A bandage with smarts: Novel idea for wound dressing that tests the wearer’s blood type can save money, lives

By Susan Steeves

In many developing countries, people don't know their blood type, so they may receive a transfusion of blood that doesn't match their own. This usually is a death sentence. Even when given the chance to discover their type, many people don't want to have the simple test because they are afraid of the pain.

Weiwei Zhang, formerly a visiting scholar with Edward Dorsa, head of the industrial design program in the School of Architecture + Design, had worked in hospitals and had seen the problem up close.

Industrial design emphasizes caring for the user, the environment, and society — in this case hospital patients, Zhang said. "When I saw people in pain and in fear of a blood test, I wanted to design a piece of equipment that could relieve them."

Zhang combined two common medical items — blood-based test paper and an adhesive bandage — to test blood without using a needle. Mark Coburn, head of Virginia Tech Intellectual Property Inc. (VTIP), said that Zhang's original, inexpensive invention was "simply elegant."

"It piqued our interest," Coburn said, "because it is a novel idea that not only has commercial potential in the Third World but also globally."

Novelty is one of the criteria the intellectual property office staff considers in evaluating the approximately 200 inventions that faculty members bring them every year. They must decide if the idea is protectable by patent, trademark, or copyright in order to help researchers' ideas become commercial products.

"Companies often are not interested in making the investment to bring a new product to market if they can't ensure they have protection," said John Geikler, senior licensing manager in the intellectual property office.

Initially, Zhang sent a design for his idea to VTIP. "We needed to work with him to develop a more detailed description — what the (U.S.) patent office calls an enabling description," said Geikler. "We also worked with Weiwei to extend the idea beyond just blood type testing. So now we think we have additional products that can be developed based on his invention."

Once the intellectual property office staff reaches this point, they can file for protection. In this case, the goal was patent protection, which allows the office to investigate whether a market
exists, determine which companies might be willing to license the invention, and finalize the process of obtaining a patent.

In the meantime, Zhang's work won the 2012 Reddot Design Award, one of the most important international competitions in this genre of inventions.