

FIU

Applied Research
Center



DOE-FIU Cooperative Agreement Annual Research Review

PROJECT 3 TASK 2 SUBTASK 2.5

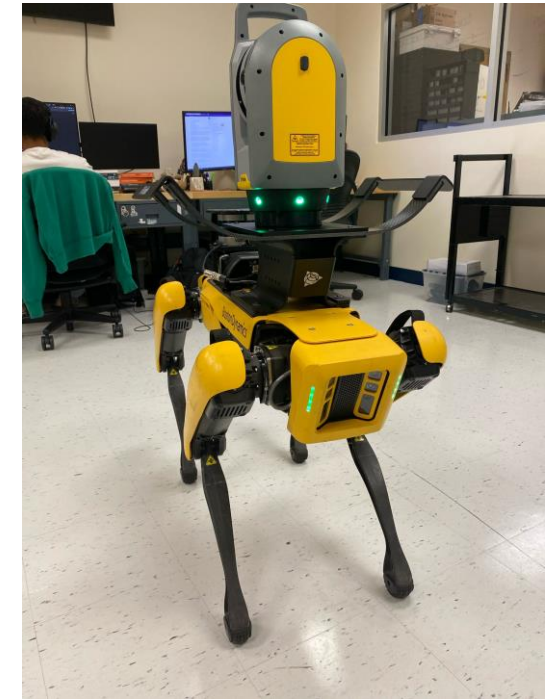
Digitalization of Decommissioning

*Worlds
Ahead*

Advancing the research and academic mission of Florida International University

Introduction:

- Decommissioning – Process by which a nuclear facility is irreversibly and completely/partially closed, either when the facility reaches the end of its operation license or when the environment becomes too hazardous to operate safely
- Digitalization of Decommissioning – Alteration of the decommissioning process via the implementation of mechanical/electrical/computer systems in order to increase efficiency and prevent injury and/or loss of life



Research Highlights & Accomplishments:

- **Main objectives:**
 - Investigate use of robotic systems/LiDAR systems for D&D application
 - Integrate radiation sensors into robotic/LiDAR system for radiation mapping feature
 - Develop 3D Parametric Models and facility walkdowns
 - Incorporate 3D Parametric Models into BIM models



Research Highlights & Accomplishments:**• Robotic/LiDAR Systems:**

- Boston Dynamics Spot robot dog and Trimble X7 3D Laser Scanner
- Continuous testing into technical capabilities
 - Robot test deployments and difficult terrain navigation testing with and without Trimble payload
 - 3D point cloud data collected through Trimble X7 refined and post-processed for walkdowns

• Radiation Mapping/Walkdowns:

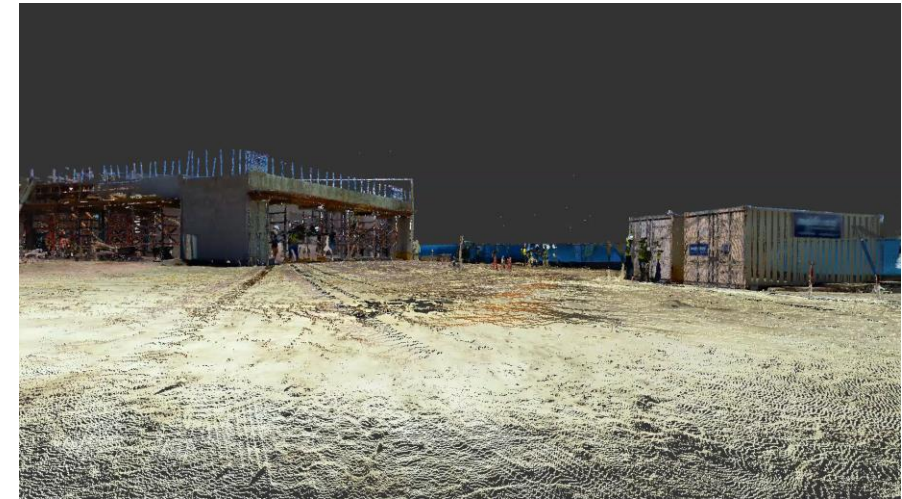
- Integration of radiation mapping tools to Spot/Trimble system undergoing research
 - Initial testing undergoing fine-tuning, physical device installed using temporary parts
- Refinement/post-processing of 3D scans allow for development of 3D walkdowns





Facility Walkdown

Research Highlights & Accomplishments:





Acknowledgements

FIU ARC
Dr. Leonel Lagos
Dr. Ravi Gudavalli
Mr. Anthony Abrahao
Manuel Escobar

DOE-FIU Science and Technology
Workforce Development Program

Sponsored by the U.S. Department of Energy,
Office of Environmental Management,
under Cooperative Agreement #DE-EM0000598.

Thank You.