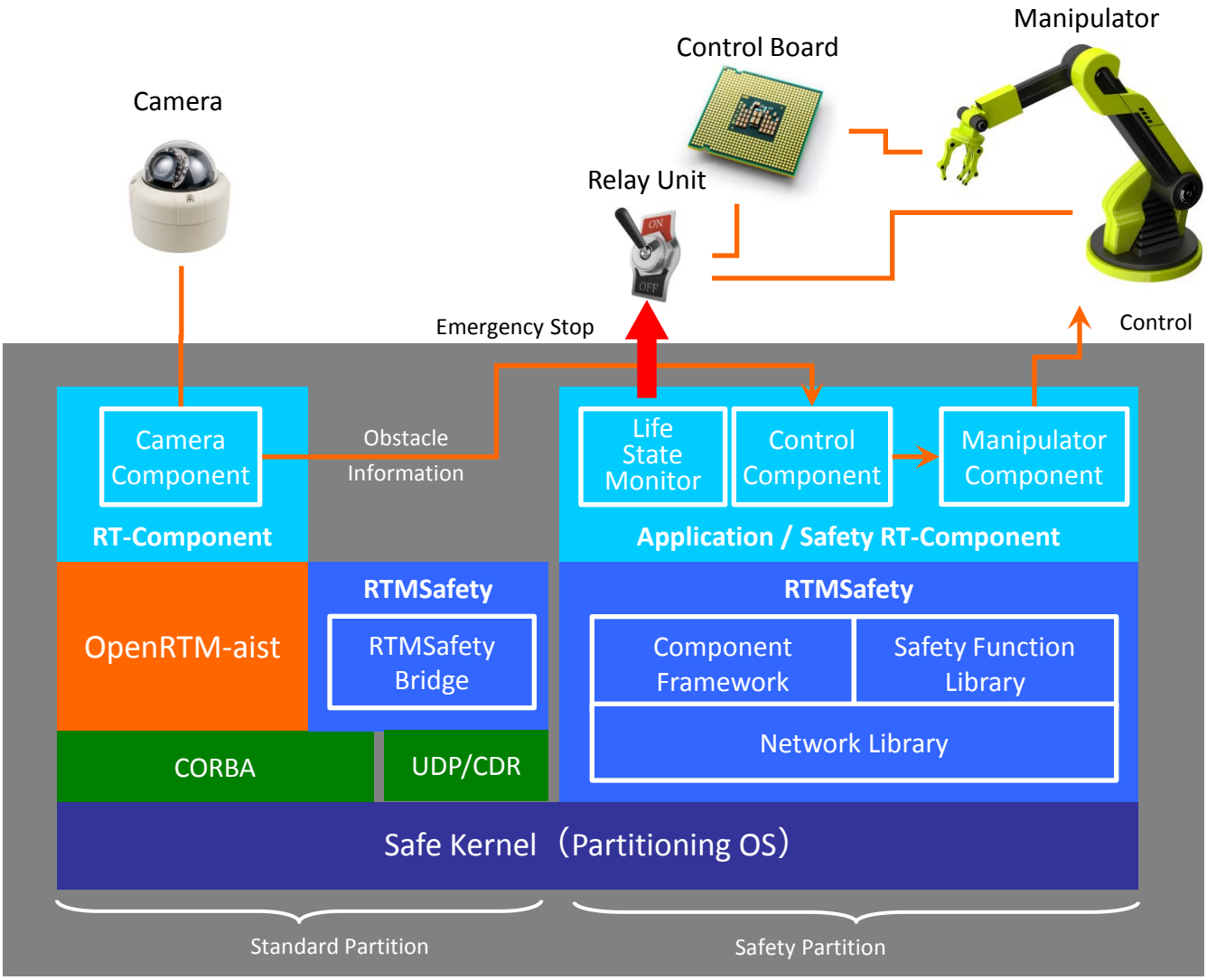
RT-Middleware for Functional Safety

RTMSafety™

RTMSafety is an RT-Middleware implementation certified to the IEC 61508 Standard for Functional Safety

- **World-first** robot middleware to contain **safety concepts**
- Certified as **IEC 61508 SIL3 Capable**
- **Reduces costs and development time** when developing safe and reliable robots



※"RTMSafety" is developed based on collaboration with the National Institute of Advanced Industrial Science and Technology as part of the NEDO Next-Generation Robot Intelligence Technology Project .

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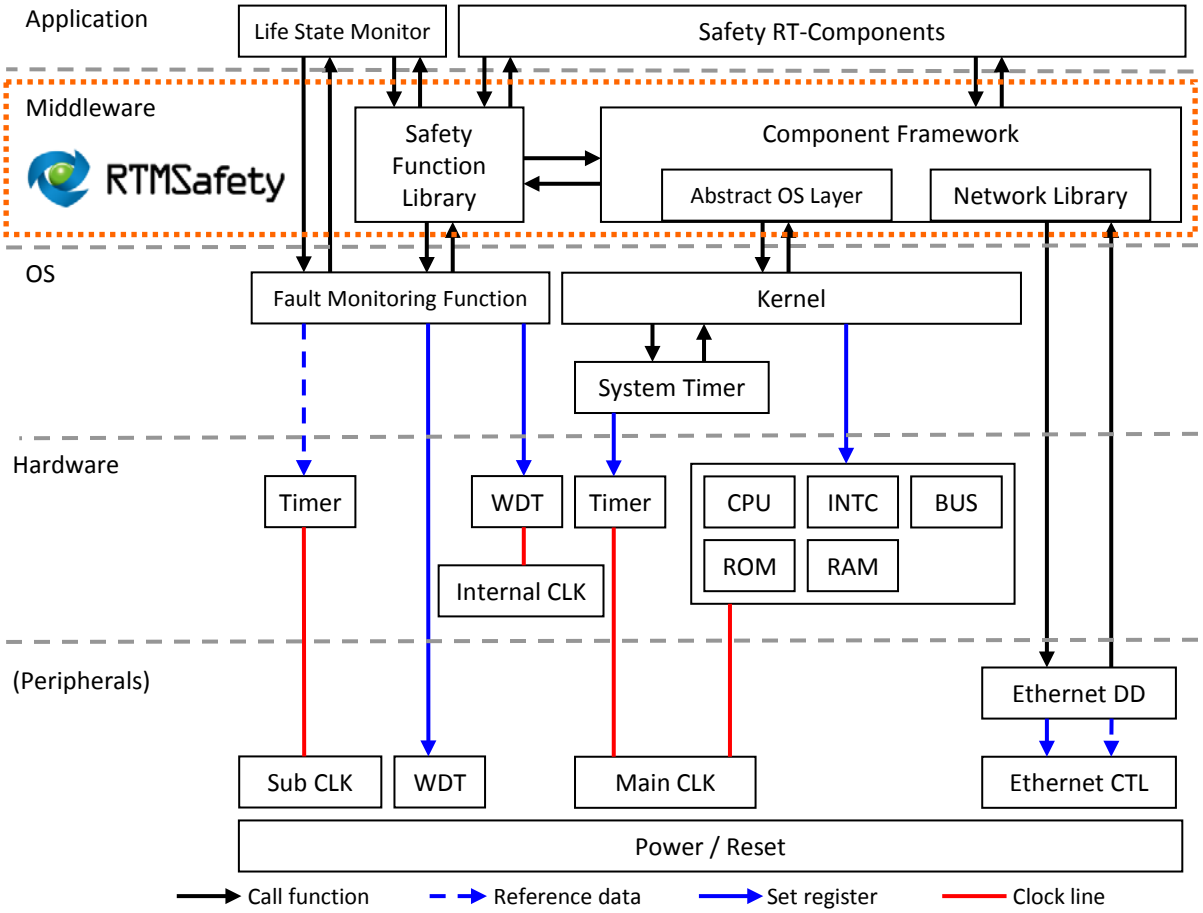
RTMSafety System Layout



RTMSafety consists of two major functions, shown in the above figure. The first is a framework for the development of RT-Components for robotics. It abstracts operating system- and network-specific functionality, allowing the developer to create RT-Components without concern for a particular platform or network technology. The second function provides additional safety by monitoring the liveliness of application software and utilizing failure detection mechanisms provided by the operating system.

Application Example

AIST has developed a dependable robot wheelchair by utilising RTMSafety. This robot uses a hardware architecture featuring independent controllers and motors for the right and left wheels to realize functional safety.


(Photo provided by AIST)

Data Sheet

OS	CPU (main circuit board)
QNX Neutrino RTOS Safe Kernel 1.0	DUX HFBX-6100 CPU: Intel® i7-610E
TOPPERS / ASP 1.3.1	Sunny Giken SH2A Motor controller CPU: Renesas SH72AW SH-2A
ETAS RTA-OSEK	ZMP REK-0001 CPU: Renesas SH72544R
No OS	ZMP REK-0001 CPU: Renesas SH72544R
No OS	ALPHA PROJECT AP-SH2F-11A CPU:SH7136 (made in Renesas)
No OS	SHIMAFUJI SEMC2201 CPU: Renesas V850E2/PG4-L

Porting to other operating system, and other CPUs is possible. Please contact us for more details.

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