

Implementation of KMR iiwa Control via ROS 2

While the [KUKA KMR iiwa](#) represents the pinnacle of industrial mobile manipulation hardware, its native control architecture is often isolated from recent breakthroughs in AI and advanced perception. This project aims to unite industrial robustness with ease of use of new technologies and algorithms through [ROS 2](#).

The primary goal is to bridge the industrial KUKA Sunrise controller and the flexible ROS 2 ecosystem. This will enable advanced capabilities including autonomous navigation of the mobile platform ([Nav2](#)), motion planning for the LBR iiwa 7-DoF arm ([MoveIt 2](#)), and possibly AI-accelerated perception (Isaac ROS). Additionally, the project involves enriching the sensor stack with auxiliary hardware – specifically an Intel RealSense 456 RGB-D camera and Unitree 4D LIDAR L2. This hardware integration is primarily aimed at future-proofing the platform, laying out the groundwork for subsequent research into Vision-Language-Action (VLA) models.

An integral part of the project would be the creation of a detailed documentation of both installation and example usage. The high-level control node for ROS 2 will be deployed on NVIDIA Jetson Orin NX.

Project Phases & Milestones

Project is divided into phases:

Architecture & Connectivity

Establish communication between the KMR and the NVIDIA Jetson.

Driver Integration

Control of the robot hardware from ROS 2.

High-Level Control Integration

Autonomous navigation and motion planning.

Requirements & Nice-To-Haves

ROS 2: Targeting [Jazzy Jalisco](#)

Java: Required for [KUKA Sunrise](#) (Java 8 environment)

[Nvidia Jetson Orin NX](#): Experience with ARM-based edge computing.

Python/C++.

CAD /3D Modeling: Experience designing HW mounts for 3D printing.

References & Technical Resources

<https://nva.sikt.no/registration/0198e906fe11-28c7fb72-80d2-4479-a26e-df6ccb634140>

<https://github.com/realsenseai/realsense-ros>

<https://www.unitree.com/download/L2>

https://github.com/lbr-stack/lbr_fri_ros2_stack

https://github.com/MortenMDahl/kmriwa_ws_devel/tree/foxy

https://github.com/ninamwa/kmriwa_ws



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