

Statement of impact

Praxis Automation Technology has used CPDev as a core of our range of PLC products for the last 15 years. CPDev has been the runtime of all our control logic in PLC products over the last 15 years controlling key operations, maintaining safety on board and increasing the operational efficiency of roughly 5000 sea going vessels world wide. Some notable systems in which CPDev was used (but not limited to):

1. Power management system: controlling and synchronizing generators to the vessels grid, maintaining a redundant power system for the vessel with a spinning reserve.
2. Fire Alarm System: monitoring large arrays of fire detection sensors and manual call points and escalating alarms to notify the crew.
3. Bridge panels: navigation light control, wiper control, watch alarm system
4. Electric propulsion: Battery Management System, Energy Management System, High power inverter.
5. Ballast control system
6. Chemical/nuclear warfare lockdown system on frigates for several navies.
7. Heading Control System (autopilot)

New developments used by Praxis (last 3 years):

1. SoftPLC development with Wincontroller on Windows devices.
 - a. Used as energy management system for 3rd party battery systems
 - b. Automatic heading controller
 - c. Linux based new generation of PLC's
2. More advanced debugging features like step through debugging necessary for developing more complex control logic and larger systems
3. Libraries for maintaining standardized logic blocks making our engineering process more efficient.

Some notable facts:

1. In the last 15 years roughly 5000 ships have been equipped with PLC's that use CPDev for it;s runtime logic
2. That amounts to 30000-40000 PLC devices delivered with CPDev.
3. Lately CPDev has been a key factor in our environmentally friendly full electric/hybrid electric projects which is fundamental to the marine industries 2040 goal of being carbon neutral.

Some notable projects:

1. Arctic Research Vessel Nuyina (Owned by Australian government)



1. Key systems as main propulsion and power control fully controlled by CPDev
2. Largest project delivered by Praxis. 120 PLC devices, 80.000 I/O points

2. Pola 101 Mexican Navy Frigate

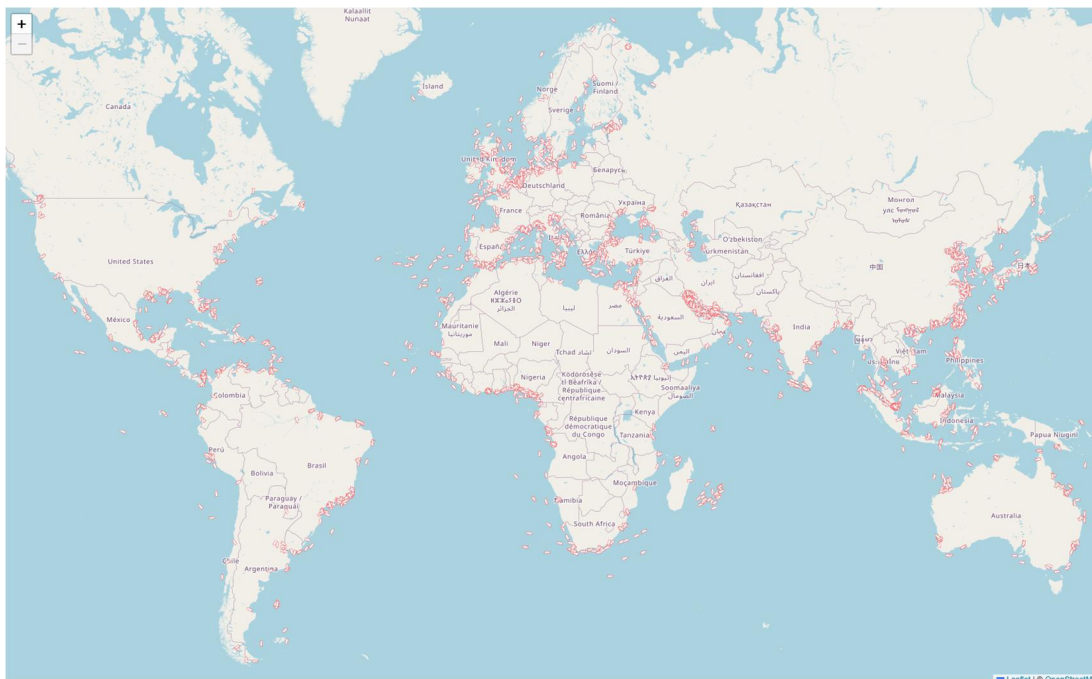


1. Main propulsion and all key systems controlled by CPDev
2. Damage control and nuclear/chemical lockdown citadel system controlled by CPDev logic.

3. Sailing cargo vessels (Set of 6)



1. CPDev used in every part of the electric propulsion line:
 - a. Battery stack control system for systems up to 1.2MWh. Monitoring cell voltages, over current, temperatures and deciding key operational indicators such as state of charge and state of health.
Maintaining the safety on board with a battery technology that can have disastrous results if operated wrong.
 - b. High power inverter logic monitoring electric engines up to 700kw. Monitoring currents, voltages and temperatures.



Location of roughly 2000 CPDev systems around the world.