

Proposed 4.0 Industrial Management System for Daily Operations That Poses Point Cloud Assets with Annotated Real-Time Sensory Measurements and Utilizes Unsupervised Alert Logic

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SUMMARY

The safety and enforcement of preventive maintenance procedures specifically for equipment in large industrial infrastructures is a matter of major importance in particular, in the Oil and Gas industry. Historically, industrial maintenance operations were executed only when strictly necessary. However, maintenance processes are stochastic, dynamic, and complex in industrial manufacturing environments. Nowadays, the maintenance paradigm is changing, and industrial maintenance is now understood as a strategic factor and a profit contributor to ensuring productivity in industrial systems. An important parameter to satisfy this point is the production of digital twins which can be derived through accurate and detail survey. In this paper, a holistic industry 4.0 solution towards industrial maintenance is presented. The study focuses on the oil refinery industry and present their proposed maintenance system architecture, system implementation, technical and basic functional characteristics. The current study took place at Hellenic Petroleum facilities in Northern Greece.

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