CASE STUDY

MOORING CHAIN FAIRLEAD ROBOTIC INSPECTION

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INTRODUCTION

Sonomatic, in collaboration with Geo Oceans, was engaged to perform the cleaning and Video Laser Scan (VLS) inspection of mooring chain links located inside the fairlead of the Northwest column of an offshore platform. The objective was to accurately measure and model three specific chain links at the top of the fairlead. The project demonstrated how targeted use of robotics and photogrammetry can enhance asset integrity while minimising safety risk and environmental impact.

PROCESS

The project utilised a special developed multimission crawler, designed specifically for navigating and operating inside fairleads. Equipped with magnetic adhesion, the crawler was capable of vertical locomotion and simultaneous high-pressure water jet cleaning and 3D photogrammetry acquisition using the integrated Video Laser System (VLS). A specially engineered deployment frame was used to insert the crawler into the confined fairlead space, overcoming the complex setup challenges. The cleaning process exposed the mooring chain surfaces, enabling the VLS system to generate measurable 3D models through photogrammetry, delivering highly accurate dimensional data of the chain links.

OUTCOME

The seamless integration of asset-deployed ROVs and advanced subsea crawlers showcased an effective, low-risk solution for fairlead inspections at depth. This collaboration between Sonomatic and Geo Oceans exemplified how modern inspection methods can reduce cost, enhance safety, and lower carbon emissions in offshore operations.