International Journal of Modern Manufacturing Technologies

Volume 18, Issue no.1/ 2026. ISSN 2067-3604

Dimensional aspect of the capability of CNC-machining technologies

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https://doi.org/10.54684/ijmmt.2026.18.133

Abstract

The research focused on developing a real-time monitoring algorithm for elevators in residential towers. The study employed methods, models, and software tools to build intelligent real-time decision-making systems. A model for the elevator setting process was implemented through a Markov decision-making process. The theory of mass service was applied to describe the model of elevator operations. Passenger waiting time patterns at some levels of the towers have been established. A mathematical model for managing passenger flows through the elevators of a high-rise building in real-time using facial recognition identification technology has been developed. In test mode, a face-recognition elevator control system has been installed in four elevators. The scientific value of the work resides in the multi-purpose nature of the mathematical optimisation model, its simplicity and accuracy. The proposed model allows optimising numerous elevator systems with a constantly evolving control algorithm tailored to the customer's preferences.

Keywords: *dimensional structure; machining allowance; machining capability; precision; technological assurance; tolerance*

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