ABSTRACT

Assembly lines, which are mostly used flow-oriented production techniques in mass production, are classified in different ways such as considering the line configuration and product variety on produced on the line. Mixed-model two-sided assembly lines are usually constructed for production of large-sized items, such as automobile industries. While the literature on two-sided is extensive, there is no research concerning minimizing the cycle time using simulation approach in mixed-model two-sided assembly lines. In this study, the simulation approach is solved using Tecnomatix Plant Simulation software by Siemens. Therefore, the paper introduces the mixed-model two-sided assembly line balancing problem (MTALBP) Type II benefiting from gathered through the case study in Toyota Motor Manufacturing Indonesia Company. The result shows an improvement in the proposed assembly line performance represented by the problem test. The problem test results have the total waiting time for Innova and Fortuner product are 24.15 and 62.2 seconds, weighted line efficiency is 98.40%, weighted smoothness index is 7.5% and throughput 278. As the conclusion, in the proposed assembly line has the better performance than current assembly line. Thus, the simulation approach procedure can solve the MTALBP Type II.

Keywords: Mixed-model Two-sided Assembly Line, MTALBP Type II, Simulation Approach, Tecnomatix Plant Simulation