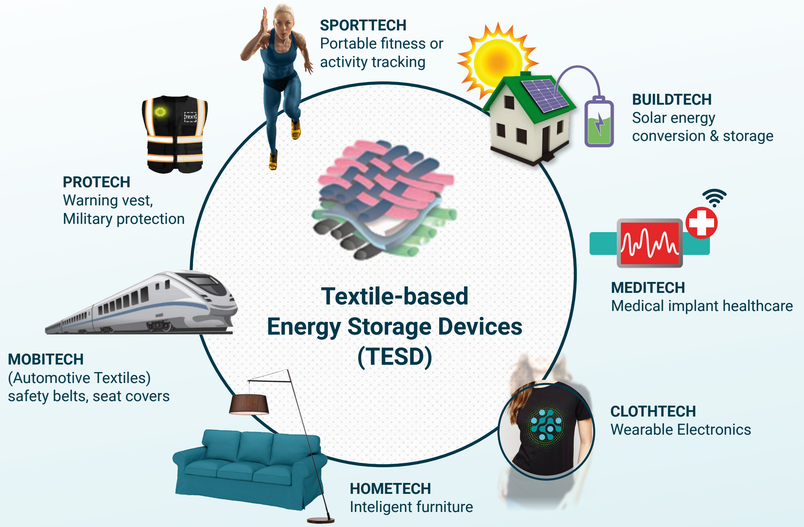
CAN TEXTILES GENERATE ELECTRICITY AND POWER THEMSELVES?

E-Textiles: The Next Frontier of Wearables

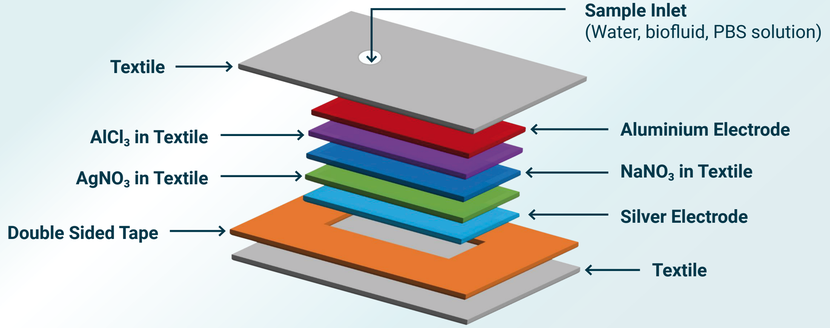
- High interest in textile electronics in several industry sectors.
- Local textile-based power supplies are highly requested.
  - Flexible, lightweight, comfortable
  - Non-toxic and eco-friendly ==> proximity to human body.

Applications of textile-based energy storage devices



Liquid -activated (printed) textile-based batteries

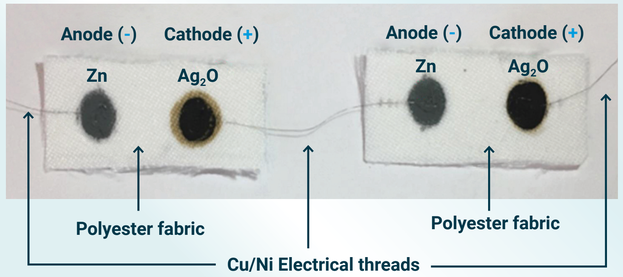
Electrochemical cell and liquid activation process



- The electrodes & electrolytes were stacked together, and sheathed between two textile layers using double-sided tape.
- A hole was made on the top of the cell to provide access for liquid activation process.
- Series combination of many of this battery cells have demonstrated their ability to power different electronic devices with specific voltage and current requirements.

- A conductive paste made of Zn/Ag_2O electrodes were deposited on to textile via the screen printing process.
- After it dried, an electrical probe was made by stitching electrical threads to combines the two cells in series.
- It generates a dc power via moistening by readily available bodily fluids such as sweat, wound fluid, etc.

Two printed textile battery cells wired in series



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