ROS-Industrial Consortium Americas

2022 Annual Meeting

June 10, 2022

ROS-Industrial Consortium Americas Year in Review

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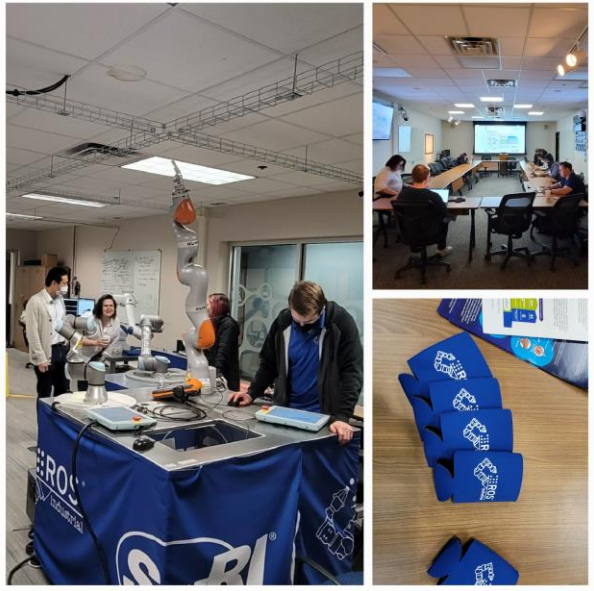
April 13, 2021

Consortium Year 2021

- What took place?
- Training – the continued transition to ROS 2
- Events
- Fiscal health of the Consortium
- Practical Outputs
- Looking Forward

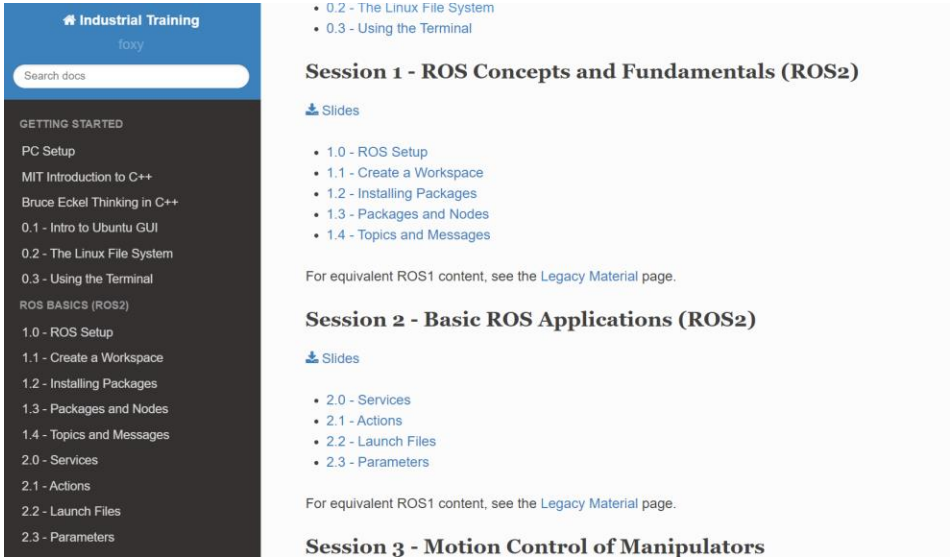
A different year, a lot of activity

- More ROS 2, helping members transition & work the middle ground
- A number of collaborative projects
- Piloting hybrid training – return of labs – feedback mixed
- Continuous Improvement –
  - Improved large volume motion planning
  - Perception tools, tool path planning
- A new collaborative project(s)
  - Working Groups
  - Driver Development



Continued Improvements to Training

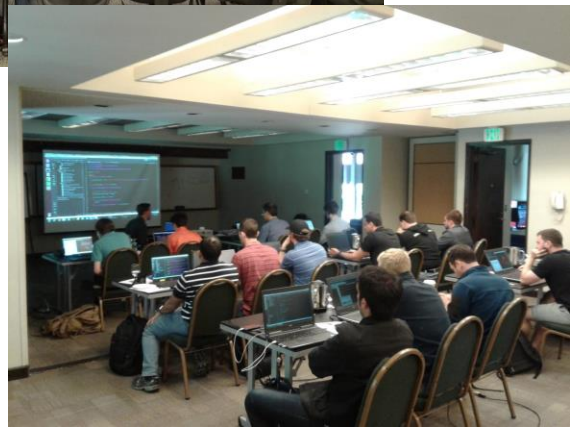
- Pilot of Hybrid Training
  - How to make this impactful
  - Engagement with online students
- ROS 2
  - Fully ported ROS 2 labs
  - Bridge and Porting Exercises
  - Initial Advanced Topic
    - Perception Pipeline



https://industrial-training-master.readthedocs.io/en/foxy/

Training Moving Forward

- Return of member site-hosted training
  - Opportunity to shape agenda/advanced topics
  - Training in a different region
- Additional Advanced Topics
  - Motion Planning Pipeline
- Workshops
  - Scan-N-Plan

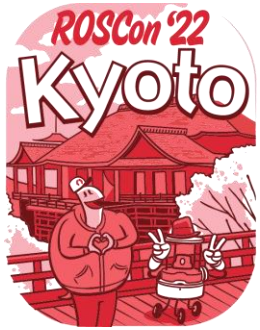


Supporting the community

- ROS 2 Technical Steering Committee (TSC)
  - Represent industry/consortium for core ROS 2 topics/roadmap etc
  - Garner support for working groups that are important to industry
- (Hardware) Interfaces Working Group
  - Working group to identify interfaces that include the semantics
  - Identify industrial standards that have good references
  - Open to everyone: https://discourse.ros.org/t/hardware-interfaces-working-group-recurring-meeting/24847/1

Events on the horizon

- Training
  - July 2022- ROS2 – Hybrid (San Antonio) Registration is open!
  - October2022- ROS2/Advanced Topic – Member Site
  - February 2023- ROS2/Advanced Topic – In Person
- World ROS-I Day – First week of July
- Quarterly Community Meetings
- ROSCon – October 19-21, Kyoto Japan
  - Exhibiting
- 2023 Annual Meeting – targeting co-located with Automate



Listening to Members…

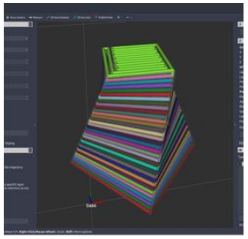
- Workshop last year garnered feedback on member struggles
- Long list of challenges
  - Developers
  - Decision Makers
  - Mfg Engineers
  - Tech Stewards
- 4 primary areas

Biggest Challenges	Type
OEM Supported Drivers (Not Experimental)	Interfaces/Standards
Getting Staff/People to Accept ROS (Security, Reliability,...)	Resources
Open Source Perception of a threat to IP	Resources
Corporate IP Policies, Issues with OS	Interfaces/Standards
Needed: Visible content on where ROS is being used	Resources
Comm Protocols are lacking - Look @ Hilshire card as an idea	Interfaces/Standards
Non-cross platform issues. Windows, MAC, etc	Interfaces/Standards
Non-programmer user capabilties	Ease of Use
Lack of compatibility of CAD Systems (Step for instance)	Interfaces/Standards
Perception that ROS is for Academia, Prototypes, not repeable or reliable	Resources
ROI examples to justify use of ROS	Resources
Training by experts on the navigation (Lots of parameters)	Ease of Use
URDF Process streamlined	Ease of Use
Integration of CAD tools with mesh generation for motion planning	Capability
Use of ROS to use builtin feature of the robot controller (sensors and grippers, I/O)	Ease of Use
OEM Support to make robot models match the URDF	Interfaces/Standards
Simulation to manage pliable and flexible materials	Capability
reduce learning curve for dev pipeline	Ease of Use
Realtime OS	Capability
consistency with NAN and Planning (Predictible in time)	Capability
Terminology needs a glossary	Resources
Big time investment initially	Ease of Use
ROS for dummies needed, would also help with marketing, building blcoks for given robots	Resources
Usable by people who do not do the development - also for the users of the "apps"	Ease of Use
Recovery from failsures/faults	Capability
Needs ammo to help explain/defend Open-source/Connectivity with IT	Resources
ROS OH and perfomance perceived as a problem	Resources

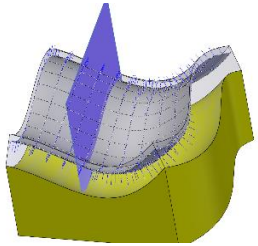
Category	Number of Hits
Interfaces/Standards	8
Resources (Write Ups, Wikis, Reference Docs)	12
Capability	10
Ease of Use	9

Defining Collaboration Opportunities

- Robotic Blending – Champion by SFSA – targeting low lot, no tooling surface finishing
- Open Framework for Additive Manufacturing – Champion – Pending – Flexible agile framework to support more capable applications

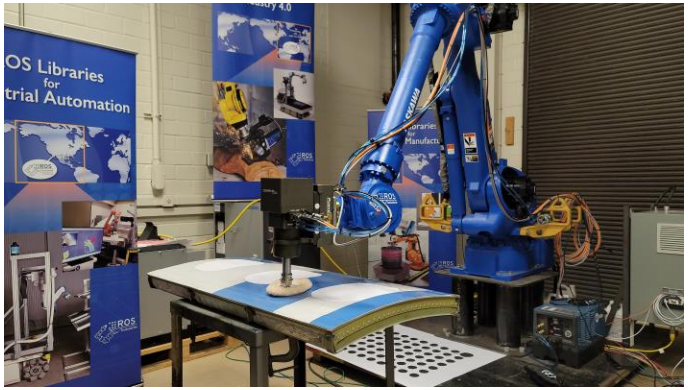


ROS Additive Manufacturing Package
http://wiki.ros.org/ros_additive_manufacturing



Algorithms to adapt path plans to perceived environments/contours

Teaching Application



Looking Forward

- Find opportunities to extend training
  - Locations
  - Workshops
  - Advanced topics
- Foster additional collaboration amongst the members
- Revisit model for Focused Technical Projects
- Continue to roll out new capability to the memberships
  - Libraries
  - Frameworks
  - Working applications
- Ease of Use Pilot

Thank You!

- Provide feedback
- Seek out ways to collaborate
- Engage your supplier/partners on ROS use
- Reach out if you need help

World ROS-I Day Event at UTSA in San Antonio

Let’s Get To Work

- Question/Discussion?