



# From Visiting a Cool Conference Booth to Saving \$400,000 While Improving the Student Experience

33<sup>rd</sup> SCAUG Conference  
April 21, 2023  
J. Scott Sires

# My Purpose



Upskill the workforce.  
Innovative solutions using emerging technologies.  
Real-world technology as used in the workplace.  
References and connections.

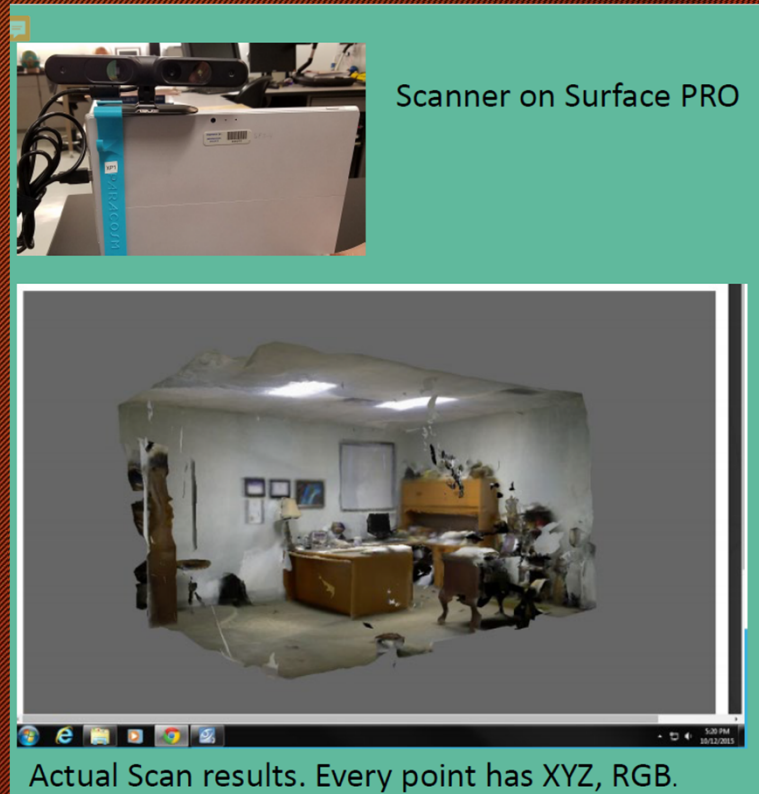
# A bit of background

Conference participation and geeking out on the innovations

Concept for innovations in our field to be applied in the college GIS program

Drones

Highschool kid interest but lack of workforce demand for drone operators (at scale)



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Concept that innovations in our field are narrowed to focus on emerging imaging technologies

Grant from NSF

Innovations acquired, applied, instructional content developed

Equipment experienced and grant objectives met, exceeded in many aspects

## Grant Experience Afforded Rethinking and Improving Program

Parallels in field application techniques lead to curriculum structure fitting for program

Industry advocates through minitern projects and advisory contributions

Highschool dual credit path conceived

Advanced sequence conceived to better cover the workforce opportunities

Curriculum changed, student experience changed, opportunities changed



## Web App of BHC Interior Spaces

# Beyond the NSF Grant

Coffee time conversation in the president's suite

Colleagues talk together and discuss our program and the grant and skills

Meeting with deputy chief of facilities

# Service-Learning Opportunity Project

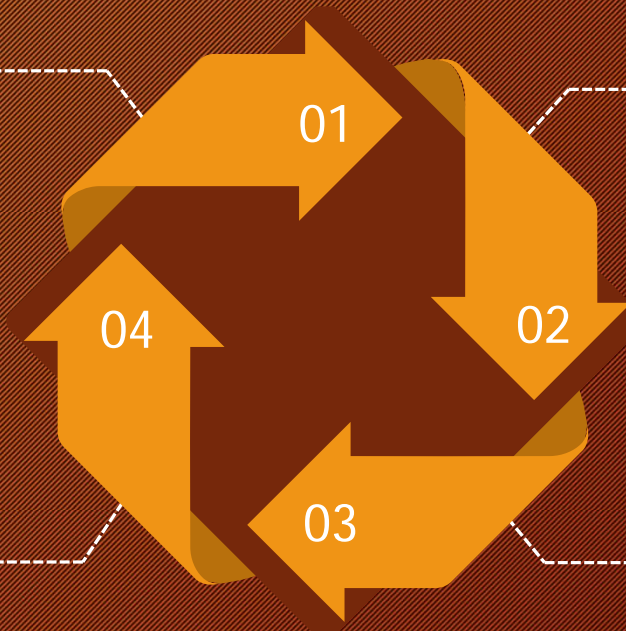
Project contract \$800k and scope of work

Scope 99 buildings and 4.8 million square feet of interior space

Must have attributes and features data models



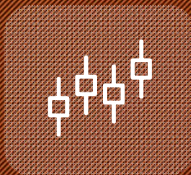
Innovations applied with students in several courses across multiple semesters



Outcome data objectives, field processes, project lifecycle management



Processes: ArcGIS Indoors, Survey123, Lidar, Dashboards



Identify needed resources: tasks, equipment, staff



## GIS Program Actions





## Collection

- Smart form for attributes
- Lidar for 3D point cloud datasets

## Processing

- Native SLAM to .las
- .las to floor slice raster
- PNG to vector features (polygon and polyline)
- Joining of attributes on key field in ArcGIS Indoor information model

## Consumption

- Updated floor plan features
- Configured app tailored to facilities users
- Scripts to export dwg datasets
- Update and maintenance via apps



# Developments to date

- Project task list
- Data design
- Survey123 smart form
- Lidar protocols
- Processing protocols
- QA/QC protocols
- ArcGIS dashboard

Plan Start	Actual Start	Plan Duration	Actual Duration	Percent Complete	Sun Mon



### DC Facilities Room Report

**Survey Purpose**  
This survey is designed for the collection of facilities data such as window size, door openings, images of rooms, and to be added to Lidar collected data for the same location.

Contact information: [ssires@dallascollege.edu](mailto:ssires@dallascollege.edu)

**Room Details**

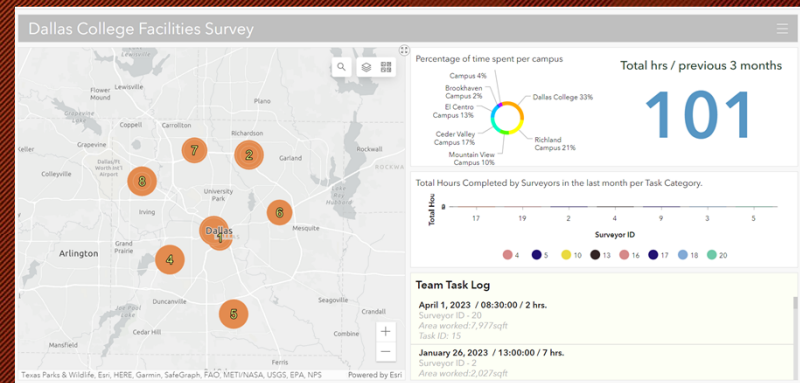
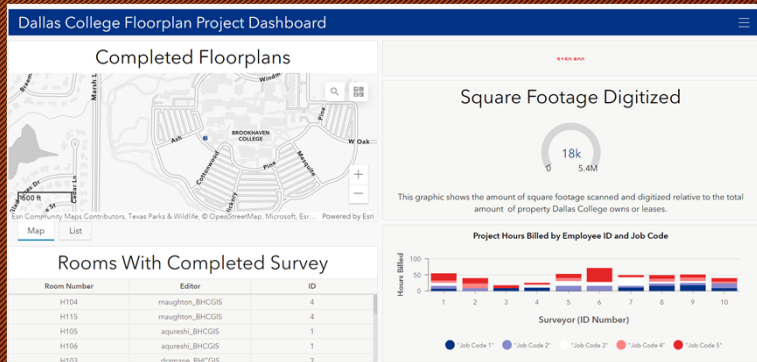
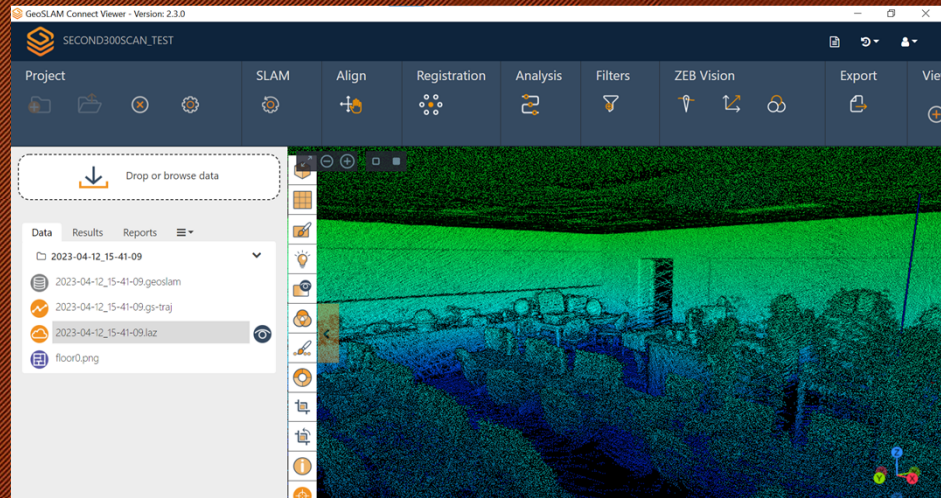
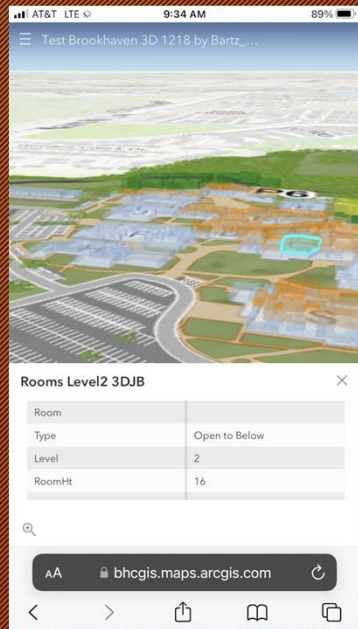
**Facility\***  
Brookhaven Campus

**BHC Building\***  
...

**Floor Level\***  
1

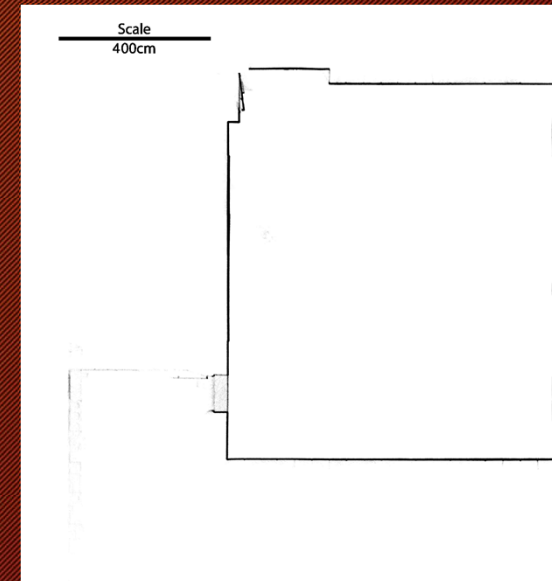
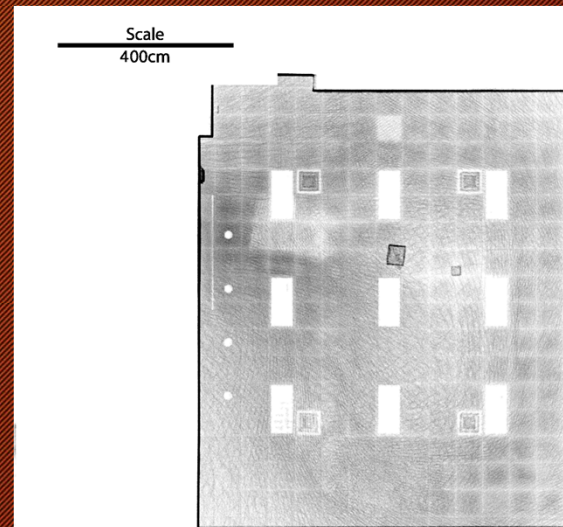
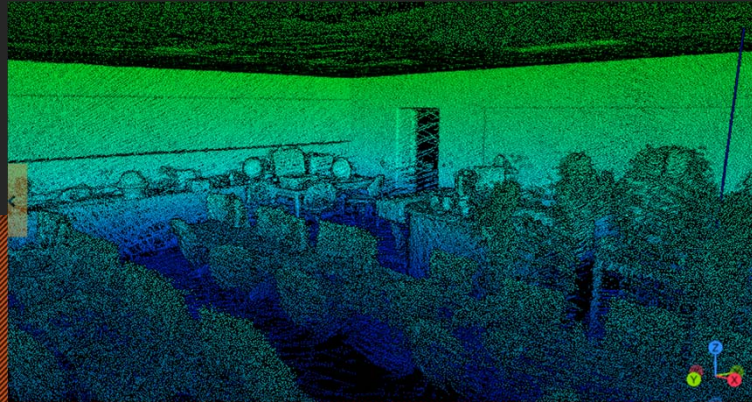
**Room Number\***

@ survey123.arcgis.com - Private



# Who knew?

- I'll be darn if it didn't actually work out?!
- Plans and accidents to date have all added together to results in capacity and opportunity (Innovations that alter career paths).



# Anticipated Outcomes

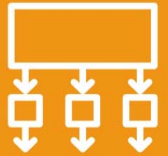
Expected to expend \$400k of the budgeted \$800k thus **saving the college \$400k**

## **Student gains:**

- contextualized lessons in a project resulting in improved learning in a cross-course team experience,
- real world work experience,
- resume content,
- portfolio content,
- reference potential,
- funds to sustain while in school

**Dallas College gains:** richer data product, access and working applications, a renewed understanding of geospatial technologies and related solutions

# What are our next steps?



- Lidar units



- Hire students **AS OF TODAY!**



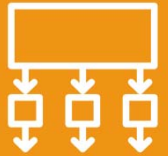
- Execute at scale



- Data governance and stewardship



# What are further scopes?



- AI feature extraction from lidar



- ArcGIS Indoor Implementation



- Smart campus operations



- Modeling student engagement based of the GIS Program





# Audience Engagement

Thank you for attending

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Frisco 6

Outside the  
cloud

Floor slices

