

# THE HISTORY OF WFG's INNOVATION PROJECT (2025-2026)



**NEXT STEP**  
Increasing screen brightness while outdoors was the most common issue identified in our survey and can lead to faster use of a device battery life. Our next iteration will focus on a screen protector to help with this and better preserve battery life.

**EXPERT FEEDBACK**  
A. Lemke, Assistant Professor & C. Motz, Manager of Digital Assets

**LEARNED...**  
Lots of support and enthusiasm for this idea!

## Protecting Device Performance & Battery Life for Archaeologists

**ITERATE, Prototype 4.0**  
A device case that:  
• Is very durable, made of carbon fiber  
• Can wipe away water and dust from the screen  
• Keeps a device cooler in hot weather  
• Warms a device in cold weather.  
  
The metal plate is important for helping prevent overheating.  
  
A thermal battery, such as wax/paraffin, will help with protecting the battery in cold temperatures, but also with absorbing heat in hot temperatures.  
  
Our idea is to have a container with something like paraffin sit behind the metal plate. In hotter temperatures, the paraffin will melt and absorb heat from the metal plate.  
  
In colder temperatures, the paraffin will transfer the heat back to the device.

**LEARNED...**  
People outside of archaeology also experience problems with devices!  
• Dirt/water on screens  
• Devices overheating  
• Poor battery life because of cold

Survey data collected from 25+ family and friends



**LEARNED...**  
Working in cold weather can lead to reduced battery performance.

Researched other issues faced by archaeologists:  
A. Lemke, Ask an Archaeologist: Tech Edition

**FLL season kicks off!**

Team researched archaeology and how experts work

**LEARNED...**  
Electronic devices, like tablets and iPads, are very helpful!  
They help archaeologists  
• Take pictures  
• Scan for possible dig sites  
• Record notes

Meeting with N. Hlatky, Senior Archaeologist

**LEARNED...**  
Raindrops on device screens can make them harder to use because they become less sensitive to touch input.



Researched current solutions

**LEARNED...**  
• Microvibration: Dries speakers only  
• AutoMees: Phone screen Roomba



Researched other issues faced by archaeologists:  
C. Motz, Ask an Archaeologist: Tech Edition

**LEARNED...**  
Working in hot weather can lead to devices overheating. In some cases, the devices must be turned off for 1-2 hours.



**INNOVATIVE IDEA**  
A device case that has a wiper tool to remove water from the screen to help archaeologists who work in wet conditions like the Pacific Northwest, keep their screens dry and more useful for working.

**ITERATE, Prototype 2.0**  
A device case that:  
• Removes water droplets from screen  
• Protects from dust and water  
• Highly durable (made from carbon fiber)  
  
A TinkerCAD model of a device case that included motors to propel a cleaning blade.



Researched current solutions

**LEARNED...**  
1) Current Products include: Scooch iPad Heat Block (only targets screen) and Xnaut Cooling Case: Fans not ideal in dust  
  
2) Manufacturers say: If device gets too hot, stop using it.

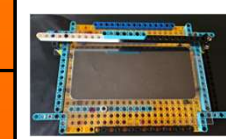


**EXPERT FEEDBACK:**  
G. McMillan, Anthropologist and Biostatistician

**LEARNED...**  
Water and DUST are big problems for archaeologists, as is equipment breaking in the field.



**CREATED, PROTOTYPE 1.0**



**ITERATE, Prototype 3.0**  
A device case that:  
• Removes water droplets from screen  
• Protects from dust and water  
• Highly durable  
• Able to cool a device to reduce the chances that it overheats.  
  
This iteration added a metal plate (like copper or aluminum) on the inside that could transfer the heat from the device to the air outside of the case.



Sketched a prototype



Experimented with different ways to clean water off device screens.



**LEARNED...**  
• Vertical swiping is more effective than horizontal.  
• Tools cleaning the screen act like fingerprints. Devices should be locked before cleaning.