Smart ostomy bag

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Areas of study: Biosensors, instrumentation, Mech. Eng., data science
Expertise needed: Basic skills in electronics, programming, fabrication
Interest in wearable health technology, Global health
Smart Ostomy Bag

The problem
• Ostomy surgery is a life-saving procedure that allows waste to pass through an opening in the abdomen.
• While life expectancy is preserved, this poses practical challenges.
• First, there is little sensation indicating when the bag is full, leading to a risk of leaks or “blowout.” Also, gas can cause “ballooning” and bag detachment.
• A bag may need emptying 6 – 8 times per day.
• A simple alert of fullness and/or excess gas pressure would avoid embarrassing and messy leak events.

Project goals
• Design a compact, inexpensive, wearable device that measures ostomy bag fill level and/or gas pressure. It should be:
  – Unobtrusive and imperceptible until an alert is needed
  – Discreet, gently alerting without drawing public attention

Testing and Feedback
• Ostomy patients available to provide feedback and experience. This project will have a real medical benefit!