Invention Helps Diabetics
Jackson State University students invent mat for diabetic patients.

Four engineering students at Jackson State University in Mississippi have invented a device that has the potential to prevent foot amputations in diabetic patients.

Chevan Baker, Jordan Barber, Jann Butler and Fred Harris spent nearly a year developing the Smart Mat, a device that measures and records foot temperatures, as part of a senior engineering project.

The Smart Mat sits on the floor and has two insoles that indicate where feet should be placed. Once a person places his feet inside the inserts, foot temperature is measured. If the variance in temperature between the two feet is more than four degrees consistently over a period of time, the foot at the lower temperature may be at risk for amputation. The data collected are sent to an Android application and shared with health professionals who can intervene with preventive measures.

“If you are diabetic and you develop a sore, you can’t always feel it. It’s much harder to feel anything and by the time the doctor catches it, it may be too late,” Barber said. The Jackson, Miss., native explained that neuropathy is common in diabetic patients. “The idea is to catch it early enough to prevent amputation.”

Baker, a native of Kansas City, Mo., said his team tossed around several ideas before it settled on developing a mat, which was created for less than $300.

“The mat was something that was simple and easy for people to use,” said Baker who sees the Smart Mat as a product that can be easily placed in the bathroom of any home and used daily.

Foundation of Mississippi Inc., Type 2 diabetes is more prevalent in Mississippi compared with the rest of the country, and the disease is seen more often in African Americans, Latinos and Native Americans.

According to the Report on the Burden of Chronic Diseases in Mississippi, 9.7 percent of the population of the United States has Type 2 diabetes, but in Mississippi that number rises to 12.5 percent of the adult population.

McClain described the Smart Mat as “simple, yet so brilliant.” She said she can envision the mat being available in local pharmacies, and set up for the general public to use much like blood pressure machines. The Smart Mat can be particularly helpful in preventing amputations in communities in the Mississippi Delta, where access to doctors can be challenging.

“This is another diagnostic tool we could use in our arsenal to fight diabetes” said McClain.

― Cynthia Anderson