Intelligent boot created for health care workers

July 13 2022, by Annika Sutter-Smith

Credit: Monash University

Monash University and Blundstone Australia have created a hi-tech boot concept designed to address the specific needs of doctors, nurses and other health care professionals.

Monash's Design Health Collab and SensiLab partnered with Blundstone Australia to incorporate the latest technology and [design](#) techniques to increase [personal safety](#) and comfort in demanding health care environments. The design has been shortlisted for the prestigious [Designers Australia Awards 2022](#).

Health care workers were at the forefront of the project, with the design team regularly conducting workshops with doctors, nurses and other health specialists to ensure the boot addressed challenges specific to the industry, including comfort, durability and hygiene.

Dr. Rowan Page, from Monash Health Design Collab, says the technology captures rich information about the day-to-day challenges faced by the wearer, and uses machine-learning techniques to provide real-time feedback and task classification.

"We've integrated a sensor system that analyzes multiple parts of the foot to provide real-time feedback via a [smartphone app](#) that detects abnormalities and highlights potential issues," Dr. Page said.

"The shoes classify different tasks undertaken throughout a work shift and can identify different postures, changes in walking gait and the lifting of heavy loads. The visualization of this data can show areas of high pressure on the body across the workday and highlight potential problem areas."

With further development, the technology could highlight safety concerns, such as injury risk and fatigue, and prevent accidents before they occur.

The team's research highlighted comfort and hygiene are priorities for [health care workers](#) when selecting shoes for work. The boot's upper—the material covering the foot—provides chemical and bacterial

resistance to the wearer.

Blundstone Joint-CEO Adam Blake says people rely on Blundstone boots to protect them in all sorts of environments.

"We strive to be an innovator and collaborator that leverages the best science and technology, seeking to partner with leading expertise and knowledge," he said.

"Partnering with Monash's Design Health Lab and SensiLab has been a great opportunity for Blundstone to dive deeply into understanding the needs of workers within the health care space."

Sustainability and ethics are also at the forefront of the design. The concept boot uses synthetic and plant-based materials, a computer-knitted collar that eliminates material waste, an upper that provides chemical and bacterial resistance, and a sole made from a recyclable polyurethane.

Provided by Monash University

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