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"Determinação e Simulação da Posição da Cabine de Controle em Sondas de Perfuração através de Algoritmos Genéticos e Realidade Virtual"

This work presents a proposal for a system simulation, verification and optimized positioning, of driller's cabin of drilling rigs. It will be presented assumptions and studies on drilling operations, equipment specification, characteristics of a standart worker (anthropometrics measure) and application of virtual reality techniques. During the project phase it will be possible to verify the sight field of operator to simulate the drilling operations for "optimum"position suggested by the system. Tests were performed in driller's cabins of existing platforms, identifying positions where the operator does not have a complete vision of operations. In certain cases, it was necessary that the operator left the cabin to make some verification of the operations, reducing the efficiency and functionality of the existing system, and allowing occurrence of accidents. Based on genetic algorithms, as well as techniques of computational geometry, it was developed an algorithm that suggests the best position of the cabin on drill floor, from quantitative and qualitative analyses. Through the virtual reality, the sight field of the operator inside the cabin is simulated allowing to verify the interference among the sight field of the operator and other existing elements in the platform, determining if the position initially suggested by the positioning algoritthm is adequate. Which will improve the safety, productivity, efficiency of the system and reduction of costs.