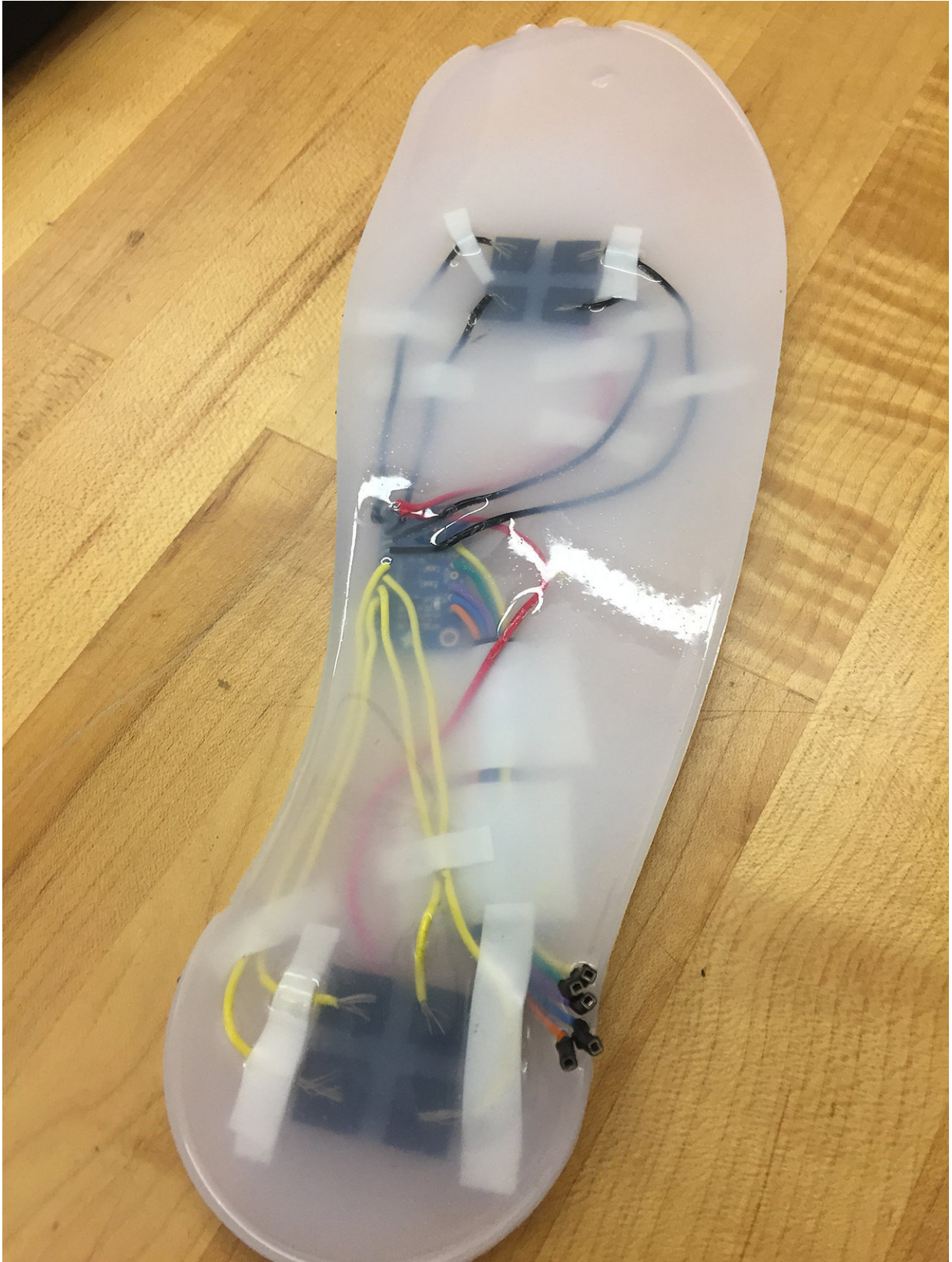


# **Small new shoe sensor may be a driving 'force' to help prevent injuries, improve athletic performance**

October 26 2018, by Chris Adam

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An insole shoe sensor developed at Purdue helps to measure the full range of forces on the foot. Credit: Purdue University

Justin Markel and Quinton Lasko know what it's like to be competitive athletes and the cost of being injured on the field. Now, the Purdue University alumni have turned their passions for sports and engineering into a new technology they hope will be an athlete's solution to worrying about preventable non-contact injuries.

The issue affects many individuals and families in the United States – with more than 8.6 million sports- and recreation-related injuries reported each year, according to the Centers for Disease Control and Prevention.

Markel, Lasko and other researchers at Purdue developed an insole sensor to provide a practical method of measuring the full range of forces on the foot. Their capacitive force sensor uses parallel plates to measure 3-D forces on the foot and then transmit the data to a central hub computer or tablet.

"Our team is really passionate about pushing athletic performance to the next level, and giving athletes the opportunity to gain a competitive edge," Markel said. "Every [athlete](#) is unique, and providing complete 3-D force data is essential to understanding peak-performance and ultimately reducing injury potential."

The Purdue mobile insole sensor is small, flexible and adjustable to work for different body types and different athletic applications. The researchers also believe the technology may be helpful for shoe companies to use the data in designing footwear and for diabetic patients to avoid blisters on their feet.

"Existing mobile [sensors](#) that our technology competes with use pressure mapping to derive force measurements, and this really doesn't provide the whole picture," Lasko said. "We believe our technology could lead to individualized training that allows athletes to detect and correct inefficiencies in their movement and reduce their chances of being injured."

Provided by Purdue University

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