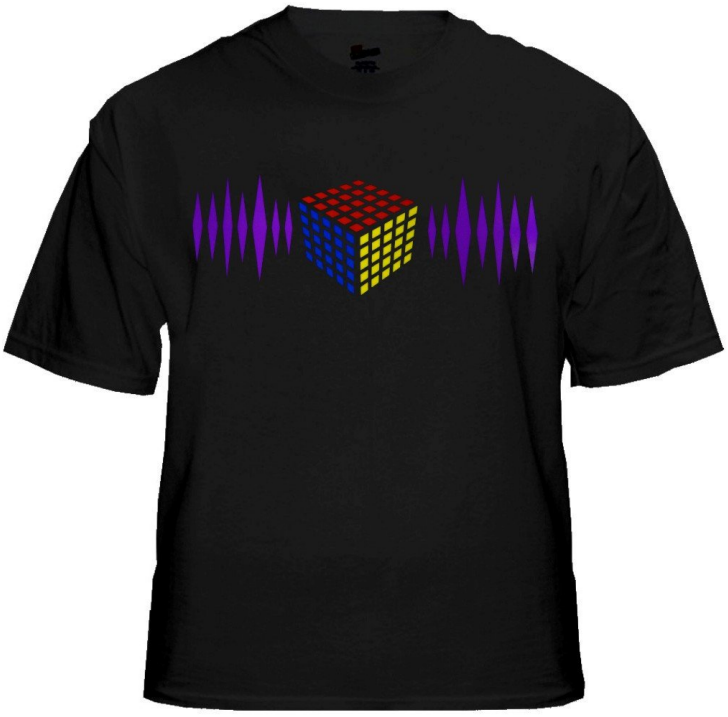
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Researchers create a T-shirt that monitors breathing rate

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Unlike other methods of measuring respiratory rate, the smart T shirt works without any wires, electrodes, or sensors attached to the user's body.



Researchers at Université Laval's Faculty of Science and Engineering and its Center for Optics, Photonics, and Lasers have created a smart T-shirt that monitors the wearer's respiratory rate in real time.

Unlike other methods of measuring respiratory rate, the smart T shirt works without any wires, electrodes, or sensors attached to the user's body.

The key to the smart T shirt is an antenna sewn in at chest level that's made of a hollow optical fiber coated with a thin layer of silver on its inner surface. The fiber's exterior surface is covered in a polymer that protects it against the environment. The antenna does double duty, sensing and transmitting the signals created by respiratory movements. The data can be sent to the user's smartphone or a nearby computer. As the wearer breathes in, the smart fiber senses the increase in both thorax circumference and the volume of air in the lungs.

This innovation, paves the way for manufacturing clothing that could be used to diagnose respiratory illnesses or monitor people suffering from asthma, sleep apnea, or chronic obstructive pulmonary disease.