

New heated jacket keeps police, military and others warm in harsh winter temperatures

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A new line of heated jackets powered by a mobile USB battery bank will protect police officers, military personnel and others while working in harsh winter conditions.

The National Vital Statistics Systems reports that about 1,300 deaths per year are related to natural cold exposure. Hypothermia can cause impaired judgment and coma even in non-lethal cases, according to American Academy of Family Physicians.

David Gramlin, a graduate of Purdue Polytechnic New Albany, knows firsthand because he worked on Air Force B-52s in North Dakota temperatures as low as 30 degrees below. His experiences inspired him to develop Hearth LLC's line of heated outerwear to help people working outside combat cold-related discomforts and illnesses. The Hearth Jacket heats itself through the company's thermoelectric technology and charges through a USB mobile power bank.

"The temperature isn't a choice, and when you work these jobs, like I did in the military, you have to make sure the job gets done and the aircraft are flying," Gramlin said. "That's where our idea came from to help these personnel work more efficiently and more comfortably in the temperatures they can't control."

Jared Young (left) and David Gramlin (right) discuss the Hearth Glove's design, trying to make it as undisruptive as possible to the naked hand's natural movement. Hearth LLC has just launched Hearth Jacket which is heated by a USB battery bank to pair with its existing Hearth Heated Pad and Hearth Glove. (Image provided) [Download image](#)

Gramlin said the team chose battery banks as the power source in order to make Hearth products as user-friendly and mobile as possible, which could be especially helpful during an eight-hour police shift.

The Hearth Jacket and its two sister products, the Hearth Heating Pad and the Hearth Glove, can match with any USB power source, produce up to 140 degrees of heat and maintain heat for up to eight hours. Users will receive a complementary battery bank from the startup when they purchase Hearth products. The items are available for purchase [here](#).

Hearth Jacket not only guards users' arms and torso against the cold, which offers the best protection in winter weather, it is strategically designed to heat the hands. Judith Myers-Walls, a professor emerita of Purdue University, said that in dangerous weather, frostbite can occur within 10 minutes.

However, this jacket also heats its pockets to warm workers' hands while on a job site. With the pockets' warmth, the body does not need to distribute heat to the hands and instead can regulate temperature in the other extremities.

"We also have the capability of making these jackets in large quantities, but at the same time, we can adjust our design based on customer feedback," Gramlin said. "We can produce this jacket in large quantities, and we can quickly switch over to make the adaptations in design to fit the needs and desires of our customers."

Gramlin said he sees the Hearth products most benefiting people who must work outside, such as police or military personnel, since they are at risk to most cold-related injuries. However, individuals at football game or in a cold office might also enjoy the Hearth products.

Hearth LLC operates out of the Purdue Technology Center of Southeast

Indiana, and its technology aligns with Purdue's Giant Leaps celebration of the university's global advancements made in health, space, artificial intelligence and sustainability as part of Purdue's 150th anniversary. Those are the four themes of the yearlong celebration's Ideas Festival, designed to showcase Purdue as an intellectual center solving real-world issues.

"Right now, our goal is to get our jackets into our local workforce in Indiana, Ohio and Kentucky since so many workers are outside," Gramlin said. "We are looking to show that we are here to help the community and its workers. I know their pain from experience."

In the future, Hearth LLC hopes to receive funding or partner with an apparel manufacturer to expedite its production process and apply its heated technology to other fields.

Provided by Purdue University

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