

CREATING A HISTORICAL 3D ARCHIVE OF THE OREGON STATE UNIVERSITY CAMPUS



Figure 1: User scanning Kelley Engineering Center atrium using DamScan iOS app.

Our team has created a platform utilizing LiDAR technology that can capture and display 3D scans of the Oregon State University Corvallis campus, with the intention of being crowdsourced by fellow students, staff, or other members of the community through use of their iPhones.

With our application, users will be able to use their iPhones to scan areas of the campus, upload, and view them online. As data is accumulated, users will be able to view older submissions from areas from the campus. This project could be extremely useful to prospective students and staff who would like to inspect sections the campus virtually, or to those who would like to see how our campus has changed over time.



CROWDSOURCED LIDAR CAPTURE

Enabling the Oregon State University community to utilize Light Detection and Ranging technology

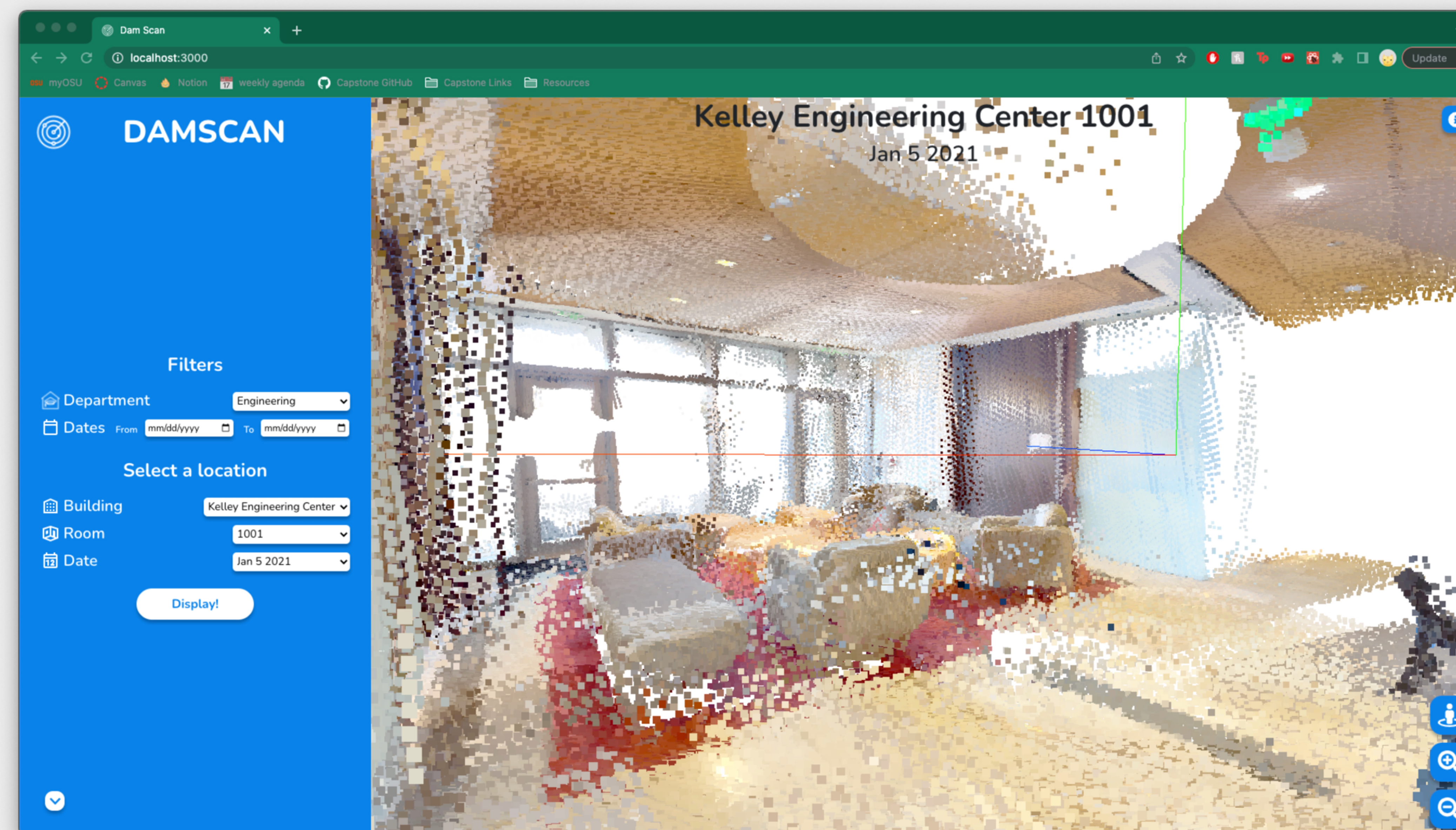


Figure 2: A LiDAR scan of a lounge in Kelley Engineering Center being displayed on our web interface, DamScan.

WHAT IS LIDAR?

Light Detection and Ranging (LiDAR) is a method for determining ranges that operates by shooting out pulses of light towards a surface and measuring the time it takes for reflected light to return to the receiver. These measurements are used to calculate how far points in space are from the receiver. One main utility of LiDAR that we take advantage of is that it can be used to create 3D representations of objects and areas of Earth's surface.

In 2020 Apple released the iPhone 12 Pro and 12 Pro Max, the first iPhones to be equipped with a LiDAR sensor. As LiDAR technology becomes more accessible, our team aims to bring this new and advanced technology into our community's hands.

NEXT STEPS:

- Improve processing and fidelity of scan with goal of creating better models.
- Improve scan capture and processing methodology to allow for more efficient transfer of data from iPhone to web.
- Improve user navigation/exploration of scans through more intuitive data structures/web elements.
- Publish iOS application to App Store.
- Expand audience to Android users.
- Host web and server applications with cloud providers.

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