Radio frequency identification (RFID) was originally conceived for use in supply chain management to allow companies to inventory warehouses more efficiently. But the technology has subsequently proven useful in hundreds of applications. Now, UTA’s RAID (RFID and AutoID) Lab is applying it to health care.

Erick Jones, RAID Lab director, associate dean in the College of Engineering, and a professor in the Industrial, Manufacturing, and Systems Engineering Department, has explored using the technology to prevent surgeons from accidentally leaving medical sponges and medical devices inside patients, to track patient movement and medication usage, and to perform brain scans unobtrusively. He is also investigating how to use electrical impulses from RFID sensors to stimulate tissue growth.

RFID is often preferable to building unique, traditional sensors for each product because economies of scale make it difficult to broadly implement the latter without cost becoming an issue. In contrast, RFID allows engineers to get their products to the market and help patients faster.

“We have created a wide range of products with health care applications,” Dr. Jones says. “This technology is a good fit for use in health care because it can be incorporated into items that will be used inside the body or to ensure higher standards of patient care.”

Making Health Care Smarter

Embedded Microchip
Patients could be responsible for their own health records by using RFID technology to scan a microchip embedded in their body.

Detection & Tracking of Patients
RFID chips could be embedded into a patient’s clothing or a hospital wristband to track movement in a room, such as falling out of bed or walking to the bathroom.

Smart Sheet
Hospital bedsheets are embedded with RFID sensors to ensure that they are clean and to monitor how often nurses turn the patient.

Smart Scarf
RFID sensors in a scarf hat allow doctors to monitor EEGs unobtrusively and determine if women’s postpartum sleep patterns are harmful.

Smart Pill
Pills are equipped with RFID technology to track whether and when patients are taking their medications.

Smart Surgical Glove & Smart Sponge
An RFID sensor in the sponge is easily detected by RFID sensors in the glove, making it simple to locate and remove the sponge without unnecessarily moving organs.