

Reliability Analysis for the Functioning of Complete and Low Capacity MLDB Systems in Piston Plants

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Abstract : The purpose of this paper is to address the challenges facing the water supply for the Machine Learning Database (MLDB) system at the piston foundry plant. In the MLDB system, one main unit, i.e., robotic, is connected by two sub-units. The functioning of the system depends on the robotic and water supply. Lack of water supply causes system failure. The system operates at full capacity with the help of two sub-units. If one sub-unit fails, the system runs at a low capacity. Reliability modeling is performed using semi-Markov processes and regenerative point techniques. Several system effects such as mean time to system failure, availability at full capacity, availability at reduced capacity, busy period for repair and expected number of visits have been achieved. Benefits have been analyzed. The graphical study is designed for a specific case using programming in C++ and MS Excel.

Keywords : MLDB system, robotic, semi-Markov process, regenerative point technique

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