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Parameters Investigation of Mathematical Model of Productivity for Automated Line with Availability by DMAIC Methodology

Abstract

Automated line is widely applied in industry especially for mass production with less variety product. Productivity is one of the important criteria in automated line as well as industry which directly present the outputs and profits. Forecast of productivity in industry accurately in order to achieve the customer demand and the forecast result is calculated by using mathematical model. Mathematical model of productivity with availability for automated line has been introduced to express the productivity in terms of single level of reliability for stations and mechanisms. Since this mathematical model of productivity with availability cannot achieve close enough productivity compared to actual one due to lack of parameters consideration, the enhancement of mathematical model is required to consider and add the loss parameters that is not considered in current model. This paper presents the investigation parameters of productivity losses investigated by using DMAIC (Define, Measure, Analyze, Improve, and Control) concept and PACE Prioritization Matrix (Priority, Action, Consider, and Eliminate). The investigated parameters are important for further improvement of mathematical model of productivity with availability to develop robust mathematical model of productivity in automated line.

Keywords; Parameters; Mathematical model; DMAIC methodology; Automated line