2020 Wearable Technologies Workshop Challenge Request

Challenge Title: Modular, Reusable Fasteners for Disposable Garments

Organization Name: Kimberly-Clark Corporation

Team Assignments Available: 1

Summary of the Challenge and Team Project

Background:

Kimberly-Clark makes a range of disposable absorbent garments for children and adults under its personal care brands such as Huggies®, GoodNites® and Depend®. The personal care garments are designed to absorb and contain bodily fluids and must be disposable, cost-effective and manufacturable at high speeds. These constraints limit the construction of these garments (in both materials and design) and makes the ability to comfortably fit a wide range of body types particularly challenging. Incorporation of modular, reusable components into the product design could simplify manufacturing and allow for a more customizable fit.

Problem statement:

We would like the Team to develop one or more reusable fastening systems that can be incorporated as a modular component into a disposable absorbent garment. The reusable fastening system would replace the hook-and-loop type fasteners currently integrated in most disposable absorbent garments, and preferably the integrated elastic waist band as well (depending on the proposed design). The reusable fastening system would integrate into and firmly attach to (and also easily detach from) a nonwoven-based disposable absorbent garment chassis so that the modular garment can be comfortably and securely fitted to the body and perform its absorbency and containment functions.

Important design considerations (These can be discussed, and possibly negotiated, in more detail after the Team has been assigned):

- The wearer focus may be on active babies/toddler or adults, covering a range of body types
- Design of the fastening system should consider that either the wearer or a caregiver could be applying and fastening the garment. Emphasis should be placed on ease of application, repositioning, fastening, refastening, and removal.
- Demonstration of the ability of the fastening system to firmly attach to and be easily removed from the proposed nonwoven garment chassis materials
- The product design focus should include how the modular, re-usable fasteners would integrate with the nonwoven-based garment chassis design (i.e. the structural components of the garment, with less emphasis on the interior absorbent pad)
- The materials used in the reusable fastening systems components should allow for easy cleaning and be skin-friendly

What funding and/or resources can be provided to each Team? (The details of the payment arrangements must be negotiated with the Team.)

The Team will be provided with $2,000 in funding, access to subject matter experts at K-C, and some sample products, materials for evaluation.

Deliverables (the final product the Team is to provide – such as a report, garment, user evaluation, …):

- Brief report providing designs and insights gained from design of the reusable garment fastening system
- Modular absorbent garment product design concepts. Preferably, provide a prototype of product design in a physical form

How will the results be used?

The key learnings from the project will be shared with product developers across our different businesses and will be used to generate new ideas for absorbent garment designs.

What deliverables (if any) do you want transferred to you at the end of the project?

- Brief report of reusable fastening system designs and key learnings and recommendations
- Absorbent garment product design concepts using the reusable fasteners and a physical prototype (if applicable)