Creation of a software system to control a compressed air tool on boats

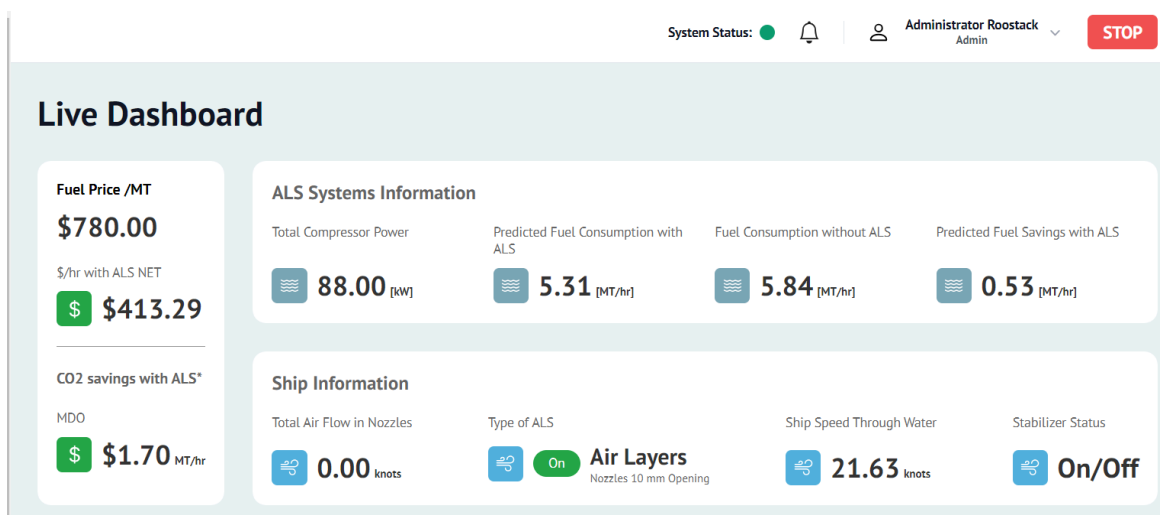**For Shipglide, Rootstack worked on a modern software system to control a compressed air tool.**

About Shipglide

Shipglide is a company that delivers innovative solutions that enhance ships' energy efficiency and significantly reduce emissions.

Rootstack's Solution

The company specializes in creating and selling an innovative Air Lubrication System, which generates a layer of air bubbles beneath a ship's hull, significantly reducing fuel consumption. The system includes an air compression component controlled by software, which manages all related instruments on the ship. The project aims to develop a system that allows users to control these instruments and monitor fuel savings through detailed dashboards.

System Status: ● 🔔 👤 Administrator Roostack / Admin **STOP**

Live Dashboard

Fuel Price /MT
$780.00

$/hr with ALS NET
$ $413.29

CO2 savings with ALS*
MDO
$ $1.70 MT/hr

ALS Systems Information

Total Compressor Power	Predicted Fuel Consumption with ALS	Fuel Consumption without ALS	Predicted Fuel Savings with ALS
88.00 [kW]	5.31 [MT/hr]	5.84 [MT/hr]	0.53 [MT/hr]

Ship Information

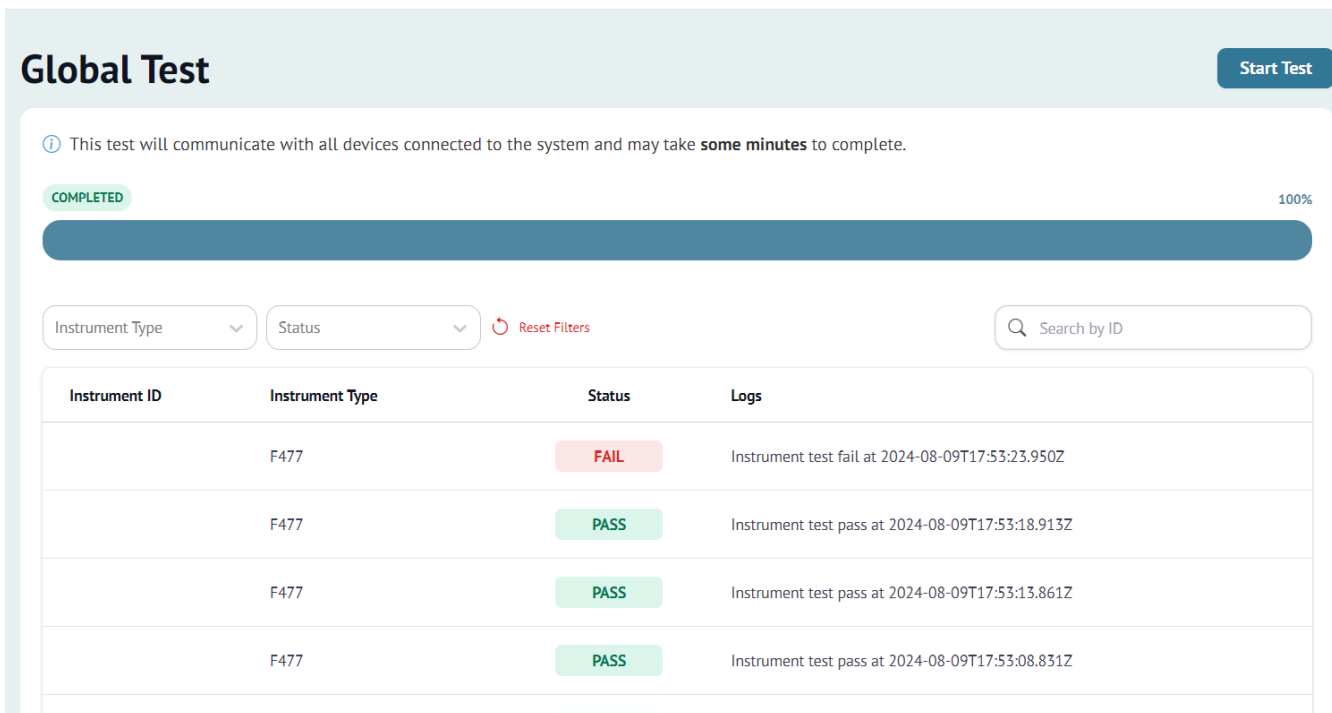| Total Air Flow in Nozzles	Type of ALS	Ship Speed Through Water	Stabilizer Status
0.00 knots	On **Air Layers** Nozzles 10 mm Opening	21.63 knots	**On/Off**

The primary objective of the project is to develop a comprehensive software system that controls the air compression system and associated ship instruments. This system should enable real-time monitoring and control of ship hardware, including valves and nozzles while providing detailed analytics on fuel savings via dashboards. The project also aims to ensure seamless communication between the software and ship hardware, enhancing operational efficiency and fuel economy.

Project Features

Instrument and Controller Management:

- **Instrument Control:** Developed components to manage and control ship instruments, such as valves and nozzles. The system can monitor instrument states (open, closed, or malfunctioning) and execute necessary commands based on these states.
- **Controller Component:** Built using Python, this component is responsible for executing signals, verifying the state of instruments, and ensuring the correct operation of the ship's hardware.

Global Test

Start Test

ⓘ This test will communicate with all devices connected to the system and may take **some minutes** to complete.

COMPLETED   100%

| Instrument Type | Status | Reset Filters | Search by ID |

| Instrument ID	Instrument Type	Status	Logs
	F477	FAIL	Instrument test fail at 2024-08-09T17:53:23.950Z
	F477	PASS	Instrument test pass at 2024-08-09T17:53:18.913Z
	F477	PASS	Instrument test pass at 2024-08-09T17:53:13.861Z
	F477	PASS	Instrument test pass at 2024-08-09T17:53:08.831Z

Frontend Components:

- **Login and Security:** Developed secure login features and user authentication mechanisms.
- **Dashboards:** Created dashboards that provide real-time data on fuel savings and system performance, allowing clients to monitor the effectiveness of the Air Lubrication System.
- **Management Interfaces:** Developed user interfaces for managing instruments, controllers, and

nozzles, making it easier for users to interact with the system.

Backend System:

- **AppController:** This component directly controls the ship's devices, modifying hardware settings as needed to optimize performance and fuel savings.
- **Backend Management:** Managed all the backend processes to ensure data integrity and smooth communication between the frontend and hardware controllers.
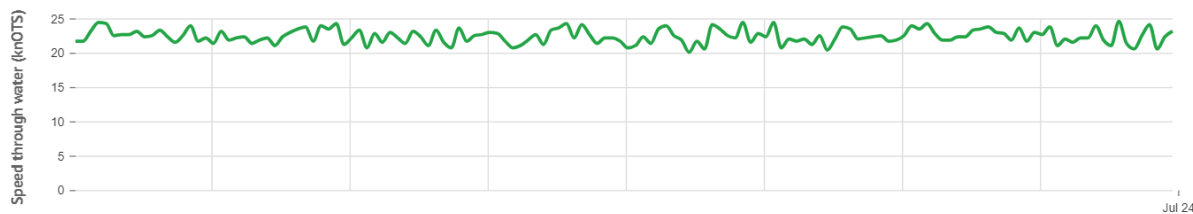
Technologies

For this particular project, we work with Python, NestJS, React, and WebSocket. At Rootstack we have experience working on projects with companies around the world. Our certified experts will know to complete all your company's project objectives.

Key Features

- Real-Time Instrument Control

- Fuel Savings Dashboards

- Seamless Hardware Integration

- Secure User Access