CASE STUDY:

DIGGING UP INNOVATION WITH MOBILE TECHNOLOGY

LIFEPROOF

LifeProof FRĒ

Waterproof, dirt proof, snow proof and drop proof, FRĒ provides all-around protection for Apple and Samsung devices.

Features and benefits:

- *Waterproof and fully submersible to 6.6 feet / 2 meters*
- *IP68 ingress protection that's sealed against water, dirt and dust*
- *Meets 810F-516 Military Standards for drops, surviving falls from 6.6 feet / 2 meters*
- *Built-in scratch protector to shield the touchscreen display*
- *Full access to all device functions and features*

Live LifeProof: Digging Up Innovation with Mobile Technology

When Shann Dornhecker first toured the Zooarchaeology Lab in the Cotsen Institute of Archaeology at the University of California, Los Angeles, it wasn't just the piles of mysterious bones or carefully cataloged artifacts that stood out to her. The undergrad was struck by the tedious, manual method used to transfer hand-collected field data into an electronic format.

"The first thing I saw was this person unloading huge bags of samples and then reading the little slips of paper and entering them into an Excel sheet," she said. "I was thinking, 'How can I make this easier? There's got to be an app for this.' But there was no app."

This revelation sparked Dornhecker's passion for innovation. She decided then and there to pursue her anthropology degree with an emphasis in archaeology through the Cotsen Institute, with a goal of enhancing and simplifying the long-standing practices of a field that is archaic by design. Working with St. Louis-based software developer Skeleton Key, Dornhecker set out to "bring Indiana Jones into the 21st Century," creating an app-based solution to enhance data collection in the field and lab.

It did take some convincing. Dornhecker's independent research project is being advised by Dr. Tom Wake, director of the Zooarchaeology Lab, who has embraced many modern technologies in his own work teaching students and conducting research. Computer advancements as well as 3-D mapping and modeling have pushed the boundaries of the field of archeology. However, as evidenced by the myriad shelves of field books in this lab, Wake relies on the traditional hand-written method of collecting and recording data in the field. Field conditions are not ideal for technology, but the manual data collection necessitates redundant data entry — taking up time and resources while also opening the door for error.

Dornhecker's solution is Drago Data, named after the Panamanian jungles where it had its first trial. The FileMaker-based iOS app uses a bar code / QR code system, allowing bags of artifacts to be digitally tagged. An item's description, exact location, location relative to other pieces and other important data points

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The Drago Data solution promises to increase both the accuracy and depth of information gathered at archaeological digs, which is of paramount importance in this field.

"I want to tell as accurate of a story as possible. One very important thing to remember about archaeology is that when you dig something out, you have one shot at it. Once you dig something up, you destroy the context that it has come out of so it's important, and our duty as archaeologists is to record as much contextual, metrical, feeling data, impressionistic data as you can in the field as you are digging because you only get one shot at it.

"The nature of archaeological excavation actually destroys the contexts where you find these materials, so it's contingent on us to record as much accurate data as possible about the context from what we're dealing with because it's all gone once we excavate at that level."

– Dr. Tom Wake

are recorded in real-time at the dig site using handheld mobile technology. In addition to gathering the industry standard data, the technology allows for images to be quickly and easily attached to the record.

The system was tested during an annual archaeological excursion to Boca Del Drago — a biologically diverse island region in Panama. Wake and his students have been exploring the area for more than 10 years. The crew sets up the site in one-meter square sections and digs in 10-centimeter increments. Soil is collected in a mesh screen and then rinsed to uncover small beads, bones, ceramic fragments and other artifacts. Between the extreme humidity of the climate and the nature of the work, technology typically does not fair well.

"I had a lot of concerns about the mobile technology because the conditions are pretty tough. In fact, I would call Boca Del Drago the place where computers go to die," said Wake. "It can go from heavy rain to bright sun in just a few hours. It's sandy and salty. If you drop something that has little ports open on it, you can get mud or sand or dust or leaves or all of that at the same time into the ports or openings of a computer, cell phone or camera."

Dornhecker was prepared for this, though. She had the Apple iPod touch devices outfitted with LifeProof FRĒ cases. LifeProof FRĒ offers protection from dirt, water, drops, mud and sand — the environmental hazards of fieldwork.

"Without the LifeProof cases, the second that some mud or water got on the unit that's it, you're done," Dornhecker said, adding that device functionality is just as important as protection in the field. FRĒ is designed to allow full use of the device features and functions, including the cameras, touchscreen and, on newer Apple devices, fingerprint scanners.

"The LifeProof cases proved invaluable and frankly, I was amazed by them, especially in these field conditions," said Wake. "People would drop the cases in mud or sand and since they were sealed, there were no issues about grit, dust and mud, and the moisture didn't penetrate at all. One of the things that impressed me is that we had the iPod touches in the FRĒ cases at the screening table, which is where we're spraying all the dirt with water, making mud and splashing. Occasionally, an iPod touch would get dropped into the mud or stepped on, and we could just pick them up, wash them off and then pick up something, scan the tags and enter the data without any problem at all, which was pretty amazing to me."

Dornhecker views Drago Data as a multifaceted solution. Her hope is that by eliminating inefficiencies, archaeologist will have extra time to spend in the field for discovery — important in an industry largely dependent on grants. Additionally, it promises to offer a more holistic set of data that is free from accidental entry errors. Drago Data seeks to push the field of archeology beyond its current boundaries, and LifeProof is there to take mobile technology where it hasn't been before.

About LifeProof

Based in San Diego, LifeProof designs, manufactures and markets cases for smartphones and tablets that deliver protection, style and functionality. LifeProof is built on the idea of giving everyone the complete freedom and confidence to use their mobile devices in any environment. Designed to defend against water, dirt, snow, shock and the hazards of daily life, LifeProof lets consumers use their mobile device everyday, everywhere, for everything — without worry. For more information, visit www.lifeproof.com.