# Mobile Remote Sensing Hardware and Software Bundle for Natural Resource Management Activities

ID# 2020-5037





# **Technology Summary**

The inventors are developing a lightweight, modular system that will map and value mixhardwood forest stands for accurate measurement and identification of species type. The current mobile system utilizes off-the-shelf components, proprietary algorithms and software to provide low-cost-data collection that can inventory a forest stand by backpack or mounted on an all-terrain vehicle, including those that are autonomous. The power system allows for easy battery replacement. The system generates a point cloud that can be used to measure diameter, height, secondary stem branching, location and potentially individual tree species. The point cloud can be used to develop a 3-D digital image of the surveyed land. The robust operating system has demonstrated continued, accurate use, even in instances of mechanical error.

## Application & Market Utility

The inventors are seeking to improve efficiencies and accuracy for natural resource decision management for such industries as forestry, wildlife management, carbon sequestration accounting, oil and gas mapping and management, including those governmental agencies that supplement their funding from the annual sale of timber. Additional applications may extend to industries that require pruning to prevent damage to their property and equipment as well as to mitigate the threat of forest fires, especially for utility companies.

## **Next Steps**

The inventors continue to develop the system under existing funding. Additional funding would accelerate development and beta testing.

## **TECHNOLOGY READINESS LEVEL**

4-7

#### Seeking

Investment | Licensing | Research

#### **Keywords**

- software-drive hardware
- drone/autonomous vehicle
- mapping system
- timber valuation
- forestry inventory analysis

#### Researchers

Marc McDill

Associate Professor

Online Bio Website

#### **Brennan Holderman**

Researcher

#### **Douglas Miller**

Senior Scientist

#### **Other Researchers**

## Office of Technology Management Contact

Matthew Smith mds126@psu.edu 814-863-1122



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.