

# iPerform: SmartShoes for Diabetics

---

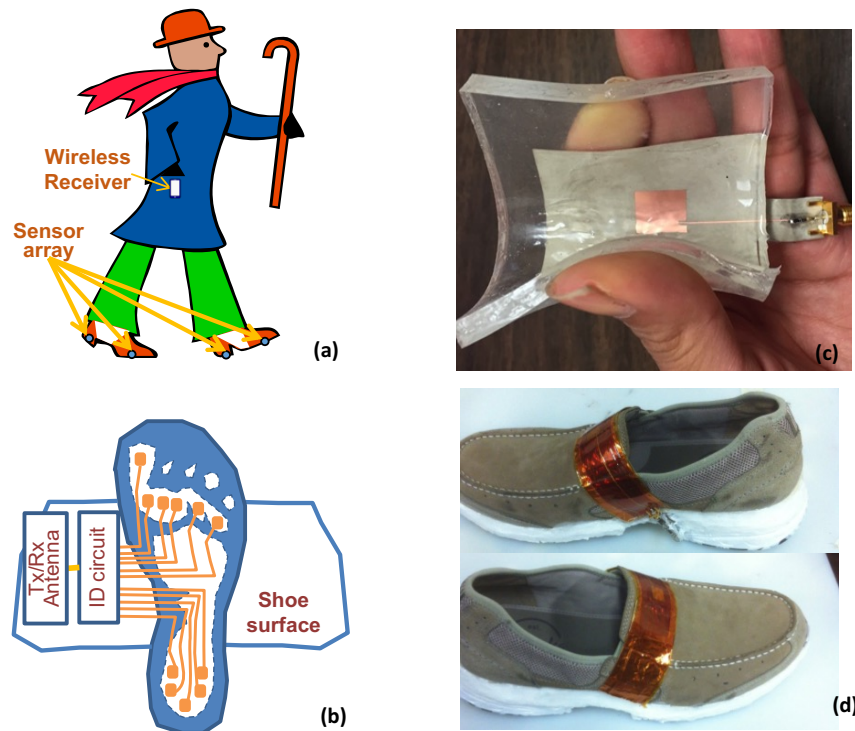


Figure 1 – SmartShoes embedded with wireless shear/pressure sensor arrays; (a) system implementation; (b) wireless shear/pressure sensor array embedded in the shoe insole; (c) flexible antenna sensor for simultaneous shear and pressure monitoring; (d) prototype shoes produced by embedded sensor array in commercial shoes.

Principal investigator: Professor Haiying Huang

Contact information: [huang@uta.edu](mailto:huang@uta.edu)

Budget for three years: \$50k per year

**Project Summary:** We propose to produce prototype shoes embedded with wireless sensors for measuring plantar shear and pressure forces during walking. The SmartShoes are intended for preventing foot ulcers in diabetic patients. The proposed shear/pressure sensor is developed by Prof. Huang's research group for prosthetic socket monitoring, with the support from DOD Congressional Directed Medical Research Program (CDMRP). The technology significance of the proposed sensors are: 1) simultaneous shear/pressure measurement with high sensitivity and spatial resolution; 2) low-power operation; 3) un-tethered operation: the sensor data will be transmitted wirelessly without no external wire connections.

**Deliverables:**

- A pair of shoes embedded with shear/pressure sensor array
- Sensor circuit housed under the heel of shoes
- Wireless sensor interrogator

Academic web site: [astl.uta.edu](http://astl.uta.edu)