

CanSLAM Circuit







2024









SLAMSO23





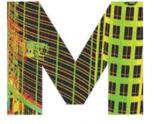














#GoGeoExpo2023



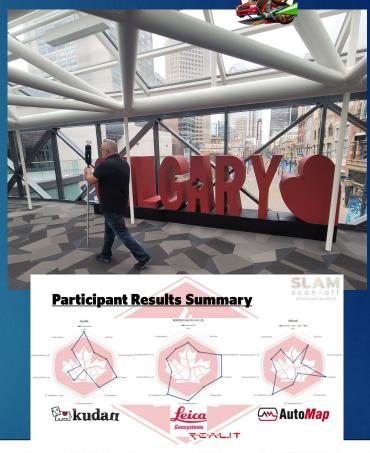












GOGEOMATICS
EXPO † 2024



Modern Industry Pains



- Understaffed
- Under-experienced
- Complex work = slow work
- Confusion = Incidents
- Short turnaround times
- High liability, inefficient system
- Undocumented = uncontrolled

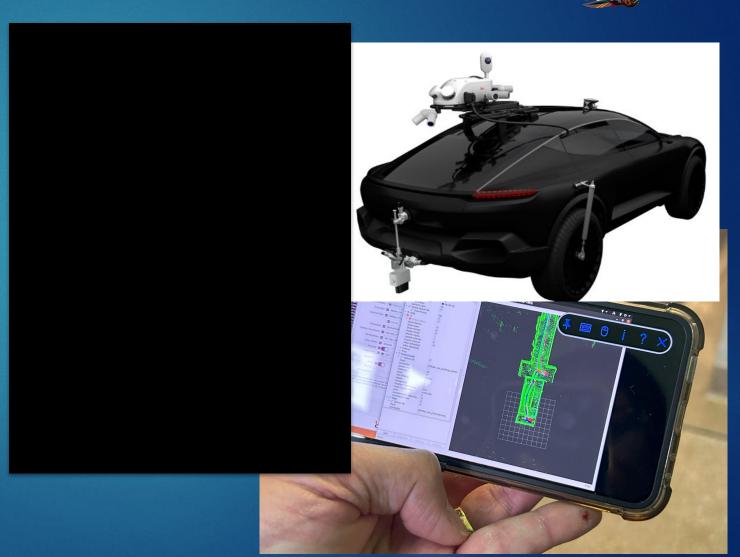


An Emerging Technology



Simultaneous Localization and Mapping (SLAM)

- Fast
- Accurate
- Comprehensive
- Simple



An Emerging Impact



- Urban planning
- Construction
- Environmental Analysis
- Transportation & Logistics
- Mining
- Energy & Utility
- Preservation
- Gaming

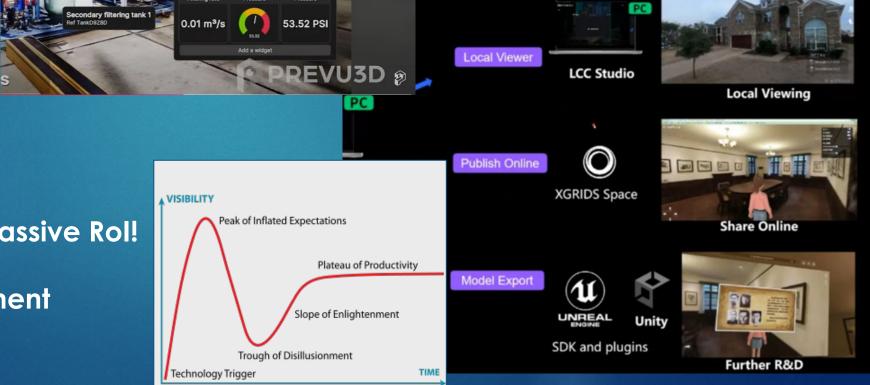
- Look & Measure
- Drafting & Take-off
- Modeling & Simulation
- Progress Documentation
- Shareholder / Milestone Reporting
- Virtual & Mixed Reality Scenes

An Emerging Technology

CANADA'S NATIONAL GOGEOMATICS EXPO 7 2024

XX XGRIDS

- Fast
- Accurate**
- Comprehensive
- Simple**
- Powerful
- <u>Under-Utilized</u> yet massive Rol!
- 'Gamification' imminent



Cut (Unnamed1)

An Emerging Technology

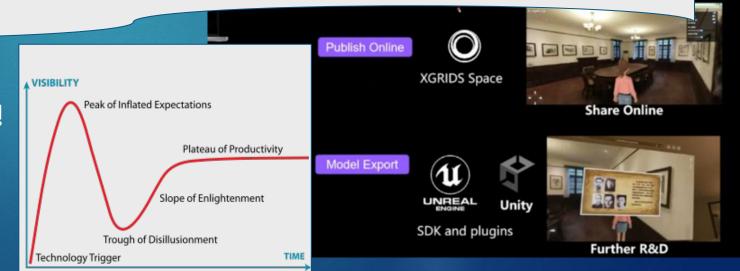


XX XGRIDS

- Fast
- Accurate**

'...can replace most terrestrial scanning applications...'

- Powerful
- <u>Under-Utilized</u> yet massive Rol!
- 'Gamification' imminent



Unmonitored, Unguided Growth



- Dozens of companies, dozens of platforms
- SLAMs & MMs similar but unique?
- Internet searches ineffective / inefficient
- No standard performance metric
- Misunderstood (?):
 - o GCPs

o GNSS

o DMIs

- Alignment techniques
- Rapid yet hampered A.I. development
- HUGE costs associated with learning & adopting



30+ Unique Manufacturers































































30+ Unique Manufacturers



































































4*



CanSLAM Circuit







2024









Goals of the CanSLAM Circuit



- 1. Introduce Canadian industry to SLAM manufacturers
- 2. Encourage discussion of adoption and application
- 3. Introduce considerations of adoption
- 4. Provide <u>Free</u> base data sets for consideration
- **5.** Bring SLAM manufacturers together
- **6.** Promote downstream A.I. Integration

A **resource**, not a (direct) competition



Establish a Course







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lance hummel, CST **②** • 1st Geomatics Instructor at SAIT Polytechnic Calgary, AB



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Geomatic Engineering Technology student at SAIT



Eunice Estonactoc **②** • 1st

Mining Engineer (Ph)



Chimezie Azih ⊘ • 1st

3D Reality Capture - Tech Sales || Enthusiast for...

Establish a Course





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FORTRESS GEOMATICS LTD





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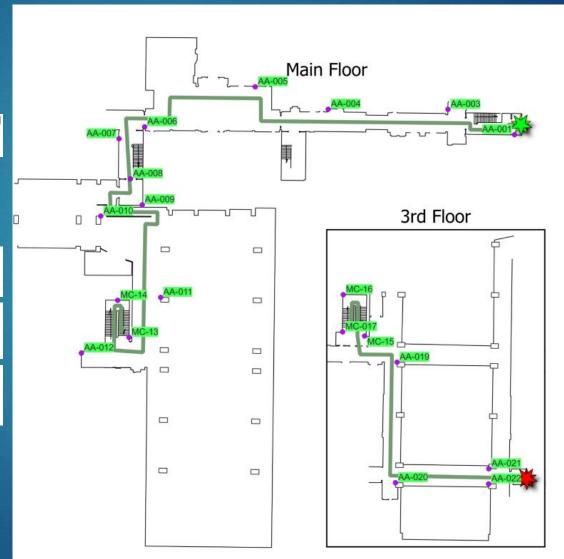
Eunice Estonactoc ♥ • 1st Mining Engineer (Ph)



Chimezie Azih ⊘ • 1st 3D Reality Capture - Tech Sales || Enthusiast for...









CanSLAM Circuit 2024

Calgary Circuit Internal Scene

Heritage Hall SAIT Main Campus

SAIT_FloorMap_StartStop





Circuit Course Path

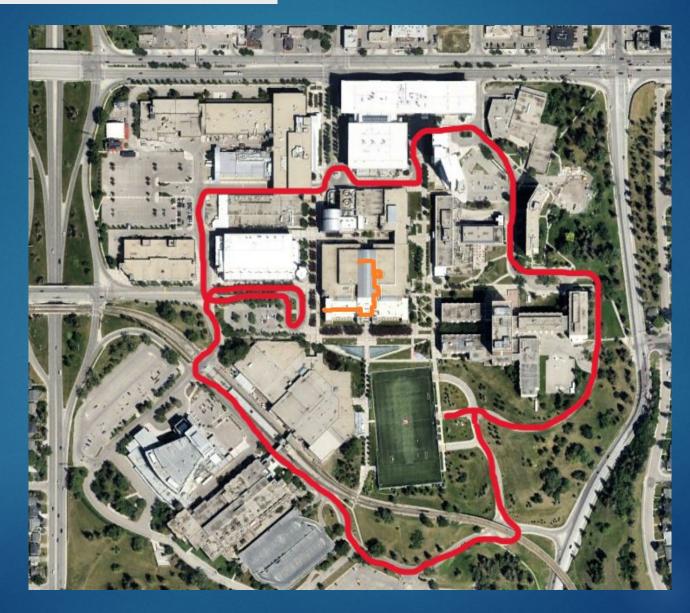
Control Point

Approx Linear Dist: 205 metres

Control Points: 17

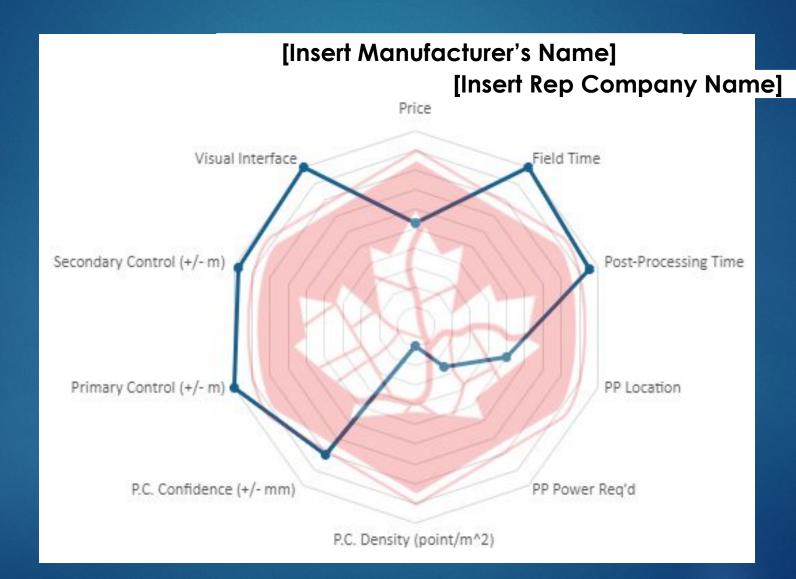
Establish a Course





SLAMSO Evaluation Criteria





30+ Unique Manufacturers





























































TBD (2025)

TBD (2025?)













CanSLAM 2025 Participants

















Value Proven

- Three you didn't know? Mission accomplished.
- 2. Increase negotiating position
- **3.** CanSLAM exposes those interested and excited
- 4. Remote map creation
- 5. Report
- 6. Found confident SLAM partners
 - Building knowledge, Consumer confidence
- **7.** Validation for New Market Entry
 - **▶** 2025 = 2 new companies





Considerations for Adoption

MM and SLAM systems and the scenes they collect are extremely unique, making it extremely difficult to generalize a list of suited devices, needed support equipment, or even 'what's better in what situations.' However, the following points are the start of a list of considerations a burgeoning SLAM or MM user may wish to ask themselves prior to committing to a purchase.

1) General Intended Use

Every environment is unique in size, atmospheric composition, access permissions and/or restrictions, occuracy requirements, safety permissions, radio and electromagnetic frequency folerances, required levels of detail, permitted signatal tools, physical and digital security protocols, etc. It's important to know what's being asked of the sensors, what types of environments they're designed for or can be leveraged to achieve better results.

2) Expectation vs Performance

Expectation is a dangerous thing when not established correctly. While companies have the responsibility to clearly define their scanners, their function, and the product they provide, the sales representatives might not fully grasp the functionality or, worse, misinterpret either a client's question or the instrument's capabilities. For example, moving around feetly with a SLAM device often does not include taking an elevator as a mode of transport, and some don't like auto-platforms like escalations or moving walkways.

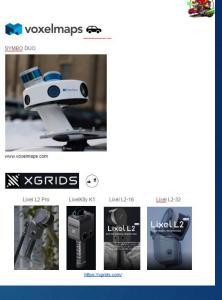
Likewise, a purchaser may misinterpret performance metrics on a device and assume one functionality and receive another. For example, the lack of understanding that a '4k Camera' does indeed collect a great deal of information but the resolution at a set distance will differ greatly even just considering planar versus spherical cameras. You might find you have to collect information from within one metry of the fastpet object, rather than the expected ten metrges.

It's important to get a comprehensive picture of a device's performance in its intended job environment prior to purchase or use. This may require extensive testing in 'worst case' or 'common strain' environments to get a sense for reliability in less-than-perfect conditions.

3) Ease of Use/Trainin

While training a person to use a SLAM or MM scanner can be relatively simple, it's the troubleshooting and data harmonization that comes after where knowledge and skill begin to lake a greater roll. Some devices simply need to be turned on and started, other devices need a second before starting, others still have highly complicated processes that need to be followed to-the-letter if you're





Community Call to Action



Making 'Sample Data' available is not 'transparency of performance.' It's putting your best foot forward.

Resources: Cloud storage, cloud analytics software, volunteer incentives/opportunities, targets, general financial sponsorship and/or involvement.

Manpower: Validation, maintenance, outreach, circuit admin, analytics, circuit design/hunting, report beautification



"We just have to wait for them to realize that these have value before we can get them involved."

Manufacturers Call to Action



Value to help with: growth, income, and building customer relationships.

Help us build:

Consumer confidence (growth)

Customer

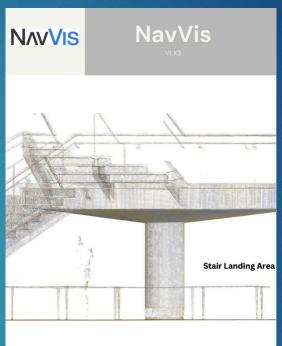
We want to see your data/product!



Geo Week 2024 Report



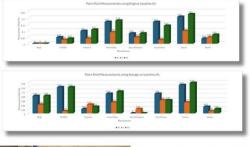


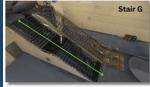


Stair Measurements F & G

 Distance measurements F and G at the two ends of the stair handrail post represent the point-to-point distances (approximately 33 -36 feet) extracted from each point cloud dataset.







 The data are presented as distance deltas (in "feet") between each dataset and the average, as well as deltas between each dataset and the ground truth (Riegl) data. These are categorized into 2D (XY) deltas, elevation (2) deltas, and 3D (XYZ) deltas separately.





THANK YOU!









