

Products



KAILAS
ROBOTICS



KR-UAV-001

Robotic Arm For UAVs



Features

- **Control and Stability**

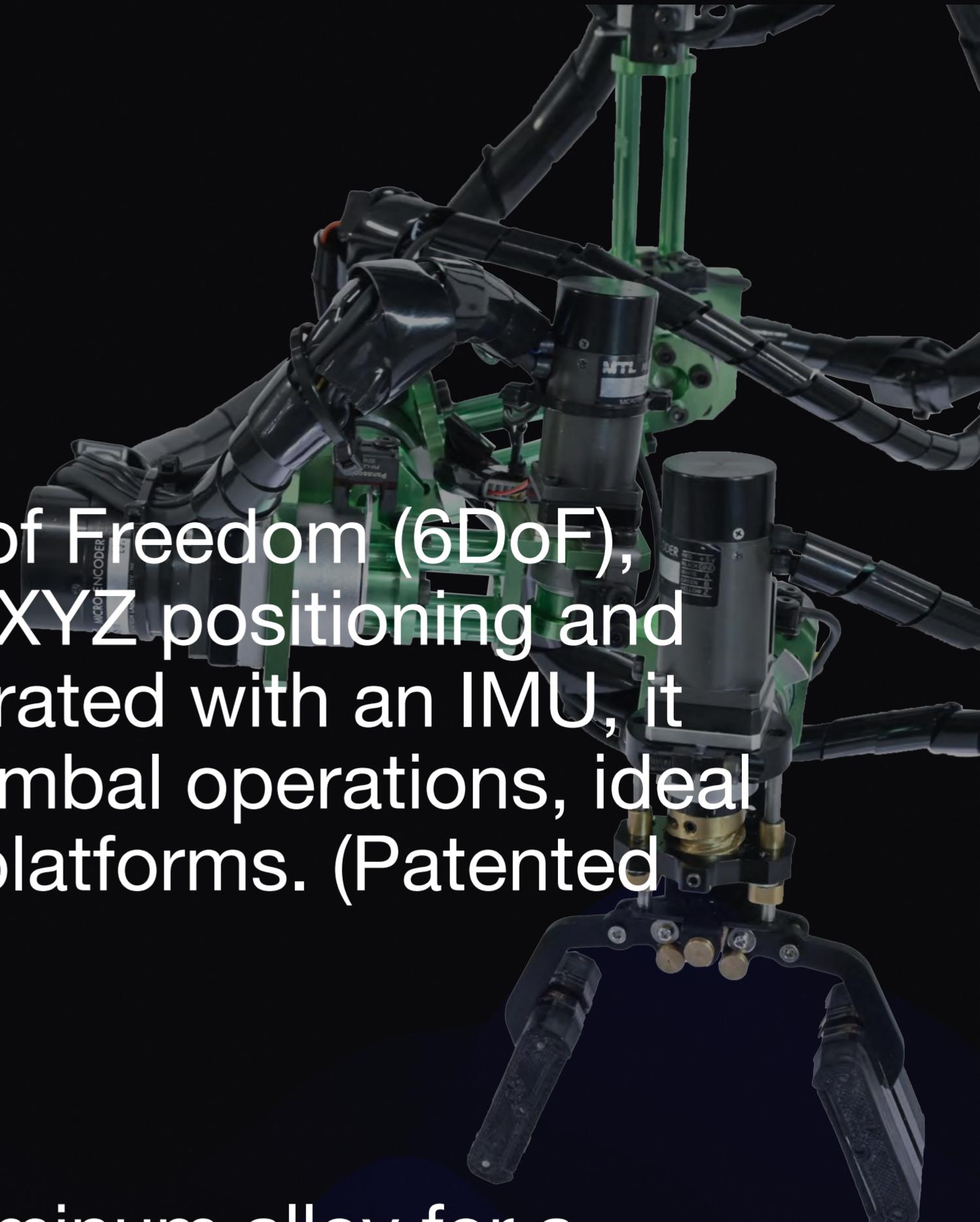
This arm features 6 Degrees of Freedom (6DoF), allowing precise control over XYZ positioning and yaw/roll/pitch rotations. Integrated with an IMU, it absorbs vibrations through gimbal operations, ideal for drones and other mobile platforms. (Patented technology)

- **Material Excellence**

Constructed using A7075 aluminum alloy for a combination of high strength and lightweight. This makes it perfectly suitable for drones and unmanned ground vehicles (UGVs), powered directly from batteries.

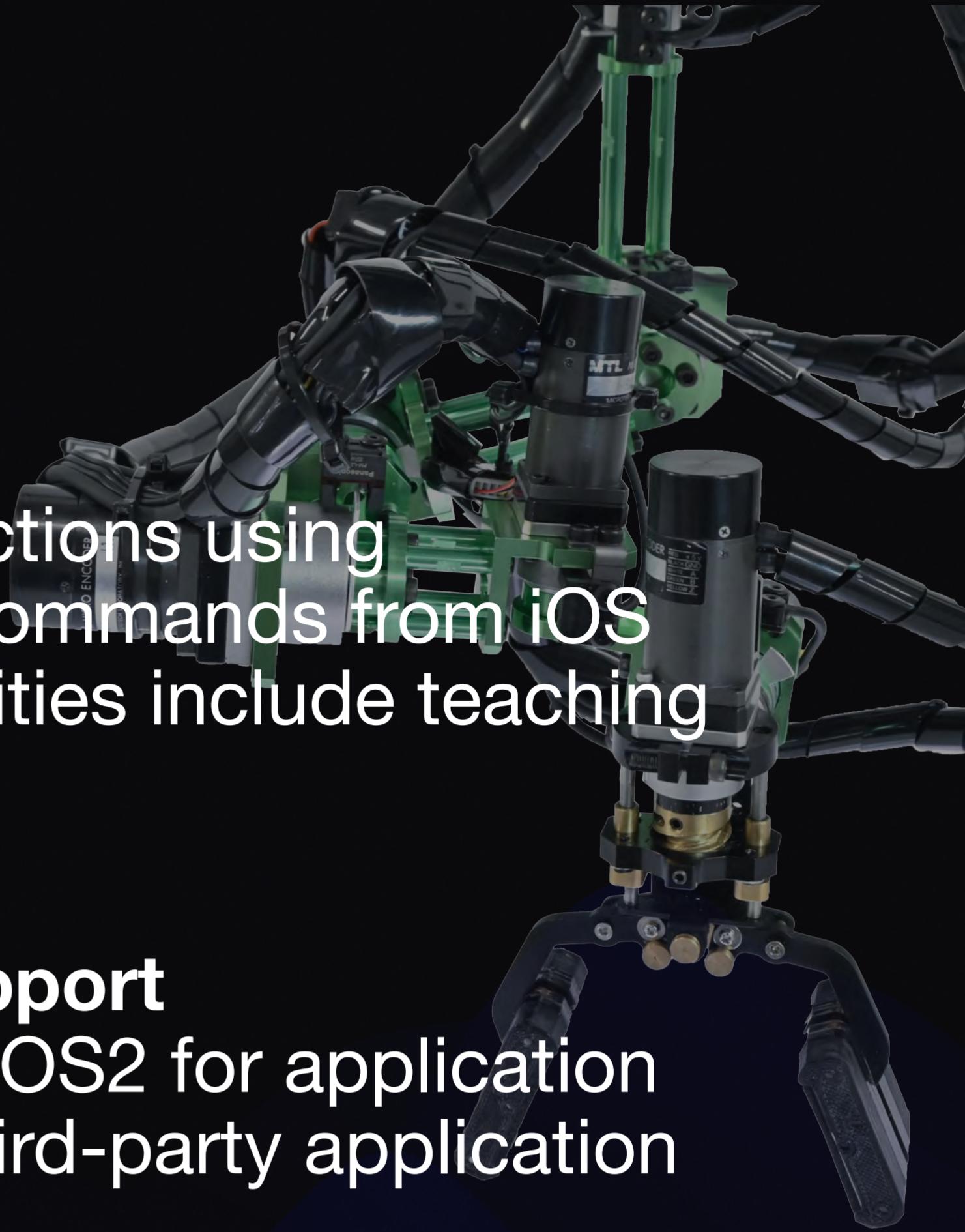
- **High Performance Motors and Gears**

The arm is equipped with compact, high-torque BLDC motors, 20-bit resolution absolute encoders, backlash-free harmonic gears, and highly controllable small motor drivers. Rapid responses and precise control are achieved through high-speed EtherCAT communication.



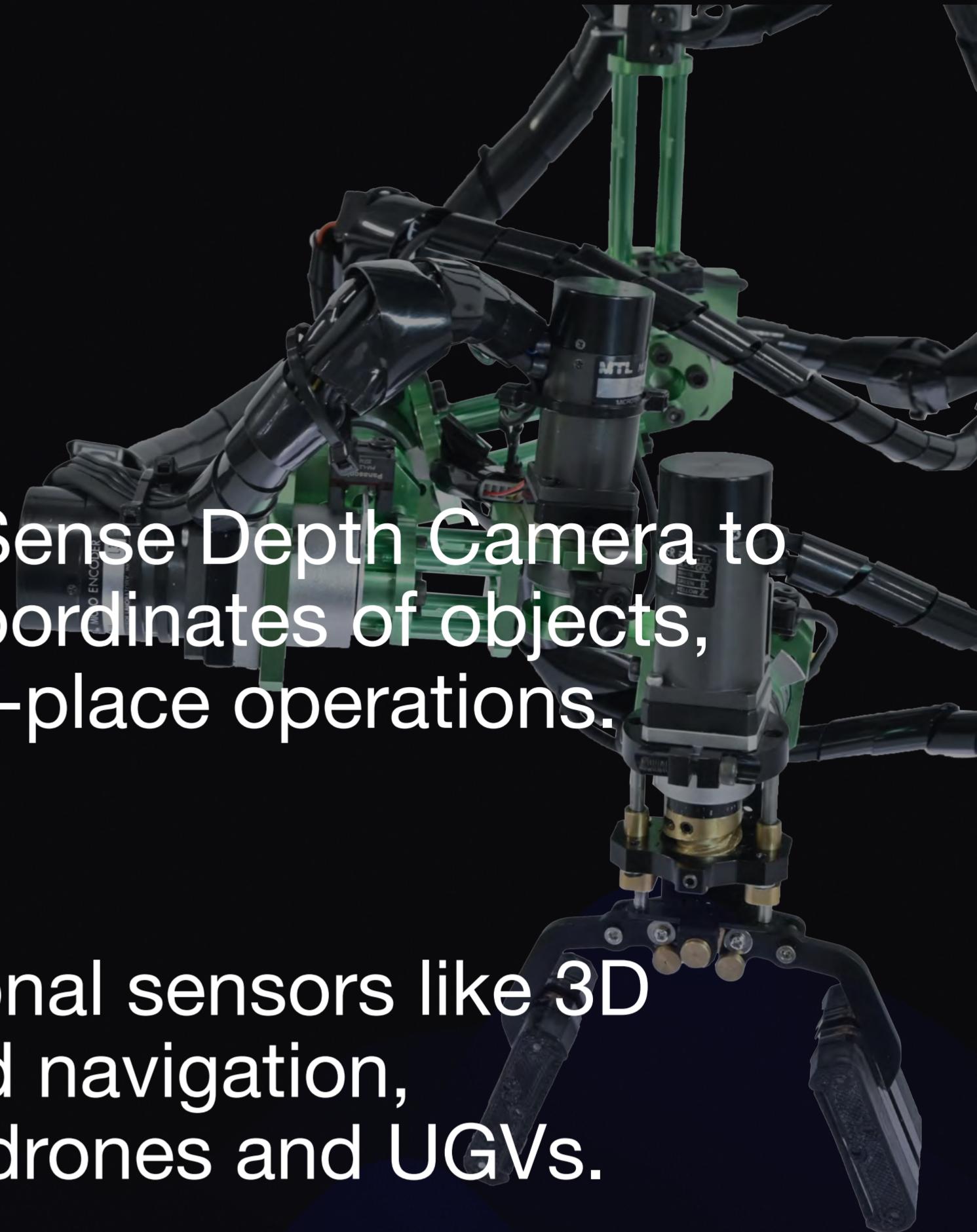
Features

- **Versatile Compatibility**
Offers complex motion instructions using flowcharts and 6DoF action commands from iOS and Android devices. Capabilities include teaching and monitoring.
- **Advanced Development Support**
Comes with built-in Ubuntu/ROS2 for application development and supports third-party application development through an SDK.
- **Enhanced Sensing Capabilities**
Features a 6DoF force/torque sensor enabling direct human teaching, collision detection, and applications requiring force/torque control.
- **Customizable End Effector**
Standard torque-controlled gripper provided, with customization options available to suit various applications.



Features

- **Intelligent Vision System**
Integrates with the Intel RealSense Depth Camera to pinpoint three-dimensional coordinates of objects, enabling automated pick-and-place operations.
- **Sensor Integration**
Capable of integrating additional sensors like 3D and 2D Lidar for mapping and navigation, enhancing coordination with drones and UGVs.
- **Extensive Connectivity**
Supports connections to external devices or wireless units via Ethernet, USB, UART, GPIO, and RS485 interfaces.



Specs

Material:	A7075, A5052
Size:	212.9mm x 202.5mm x 259.3mm(x,y,z)
Weight:	Robot Arm 1400g, Control unit 1000g
Power:	24V, **A (Battery power possible)
Temperature:	0~50°C

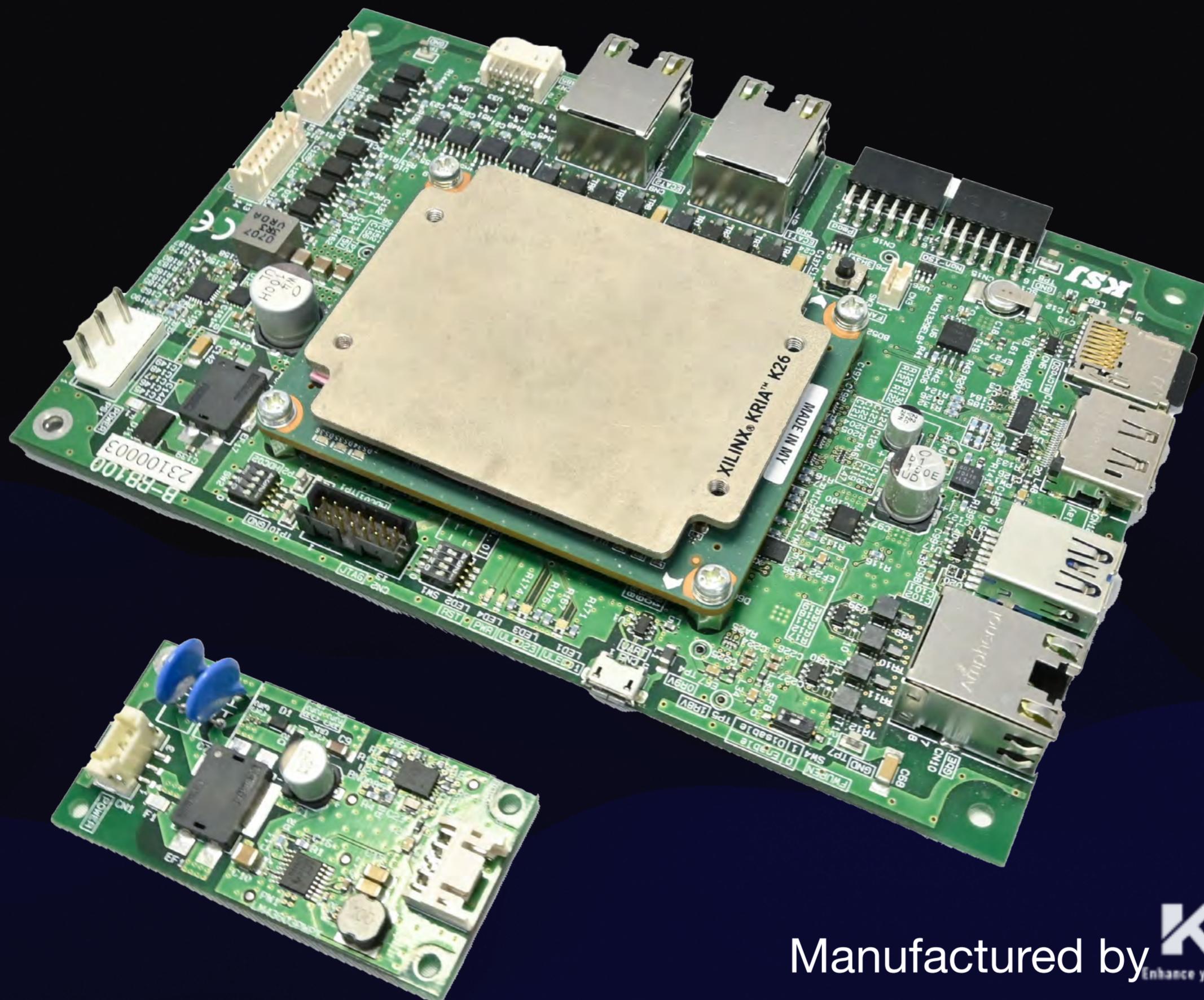


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KR-KSJ-RB-100

Robot Controller

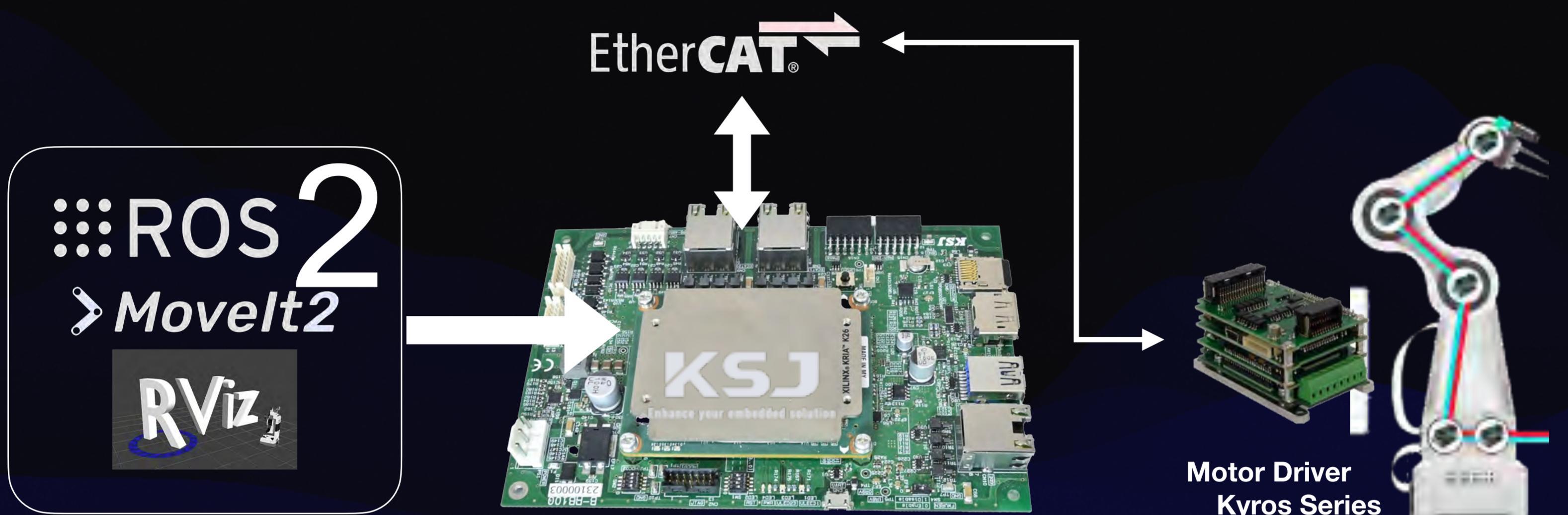


KR-KSJ-RB-100

Robot Controller

RB100 simplifies robot developments.

By incorporating robot mechanism information into the RB-100, it is possible to replicate the same operations in the user's development environment as those simulated on a PC using ROS (Robot Operating System). The main control board is capable of running ROS applications, enabling rapid generation of trajectory feedback. Trajectory data generated by ROS is divided into control data for EtherCAT communication and is then transmitted to each motor driver during the EtherCAT communication cycle. Simultaneously, the position data collected by each motor driver is aggregated back to the main control board via EtherCAT communication. This integration ensures precise and efficient control of robotic mechanisms.



Specs

Main IC	Kria SoM K26 Arm CoretexA53x4 R5Fx2 + FPGA Logic 256K logic cell	Ethernet	RJ45 1 Gbps: 1 port (for TCP/IP)
	Main Memory(Kria) DDR4 SDRAM 4GB(64bit)	Display Port (Board)	:Linux GUI Output
	Boot ROM(Kria) QSPI NOR Flash 64MB	Isolated and non-Isolated GPIOs(Pmod)	
	eMMC(Kria) 16GB	USB port	USB3.0 or USB 2.0, USB UART
Memory	microSD socket (on expansion board) SDHC/SDCX 128GB Ubuntu compatible	Slot	MicroSD slot (SDHC, SDHS compatible)
	Boot method: NOR Flash/microSD/eMMC/JTAG 4bit DIP switch	RS485/RS422 4ch	Full, Half duplex
	EEPROM (Kria) 64bit MAC address	Power supply	24V
EtherCAT	RJ45 Giga Bit Etherx 2 ports (for cc-Link)	Size	160 x110 mm
		Operating temp	0 to 50 °C
		CE marking	Compliant

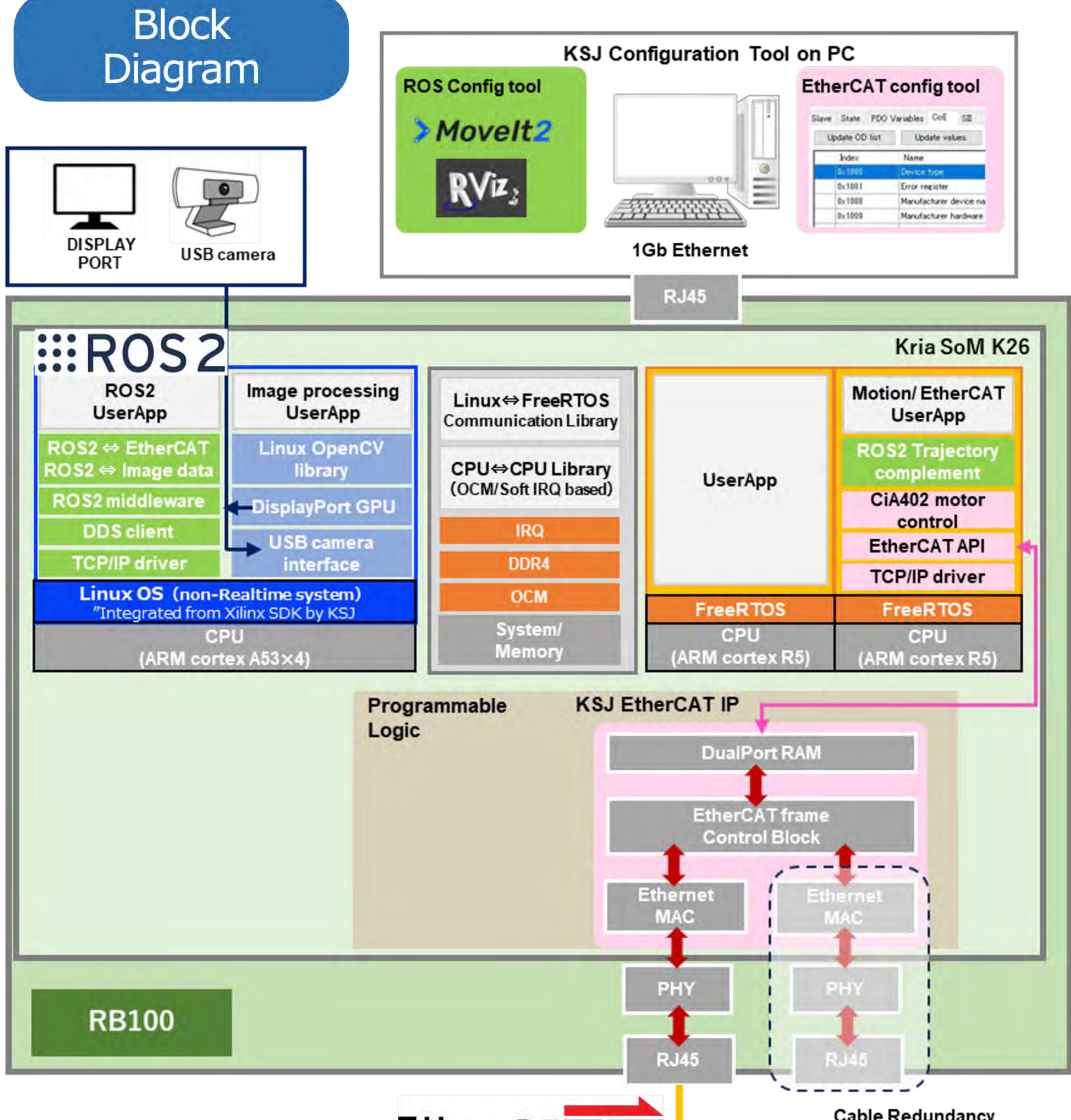
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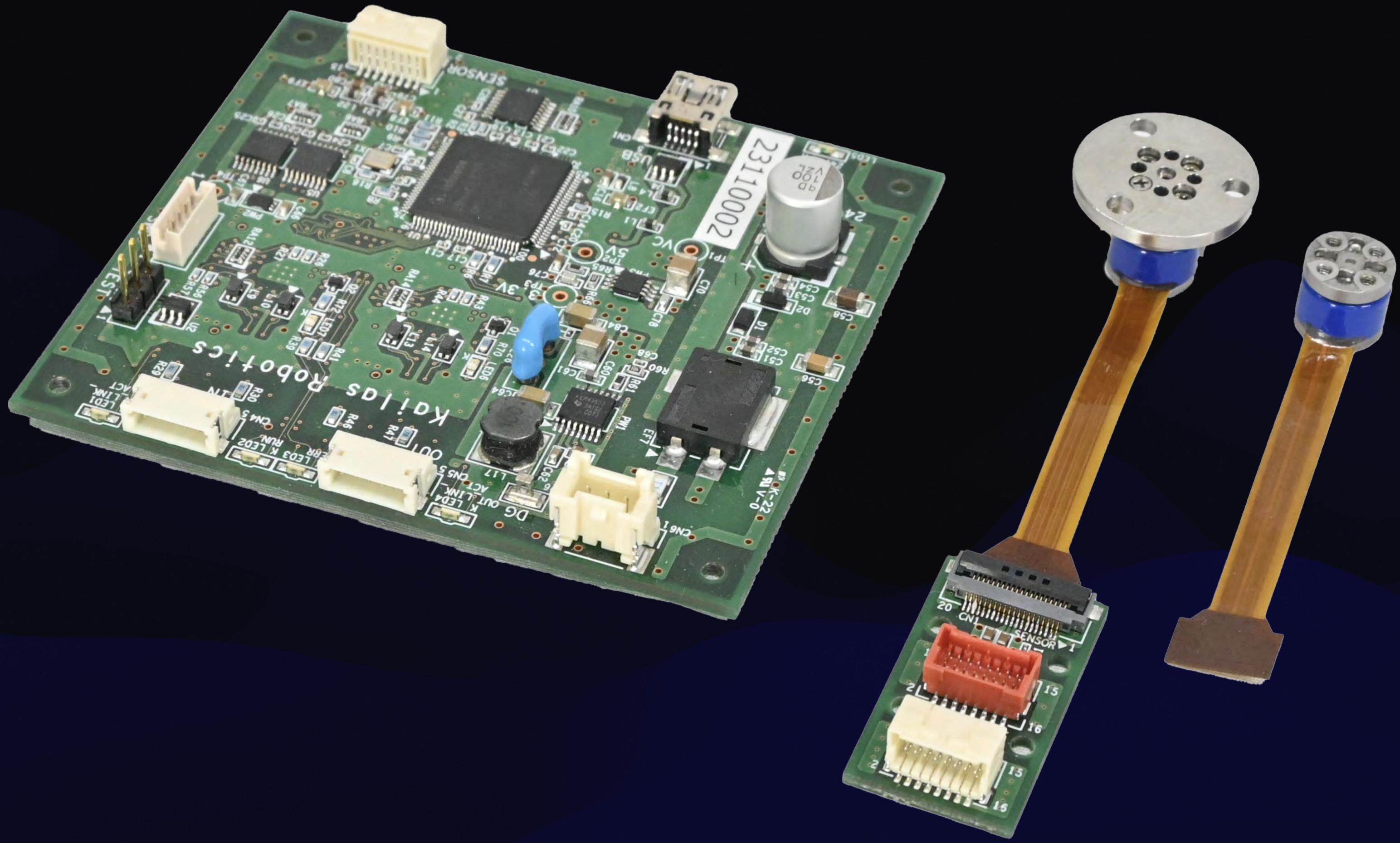
Robot Controller

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Block Diagram



*Sample Block Diagram for
robot control using ROS2 and EtherCAT



KR-TRQ-001

Kailas Robotics 6DoF Force / Torque Sensor

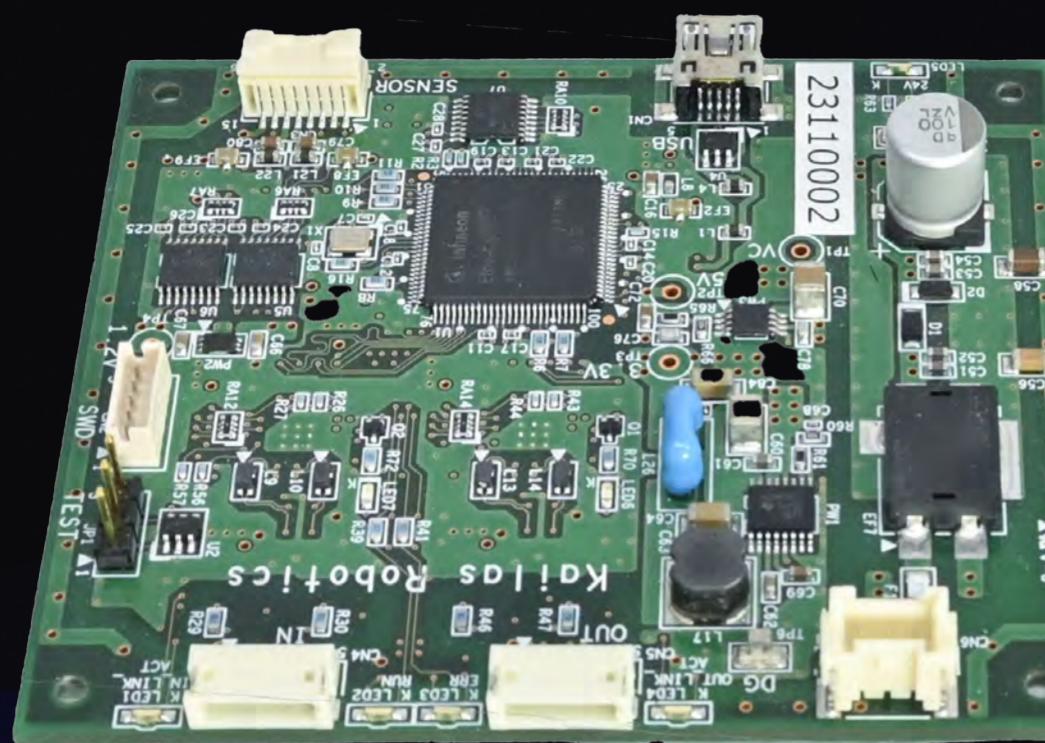


KR-TRQ-001

Kailas Robotics 6DoF Force / Torque Sensor

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The 6DoF Force/Torque Sensor by Kailas Robotics is integrated into our robotic arms, enabling capabilities such as direct human teaching and collision detection. With a dedicated driver available, this sensor supports the development of applications across a diverse range of uses, enhancing adaptability and functionality.



Specs

Size	Diameter x Height	ø9.6mm x 9.0mm
Weight		3.0g
Load rating	Force, Moment	40N, 0.4N·m
Load Capacity	Force, Moment	200N, 1.8N·m
Effective Resolution	Force, Moment	Fx,Fy / Fz: 0.04NRMS/0.06NRMS Mx,My / Mz: 0.0004N · mRMS/0.0008N · mRMS
Communication Interface		EtherCAT
Sampling Rate		1 ms
Interface board size		80 mm x 70 mm

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