

Smart Surfaces – Prevention System for Insensate Surfaces

A flexible sensor which fits inside the shoes or socks of diabetes sufferers has been designed by researchers at Mines to prevent diabetes patients from developing ulcers and burns that often lead to amputation. Half of the amputations carried out in the United States are due to diabetes. There are over 16 million people in the US, alone, that suffer from diabetes. A complication for people with diabetes is a loss of blood circulation to body extremities such as the hands and feet. This leads to numbness and lack of feeling in these areas.

Researchers at Mines and the Denver Veterans Affairs Medical Center have collaboratively developed a user-friendly artificial sensory system that makes measurements from the surface of the sole of the foot. Changes in these measurements can be used to predict the extent of potential formation of ulcers. The sensory system can be linked to a handheld device, enabling the patient to monitor a color map of his/her foot condition. The information can also be transmitted automatically to a clinic, where medical staff can page the patient to alert them as problems arise.



Inventors: Dr. Rahmat Shoureshi, Dr. Stephen Albert, Kimberly Anderson, Timothy Romig