

UBC students' invention can warn parents of autistic meltdowns

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Students at the University of British Columbia have developed an early warning system to help prevent meltdowns in autistic kids.

The device, which is still being tested, is designed to attach to the child's clothing. It includes tiny sensors that measure three indicators of anxiety – sweat, heart rate and skin temperature. Signs of a child's rising stress are relayed to a smartphone, allowing a parent to respond to a situation before it gets out of hand.

The concept is similar to the new technology-powered clothing that monitors athletes' heart rate or hydration levels. The difference is that children with autism tend to be extremely sensitive to how their clothing feels, particularly to tags and seams that stick out.

The UBC team decided that embedding the sensors in a T-shirt might be too irritating to a child.

“Right now, we're looking at integrating it into a sock,” said Andrea Palmer, a 24-year-old mechanical engineering student who is leading the group. “But the goal is to have it be a modular device that you can remove.”

The team plans to start testing their invention with B.C. families in January. In the meantime, Palmer and colleagues are tinkering with its size and feel, and tweaking the software that distinguishes between normal and high-stress indicators in the wearer.

The device, called Reveal, started out as a student project for an entrepreneurship-and-innovation class last fall.

The students contacted behavioural consultants, education co-ordinators and other specialists who work with autistic children.

“They have all told us that there would be a huge impact if we could give advance warning about behaviour meltdowns,” Palmer said.

The device won first prize in April in the Canadian Global Impact competition, which recognizes innovations designed to improve people’s lives.

Palmer won a scholarship to enter a 10-week graduate program at Singularity University in Silicon Valley, Calif., whose mission is to advance technologies that address humanity’s greatest challenges.

Jill Farber, executive director of Autism Speaks Canada, noted that some autistic children are nonverbal and may have difficulty communicating changes in their stress.

“If we can prevent a stressful situation before it happens, then I think that’s a really good tool to have for loved ones,” Farber said.

She added that it’s too soon to tell whether this device will make a difference. “I’m glad that it’s coming from an evidence-based research platform [so] we can really understand whether or not this is a benefit for families or individuals during stressful situations,” she said.