Smart jacket's slit-like vents keep the wearer in a comfort zone

February 7 2017, by Nancy Owano

(Tech Xplore)—Smart clothing is a next step in wearables; creative minds are thinking about what clothes can do in gaining functions enabled by technology.

What about signs of future smart clothes that not only are worn for style and comfort but become second skins in tune with your body?

A California group called Omius has been working on an interesting "adaptive jacket."

Daily Mail calls it a robo-jacket; some other sites are referring to it as robotic jackets. the company keeps it simple and calls it the Omius Jacket.

"We mixed robotics and clothing," they said on their site. So what does it do? The jacket changes the way it protects you from feeling too cold or too hot. It provides such protection depending on where you are or what you are doing.

The jacket is designed to adapt its properties so you can always be comfortable —in ever-changing environmental conditions and personal physical activities.

"When robotics and artificial intelligence meet clothing magic happens," said the video posted last year.

A key feature is that the jacket, with more use, learns more about the person.

"Machine learning algorithms let us map out the comfort preferences of each user, allowing the jacket to automatically adapt its protection to the

user's preferences, maintaining always the right temperature," said Omius CEO/CTO Gustavo Cadena quoted in *New Atlas*.

The company site shows the jackets—first you see all black cloth and then you see little red lit up slits glowing. The slits automatically open or close to adjust your temperature

The Omius team took cues from nature. Namely, they referred to plants using microscopic holes on their leaves, stomata, that they open and close to regulate their temperature.

The process: "When your body temperature starts to rise, small vents will open along the windproof/waterproof fabric, leaving a much freer path for hot and humid air to leave your body."

How does it work? *New Atlas* said that "this "living garment" electronically opens and closes the vents as body temperature rises and dips. "The system uses a temperature sensor set to measure body and ambient temperature, and a built-in processor and actuation hardware to open and close the vents."

Can the slits be managed manually? Yes. There are pressure sensors so that the user can open and close the vents manually. Doing so helps the AI learn more about the user.

Other details: It feels like a regular jacket and it looks like one. It is washable and noiseless (no motors). It works with rechargeable batteries. *New Atlas* said that "The lithium-polymer battery will last about a day, Cadena estimates, and the vents only rely on battery power to actively open and close, not to stay in either state."

As for safety, the Omius site said that they use small voltages and the technology is hermetically sealed.

Would you want to enter into this second-skin experience? Would it be practical for your needs? Public transportation commuters in urban areas may benefit from clothes that regulate heat and cold, considering buses that are late in cold weather and stifling crowded places where overeating is a problem. The key practical area, however, may lie in those who take part in sports and aerobic activities.

New Atlas said, "For instance, when ski touring, the jacket could open up like a blossom while you're sweating profusely on the slog uphill, then close into a windproof barrier when you turn around to ski down."

So where can you get this jacket? Well, the company said it is "launching really soon."

We will see what kind of price is attached to the jacket at some future date. *New Atlas* said "It [Omius] plans to launch a crowdfunding campaign in the future."

More information: www.omiustech.com/