

Wellington-based textile technology firm Footfalls and Heartbeats is developing a ground-breaking material for measuring breathing and heartbeat rates, hopes to have a prototype ready by the end of the year.

And once that was done, chief executive Karen Bender said, the applications could be endless.

"Medical devices, emergency services, medical monitoring, infant monitoring, other opportunities like yachting and pressure sensing in wheelchairs and beds ... there's a quite a range of opportunities that we can fit into."

Footfalls and Heartbeats is the brainchild of Bender, a Canadian with a background in sports team management, and Kiwi chemistry researcher Simon McMaster. They met in Melbourne.

"He was getting to the point of completing his Masters work which validated his beliefs and understanding of what textile sensors could do, around the same time that I was looking for an interesting project to take on, and we thought I could be a very good fit."

Together they decided to bring McMaster's technology back to New Zealand. They won TechNZ funding through last year's Bright Ideas challenge and now work out of Wellington incubator Creative HQ.

The company is working with a range of groups, including exercise physiologists, nanotechnology experts, software developers and several Crown Research Institutes.

AgResearch, a leader in textile technology, is a consultant, and Auckland University of Technology is helping make the fabric.

"That's one of the things we really like about being in New Zealand – the close contact and collaboration with all of this expertise," Bender said.

Intriguingly, Footfalls and Heartbeats was also working with a boatbuilder in Lower Hutt to use the fabric as a warning system on sails that might snap.

"Boats, when they're out racing, are under a great deal of stress and right now they don't have any way to signal if a mast or sail is reaching its peak and about to tear. The textile strain sensor ... can alert and possibly, hopefully, save an investor a significant amount of money."

The technology, called FITT, was also being aimed at sportspeople, but yachting and patient monitoring applications were simpler.

But the road to market seldom runs smoothly. Bender and McMaster were self-funding their work, knowing that companies overseas were doing similar things with millions of dollars in funding.

Bender said those companies "have not returned even what we have been able to return in terms of product development".

"And yet over here, the way we've structured ourselves, we're seeking much fewer funds, a few hundred thousand dollars and we're having a very challenging time finding it."

Nevertheless, Bender was not thrown by the thought of competition.

"We're less worried about beating people and more interested in doing it the best we possibly can."