

# SMART TEXTILE CONNECTOR

## Standardized connector for future e-textiles

### Challenges and objectives

- **Challenges & Needs:**

Integration of electronics in textiles has evolved organically, with each manufacturer bearing the full cost of developing all components.

The current lack of standards for common solutions has resulted in a scattered supply chain, high development costs and long time to market for new products.

For connectors this has resulted in a range of proprietary technological solutions, developed for specific applications and fabrics, where solutions to mount connectors are also proprietary, in many cases they are mounted by hand for low-volume production runs.

- **Objectives:**

Our goal is to develop a universal connector for e-textiles that will form the basis for a voluntary industry standard, pave the way for development of interoperable components, standardized labelling, recycling/reuse solutions and a fully integrated supply chain for e-textile products.

### Technical goals

- Development of a waterproof universal connector applicable for a broad range of e-textile applications from smart wearables to textile-integrated photovoltaic solutions.
- Development of a power-efficient “SoC” accommodating a broad range of product functions including remote roll-out of S/W updates.
- Accommodate variations in both configuration of textile-integrated circuits and fabric properties by developing a range of bonding layers.
- Include textile and electronics recycling companies in design phase ensuring the connector is designed for reuse/recycling at end of product life.
- Involve connector and textile machine manufacturers in development of a high-precision mechanised large scale mounting process that can be performed at low enough temperatures to avoid damage to fragile textile substrates.

### Expected impact

- Community building, fully matured and integrated supply chain (through plug-and-play solutions and assurance of component interoperability).
- European leadership in development of smart textiles standards and labelling, leading to higher-value products & faster time to market for innovative solutions.
- Development of recycling /reuse capabilities to maximise sustainability.
- Definition of standards increases the attractiveness of investment in component development, by making multiple end-users potential customers and offering opportunities for larger production runs.

### Known partners:

- Smart Textile Alliance
- University of Southampton
- Smart wearables manufacturer: awaiting confirmation
- Manufacturer of e-textiles with integrated photovoltaics: awaiting confirmation
- Research Design Institute: awaiting confirmation
- Textile recycling company:

### Needed profiles:

- Connector manufacturer:
  - Development of mechanical design & scalable manufacturing and mounting processes for the universal connector
- Chip manufacturer:
  - Chip design, verification, packaging, manufacture & test
- Machine manufacturer:
  - Development of high-precision connector mounting process
- Electronics recycling company:
  - Processes for connector reuse/recycling



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