



INVESTOR PITCH DECK

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Our Team



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Principal Scientist
Archaeology

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1

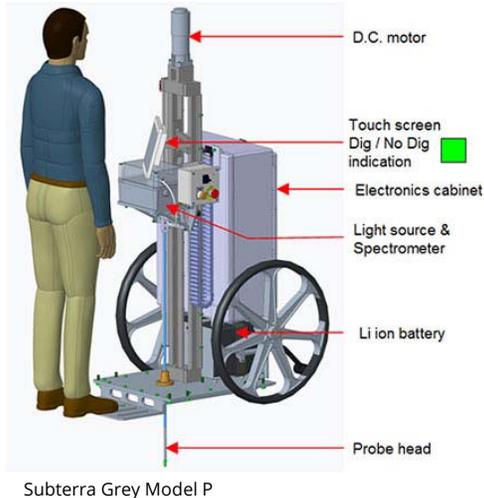
This is our team. We are an interdisciplinary group of technologists, scientists and engineers. Our Advisory Board mirrors the company with a mix of experienced entrepreneurs and industry experts.

David Perry is the company's Chief Technology Officer. He is an emeritus Professor of Chemistry at UA whose academic career focused on the exploration of uses for spectroscopy. He is a fellow of the American Physical Society and a Member of the American Chemical Society with a wide range of scientific publications. David oversees both the R&D and Engineering teams.

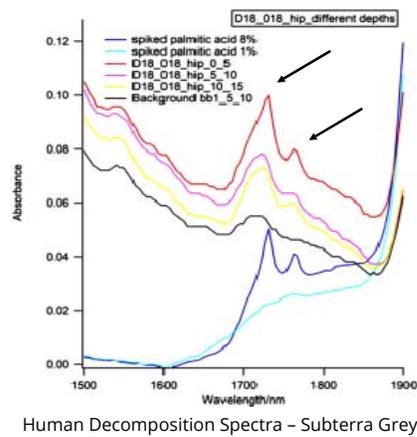
I am the Chief Executive Officer. In the past, I have held lead executive and technical roles in five startups, including three as founder. My companies have launched more than a dozen products, and I am experienced in early adopter B2B sales for new technologies. Currently, I oversee business operations at S4.

Subterra Mobile Soil Laboratory

Shallow Subsurface Soil Spectroscopy (S4)



Subterra Grey Model P



Human Decomposition Spectra - Subterra Grey

Our company develops, manufactures and sells mobile soil laboratories which we call Subterra. The figure on the left is an engineering design of our prototype.

The operation of the Subterra is simple. A probe is driven one meter into the soil. Every few centimeters light is pushed down a fiber optic cable and out a small sapphire window at the tip of the probe. The light is reflected back up the shaft to a spectrometer and onboard computer for analysis of the chemicals present in the soil.

The spectra on the right is an example of what we see with the Subterra Grey – our forensics unit. In particular, we are looking for the two peaks shown on the right which denote the presence of adipocere – a chemical produced by human decay. Now, we don't expect forensic investigators to be spectroscopists, so our software algorithms analyze the data and present a simple "dig/no dig" green light indicator.

Remember, we can look for hundreds of different chemicals in the soil – so while the Subterra Grey looks for clandestine human burials, the technology can be applied to many different fields.

Customer Need

Forensics – Subterra Grey



Search for missing soldiers from Korean War
(DoD POW/MIA Accounting Agency)

Method	Direct Detect	Cost	Speed	Success Rate
Subterra Grey	✓	✓	✓	✓
Cadaver Dog	✓	✓	✓	✗
Excavation	✓	✗	✗	✗
Soil Chemistry Assay	✓	✓	✗	✗
LABRADOR	✓	✗	✓	✗
Ground Penetrating Radar (GPR)	✗	✓	✓	✗
Soil Compaction Probes	✗	✓	✗	✗
Electromagnetic Induction	✗	✓	✓	✗
Aerial Drones	✗	✗	✓	✗

Through the NSF ICORPS program, we have interviewed 200+ potential customers to understand their needs and how they buy equipment.

The multi-billion dollar forensics market is our beachhead. As shown in the competitive analysis table on the right, the Subterra Grey fulfils an urgent and unmet need as no existing method has been proven effective for locating human remains. In fact, the rate of new cases far outpaces the closure of existing cases. Potential customers include police, FBI, state bureaus of investigation, the military, state historical preservation offices, and private forensics investigation companies.

The picture on the left is of a search for missing soldiers from the Korean War. S4 is partnered with the Department of Defense POW/MIA Accounting Agency – the folks that do those searches – to begin field tests in 2021.

Current Status

Subterra Grey Model P

Stage
Proof of Concept ①
Prototype Design ②
Field Validation ③
Commercialization ④



New probe being tested and calibrated in the laboratory
- 10/26/2020



Team on site testing
new probe design
- 11/3/2020

Subterra Grey Model P (Mach 3) during field
testing at BOUNCE Center - 11/20/2020

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4

The Subterra Grey is currently in Stage 3 of our four stage development cycle focusing on rapid iteration of prototypes through a series of field validation tests.

Stage 2 was completed in August 2020 and funded by a \$225,000 NSF SBIR Phase I grant. At that time, we had a low-fidelity alpha prototype shown in the upper left.

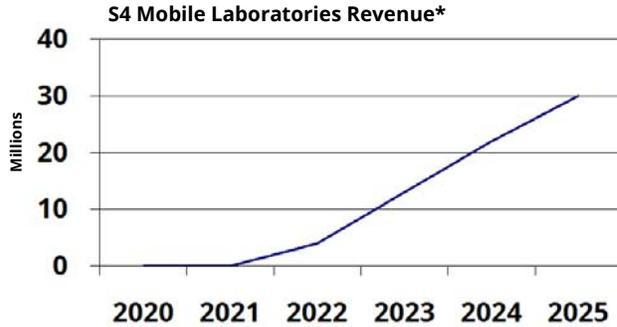
You can see the current version of the Subterra Grey Model P on the left. At the right is the current probe and probe head undergoing calibration.

Stage 3 is currently being funded by a \$100,000 Ohio Third Frontier grant. We have applied for a \$1,000,000 NSF SBIR Phase II grant to complete Stage 3 including field tests with identified early customers including the DoD, FBI and police.

One U.S. patent application (serial number 16/901,305) was filed for forensics on June 15, 2020. Two more provisional patents have been filed for other applications. A technology transfer with the University of Akron has been executed. A trademark application for "Subterra" has been filed.

Pre-Seed Funding

Current Round 2020-2021



\$438 K

Total raised to date in 2020.
All non-dilutive. No debt.

\$1M - NSF SBIR Phase II Proposal Pending

\$250 K

Pre-Seed Funding Sought.
SAFE preferred. 14% ownership.

U.S. Serviceable Available Market

Subterra Grey
\$102M
Subterra Green
\$300M

Market Share

	2020	2021	2022	2023	2024	2025
Subterra Grey	<1%	5%	11%	19%	28%	
Subterra Green			2%	5%	8%	

* including Subterra Grey Model P, Subterra Green Model P, database subscriptions, and consumable sales.

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5

We have raised \$438,747 in 2020, with more grant applications in progress. If we win the \$1M NSF award, this funding will allow us to complete the technical tasks for Stage 3. However, the funds are restricted in use.

So, we are currently seeking a pre-seed round of \$250,000. Ideally, this funding would be concurrent with the NSF award. It will primarily be used to build out our sales & marketing team and move the product to production. We would prefer SAFE financing and have valued the investment at a 14% ownership in the company. S4 has no debt.

Future rounds are expected to be used to complete the manufacturing build out for Subterra units, explore internationalization, and develop new market opportunities for our technology.

New markets include the Subterra Green, currently in Stage 1 proof-of-concept, funded by a \$10K sub-award from the EPA. This product focuses on measuring soil organic carbon. Environmental initiatives include carbon sequestration to reduce greenhouse gas emissions and fight climate change. Agricultural needs include increasing soil organic carbon for plant health, decreasing fertilizer usage, and promoting sustainable farming.



THANK YOU

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Thank you very much. Questions?