

## **ABSTRACT**

*Along with the increasing economic growth, added with the increasingly diverse product variances encourage automotive industry players to make improvements on assembly lines. PT. Gaya Motor, as the BMW's assembly plant has full responsibility to improve the performance of the plant in particular to meet the existing demand. Plant assembly of PT. Gaya Motor produces five types of BMW product namely: F15, F48, F30, G30 and G12 in every products have different cycle times. At this time the F15, F30 and G30 variants have a fairly high demand on each month. The problem is the plant that can not meet production targets (demand) because of unbalanced work time in every department on the assembly line. In other words, the cycle time between workstations in each department can not reach the takt time target that has been determined. It is necessary to do the balancing process on assembly lines using mixed-model assembly line balancing problem (MALBP) approach at the Final Assembly department at the PT. Gaya Motor. in this research, designing the line balancing process at the Final Assembly department by using the Ranked Positional Weighted with Moving Target (RPW-MVM) method has been with increasing line efficiency to 78,60 %, the AL workstation reduced to 14 workstations, the production output increased to 16 units / day, smoothness index scores reduced to 10,89. By using proposed results of line allocation can improve the assembly line productivity and production flow.*

**Keywords:** *Assembly line balancing, Mixed - Model Assembly Line Balancing Problem (MALBP), Ranked Positional Weighted – Moving Target (RPW-MVM)*