

ROS-Industrial Consortium European Union Update

2022 Annual Meeting

Contents

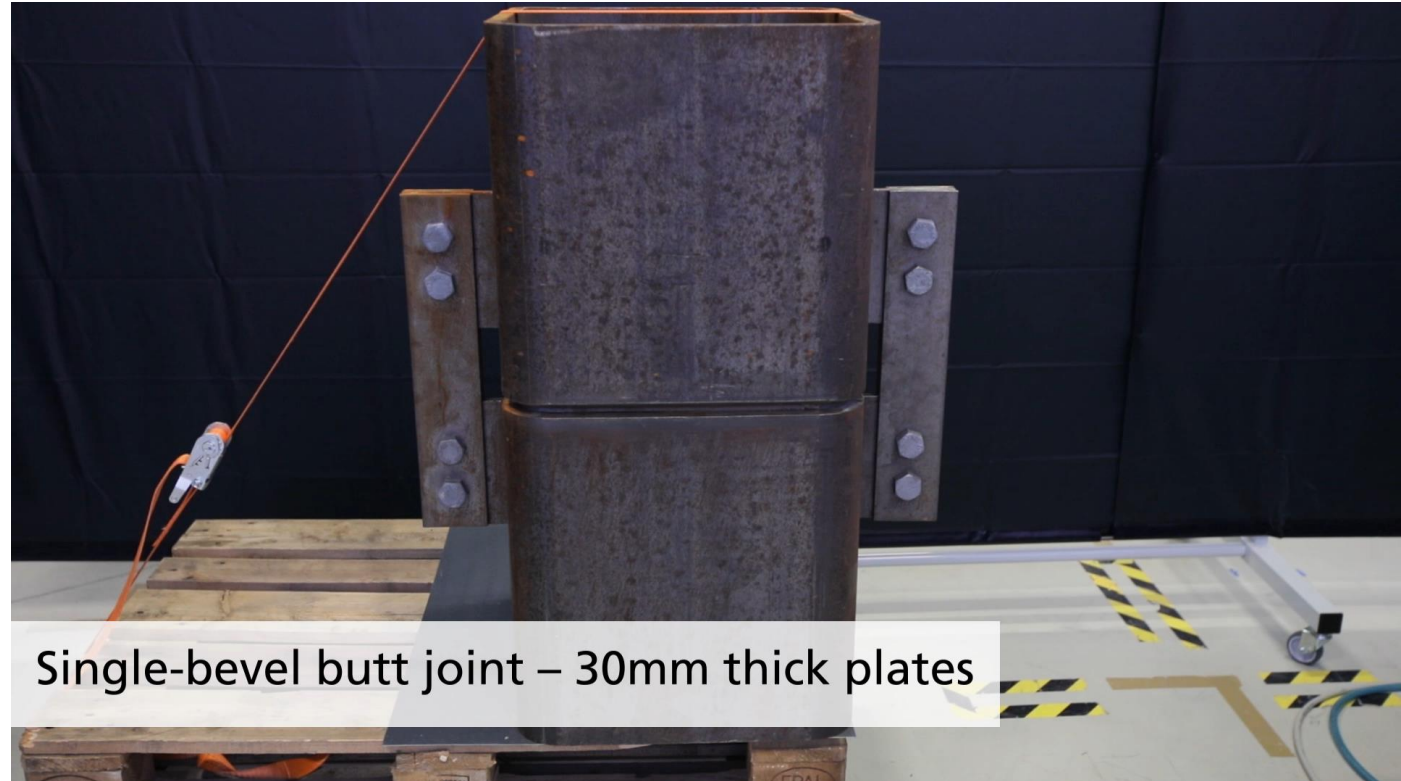
- New applications
- New packages
- New integration technologies

A photograph of a blue and silver industrial robotic arm, likely a Universal Robots model, positioned in a factory or laboratory environment. The arm is mounted on a metal frame and is reaching towards a blue plastic crate. The background shows large windows with blinds and other industrial equipment. A white text box is overlaid on the image, containing the text "New Application Technologies".

New Application Technologies

Welding

- Robotic multi-path welding on construction sites
- Weld seam detection
- Weld path planning for optimal process quality
- Collision avoidance
- Slag removal

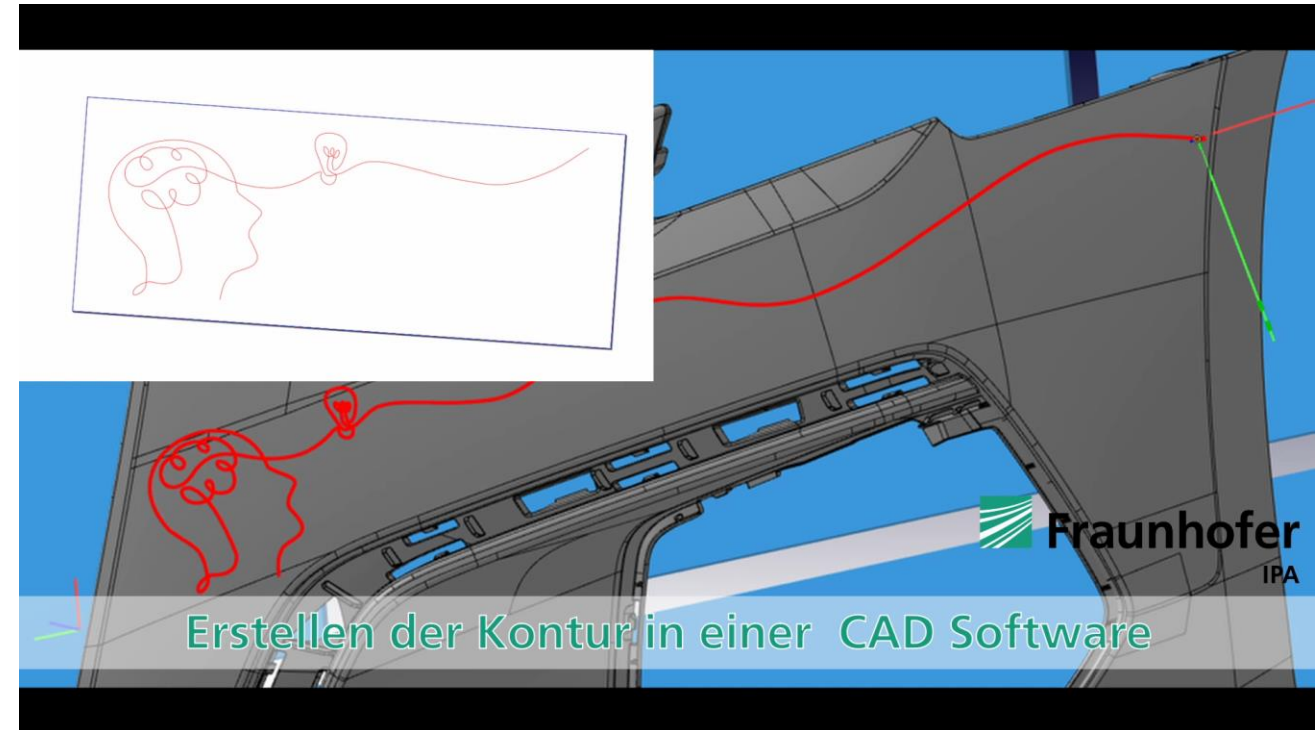


Available Code:

https://github.com/PickNikRobotics/UR10e_welding_demo

Printing

- Planning based on CAD data in CAD software
- Online trajectory adaption to achieve higher accuracy, based on line laser
 - Correction of spraying tool angle
 - Correction of spraying tool distance

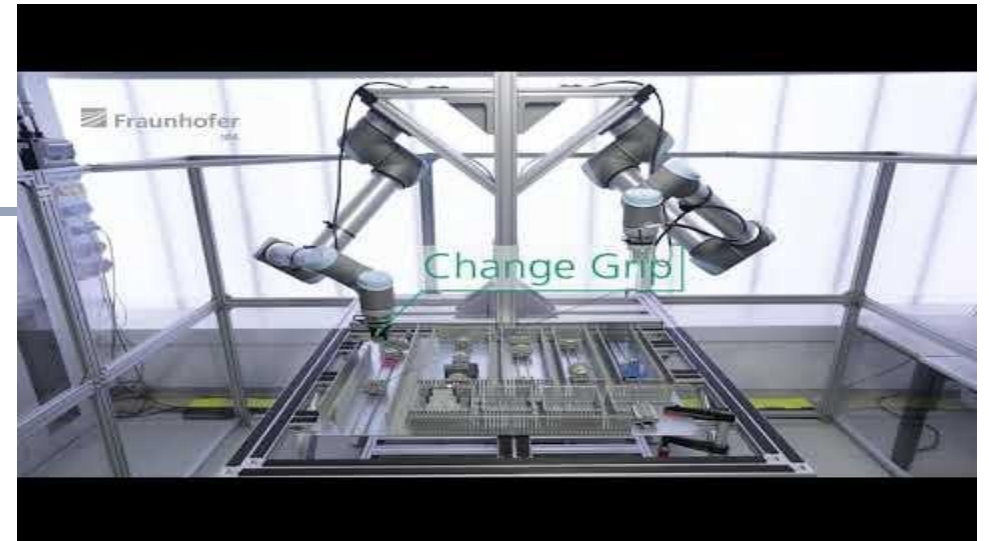


Code: Not published yet.

Assembly

- pitasc framework for force controlled assembly applications
- Enables describing assembly task based on skills
- Currently being integrated with imitation learning solution
- Looking for applications

Code: Not published yet, but on agenda.



Force controlled assembly
<https://www.youtube.com/watch?v=xXR2FxPVqa4>

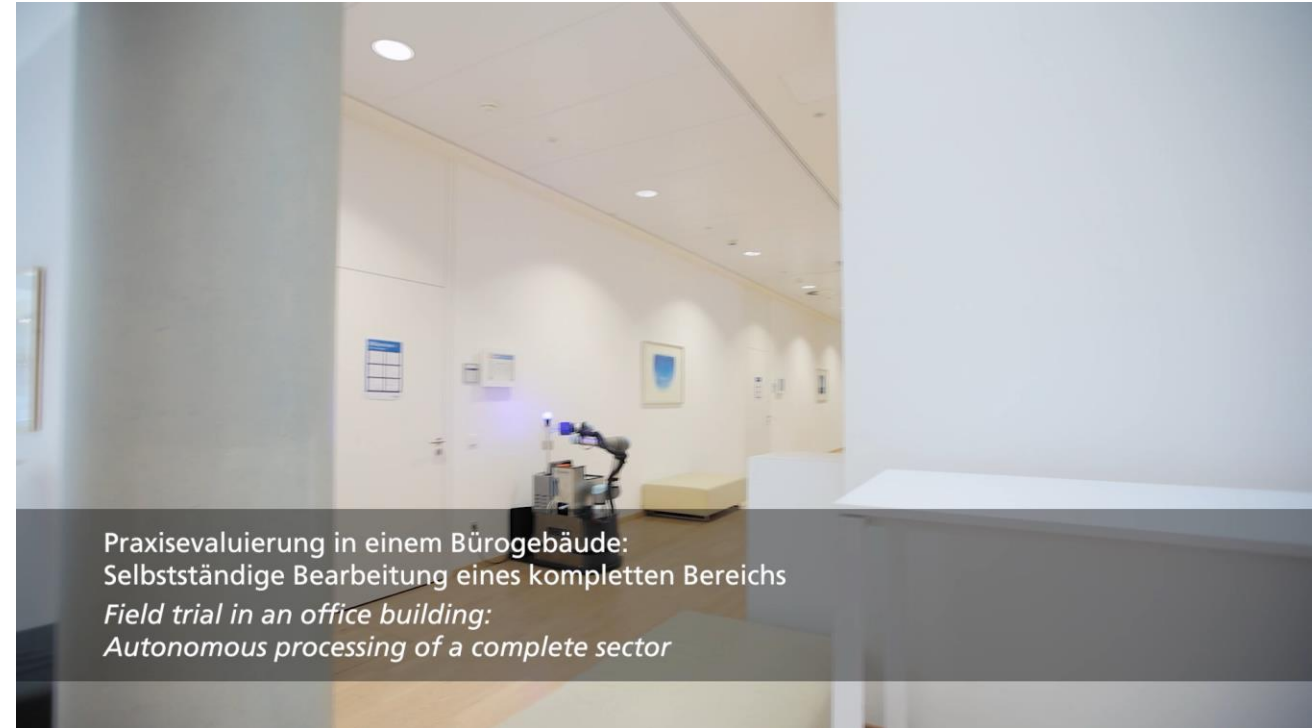


Imitation learning
<https://www.youtube.com/watch?v=cBf5LdvRLV8>

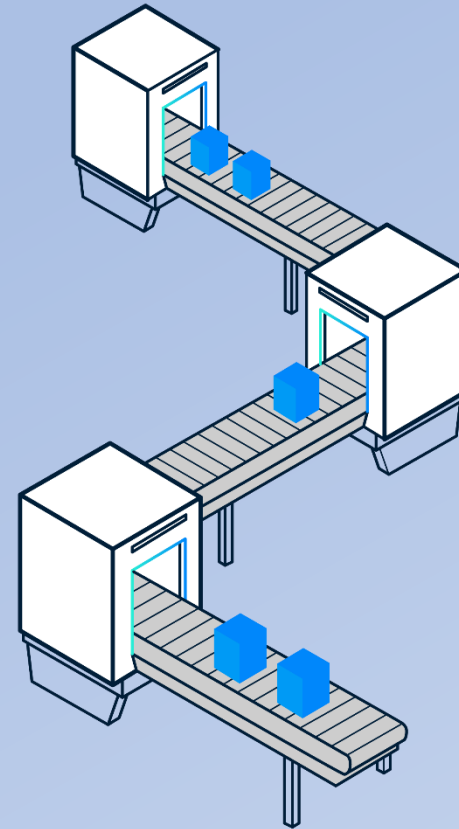
Cleaning

- Cleaning of door handles and light switches
- Detection of door handles and light switches
- Thorough Cleaning using brushes

Code: Not published yet.



New Packages

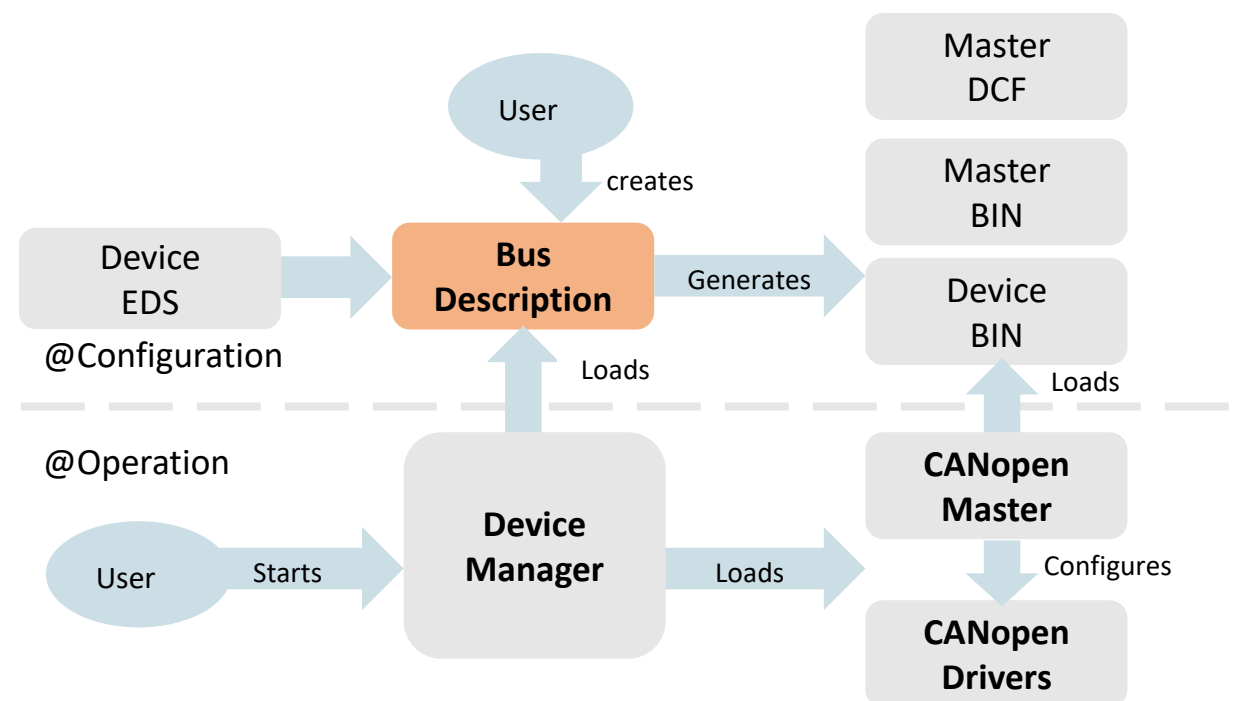


CANopen



- Bringing CANopen to ROS2
- Complete redesign of ros_canopen packages
- Integration with Lely's CANopen stack
- Advanced configuration
- Using ROS2's composition and lifecycle features
- Integration with ros2_control on roadmap
- Beta release planned for September

Code: https://github.com/ros-industrial/ros2_canopen (Alpha version)



Pepperl+Fuchs Laserscanner

- Refactoring for better stability
- Integration of new functionalities
- Porting to ROS2 under way


Code: https://github.com/PepperlFuchs/pf_lidar_ros_driver



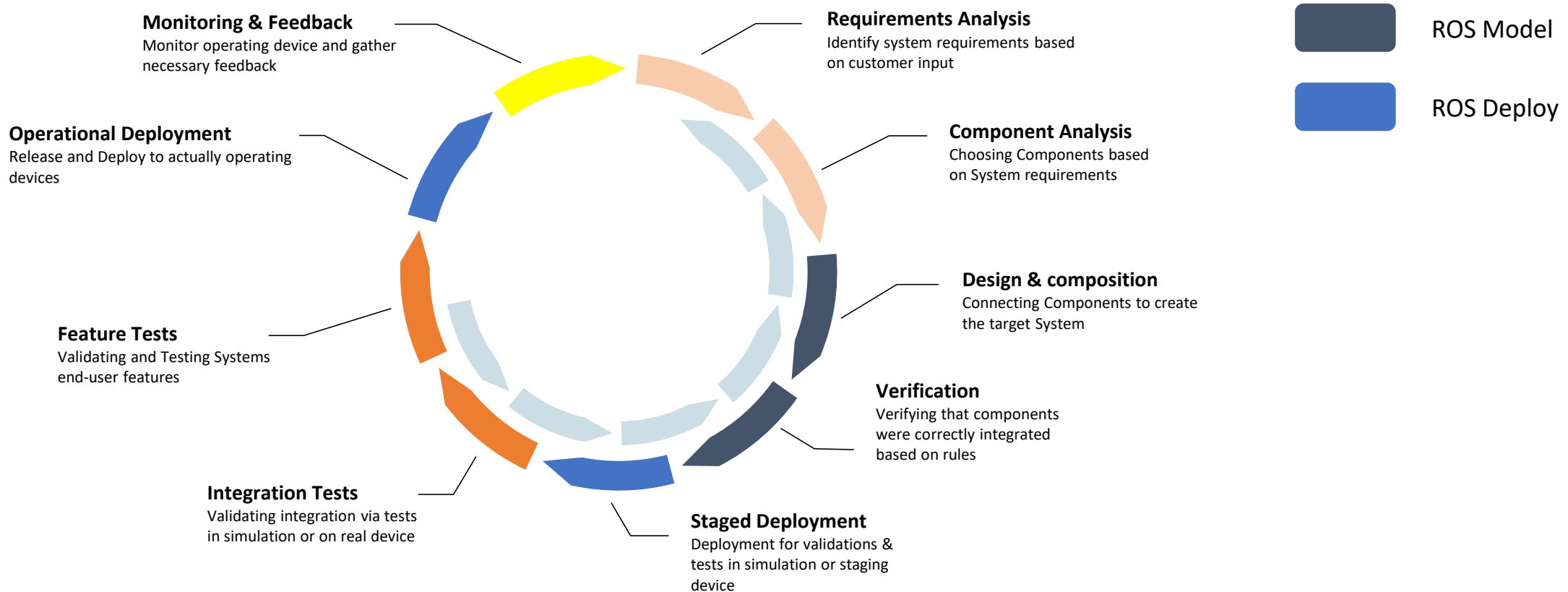
System Integration Technologies

A large, white industrial robotic arm with a yellow circular panel on its upper section is positioned in a factory environment. The arm is mounted on a metal base and is surrounded by various industrial equipment and structures. The background shows a complex industrial setting with multiple levels, railings, and other robotic components. The lighting is bright, typical of a factory interior.

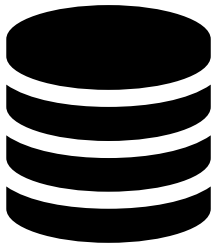
6th ROS-Industrial
Conference 2018

A logo for the 6th ROS-Industrial Conference 2018, featuring a stylized white line drawing of a robotic arm joint on a dark blue background.

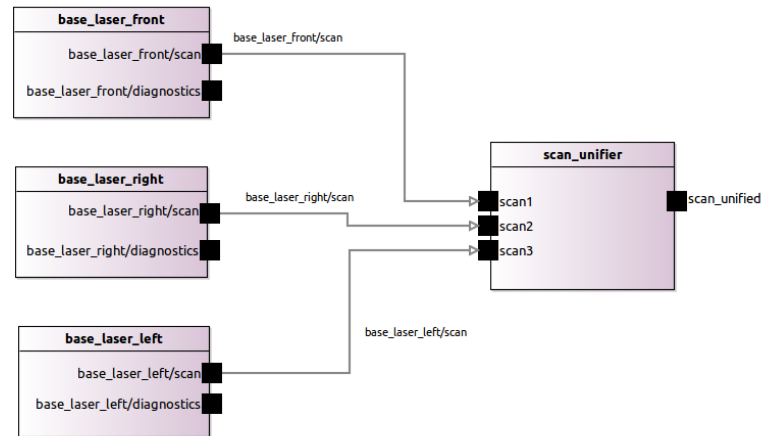
Robot Software System Lifecycle



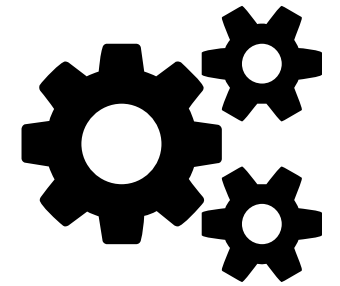
ROS Model



Component
Model Database



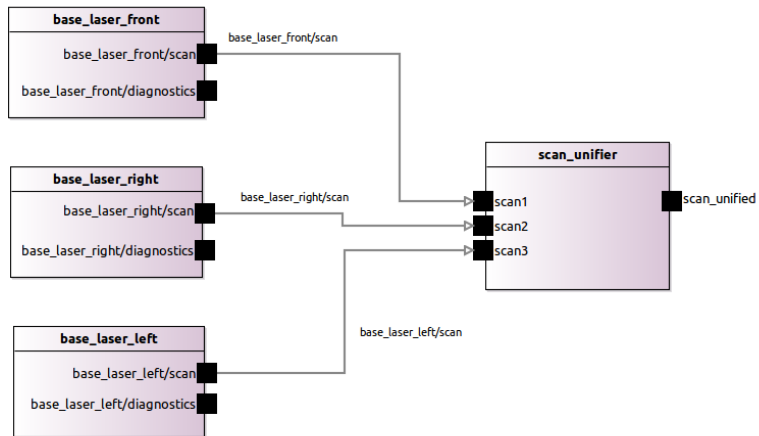
Graphical composition tool



Composition
Verification Checks

Code: <https://github.com/ipa320/ros-model>

ROS Deploy



System model



kubernetes



openembedded

System image /
Runtime

Code: internal incubation, to be published soon.

Thank You

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