





Marine Water Purifier

Worldwide leader in marine water purification systems needed a next generation control unit with new LCD display and web based control of their current line of water purification systems.

Project Size: 5 members

Project Duration: 7 months

Technology Used: Embedded Linux, i.MX6, libwebsocket, javascript/ JQuery, Ethernet

Challenge

- Supporting old generation hardware sensors with lost documentation through recalibrating sensors

Outcome

- Simple and reliable Controller board controllable from iOS and Android phones/tablets.
- Scalable to support future enhancements and features.
- Elegant display with more customer friendly UI

WHAT DID GADGEON DO?	PLATFORMS/ TECHNOLOGIES USED
1) Software Architecture for complete system	Requirements Gathering & Analysis, Uses cases, Architecture development, identification of functional components.
2) Linux application development	<p>U boot, Linux board bring up on i.MX6 based TS4100 SoM.</p> <p>C / C++ application development to control and monitor the water purification process, close / open valves, switching and speed control of motors at different times based on sqlite DB settings. Multiple error conditions checking and failsafe mechanisms to protect against system failures.</p> <p>The system monitors temperature and salinity of water, pressure at various parts of the system, water level in tanks, and controls valves and motor to achieve the required level of water purification. The system protects the itself against faults like clogging and pressure build up.</p>
3) Nextion Display firmware development	Nextion custom display firmware. Page creation using nextion IDE. Full duplex serial communication with host CPU for display and touch screen commands.
4) Web based control of the application	<p>Web based control of the controller board including all functionalities provided by Linux application. Implemented using libwebsocket, javascript/ JQuery.</p> <p>Tested on both Android and iOS phones/tablets.</p>





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