

Establishment of Body Auto Fitting Model “Bafm” using “Nj-Gpm” At Toyota

Hirohisa Sakai

Kawasaki Heavy Industries LTD, Japan

Abstract

The Toyota Production System (TPS) exemplifies Japanese manufacturing. It has been further developed and spread in the form of internationally shared global production systems. The author has proposed the New Japan Global Production Model “NJ-GPM”, a system designed to achieve worldwide uniform quality and production at optimal locations – the keys to successful global production at Toyota. Based on NJ-GPM, the author has further established the Body Auto Fitting Model “BAFM”. The author has realized innovative unmanning of a fitting line by integrating the technologies utilizing BAFM. The ability to automatically fit and fasten door, hood and luggage compartment panels to the car body was achieved, utilizing robotics, vision systems, bolt tightening and product quality management. This paper shows the development of the highly reliable production system combining the following three items: (1) panel fitting accuracy, (2) automatic bolt tightening, and (3) integration into flexible assembly line at Toyota.

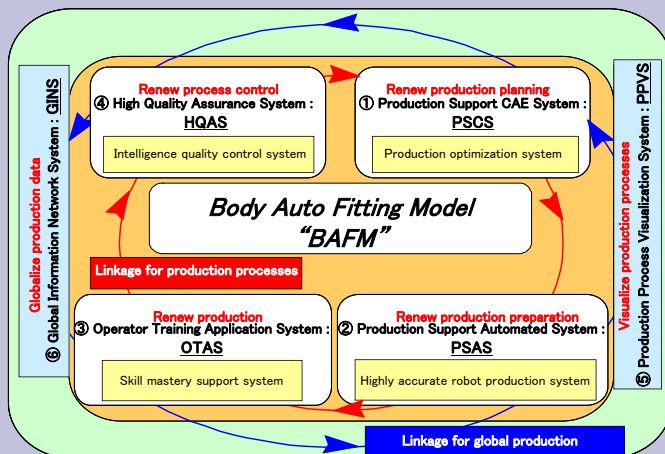


Figure 1 – Outline of the Body Auto Fitting Model “BAFM”

Received: December 23, 2022; Accepted: January 3, 2022; Published: June 28, 2022

Biography

Dr. Sakai had received a bachelor’s degree in Electrical Engineering from Nagoya Institute of Technology in 1986 and joined Toyota Motor Corporation. He has been responsible for Research & Development and Application of Robots in Body Production Engineering Division, specifically Fully Automated

Assembly Processes. He has a Doctoral Degree (PhD.) in Industrial Engineering from Meiji University in 2010. From 2016 to 2018 he was engaged in Vice President of Toyota Motor Manufacturing, Texas, Inc. From the beginning of 2022 he was sent on loan to the Kawasaki Heavy Industries LTD. for Robotics division.