

Workplace safety's next horizon: Wearable sensors

Startup company MakuSafe testing device with manufacturers, insurers

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Serial entrepreneur Gabe Glynn's fascination with high-tech factories sparked an idea for a new wearable safety device that could revolutionize the way manufacturers approach safety monitoring and reporting.

His company, MakuSafe, has developed an armband device that will allow manufacturers to monitor factory floor safety conditions on a real-time basis and allow instantaneous reporting of near-miss incidents by employees.



The idea for a wearable safety monitoring and recording device came to Glynn while he was touring a manufacturing company a couple of years ago to gather material for an advanced manufacturing blog that he produces.

The plant was being inspected by federal OSHA representatives because an employee had lost his hearing. "It was a light-bulb moment for me," Glynn recalled, realizing the potential if the type of devices such as the decibel trackers that the employees were wearing could be used all the time to track a variety of workplace conditions.

"This is an opportunity to change the way manufacturers look at work environments," Glynn said. "We're not gathering that data on an ongoing basis. The environment is organic — it's constantly changing."

MakuSafe is the sixth startup company for the Ankeny resident. He sold his most recent software business, Slash/Web Studios LLC, in 2015 and used that capital along with personal savings he's amassed from other ventures to bootstrap the new company.

The invention has gained the attention of Des Moines-based property and casualty insurer EMC Insurance Cos., which recently entered into a partnership with MakuSafe. EMC made an initial investment of \$200,000 in the company, with plans to pilot the devices with some of its clients.

"By investing in and partnering with them, we have an opportunity to make workplaces safer, and thereby reduce insurance losses and claims," said Scott Jean, executive vice president for finance and analytics for EMC. Jean said the Global Insurance Accelerator connected them with MakuSafe. "We got talking about the applicability to insurance, and it became very appealing to pursue a relationship with them," he said.

EMC hasn't yet determined whether it would provide the devices free of charge to clients as a risk reduction tool, Jean said. "It may make sense for policyholders to have some skin in the game by paying for the devices," he said. "For the pilots, we will pay for the devices."

The insurer is also considering a second investment in MakuSafe as part of an additional fundraising round the company is doing, Jean said.

Glynn said his company has raised \$1 million toward a \$1.25 million fundraising round that it began in early March. “We raised that locally from angel investors; we really haven’t had to reach outside of Central Iowa to get that,” he said. That funding will be used to reach a couple of significant product development milestones in order to receive venture capital funding, he said.

The MakuSafe device, which a worker attaches to his or her upper arm, senses a variety of environmental conditions in the manufacturing environment and warns users in real time about unsafe conditions. Glynn is cautious about saying much about the types of sensors built into the device, to protect his intellectual property.

“It’s fair to say we were inspired by sound — that was what tripped this whole thing,” he said. “There are so many other things that affect worker safety, such as heat and air quality issues. We’ve designed the device to flag those types of things. It’s a variety of things that we’re looking at.”

The device also has a recording button that workers can push to instantly report near-miss incidents without having to leave the floor or use a cellphone.

“With more consistent reporting, safety managers can better check out hazardous situations and correct them,” Glynn said. Because workers typically find it inconvenient or view it as unnecessary to report hazards or near misses, probably 80 to 90 percent of them go unreported.

“On the insurance side, companies like EMC have entire staffs of data scientists and ergonomics experts, but they don’t have a very strategic way of deploying those assets,” Glynn said. “Now, with this device, they can deploy those resources much more strategically.”

The U.S. Occupational Safety and Health Administration defines a near miss as “an unplanned event that did not result in injury, illness, or damage — but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage.”

To distribute the devices, Glynn has partnered with Ramco Innovations in West Des Moines, which is also one of the companies testing the devices in an industrial environment.

“It’s a nice match because we’re a distributor for those kinds of products,” said Hank Norem, Ramco’s president and chief financial officer. The employee-owned company distributes factory automation components, and has worked with other device makers to establish national distribution networks, Norem said.

“We have a warehouse and a panel shop where we beta test the devices,” he said. “We have lots of high-end factory automation devices running, so we can test out how the devices would work in a facility,” he said.

In addition to testing the devices with a few manufacturers and EMC, MakuSafe has been contacted by four other insurance companies that want to work with the company. And it’s already got a backlog of orders for the devices.

“Currently we have about \$5 million in products contracted, so that’s a pretty cool position to be in,” he said.