

# **The Effect of The AIDC On JIDOKA's Performance via VSM to Reduce the total Manufacturing Lead Time**

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## **Abstract**

The principle of JIDOKA (i.e., autonomation) is based upon identifying and eliminating waste in all work activities via automation, whether preemptive or non. Therefore, the (Automatic identification and data capture) AIDC is a utility that facilitate the production schedule via super-market's robot (SM'sR) tool to enhance the VSM output. Since AIDC can integrated with transporter robot to present unmanned systems, and revamp collected information on the machine status, staff attendance, quality losses, scrap ...etc., in real time (JIDOKA proficiency). In this work, an effective algorithm-applied during a (Value Stream Map) VSM aims to assemble Electrical Appliance (EA's) is developed that simultaneously schedules production and material handling operations by exploiting the standard time path of operations network to minimize the (Manufacturing Lead Time) MLT, as well as material handling, increase productivity with 35%, increase indirect SM's robot utilization with 50% (i.e., decrease the transportation energy, time and cost with 50%), which resulting in decrease the total costs by 66% in this practical case.

## **Keywords**

Automatic Identification; JIDOKA; production scheduling; VSM

## **Biography / Biographies**

**Ahmed M. Abed** is an Assistant Professor, and consultant of Industrial Engineering in multinational Companies in industrial cities, ARE, especially in 10<sup>th</sup> of Ramadan and Al-Obour city. He earned B.S. in Mechanical Engineering (Production and Industrial) from Zagazig University of Engineering Faculty, Egypt, and finish his Masters in Industrial Engineering and Systems from Zagazig University, Also, earn his PhD in Industrial Engineering from Zagazig University in quality management. He has published journal and conference papers. Dr Ahmed has completed research projects with Ideal Standard Co. for bathtubs in Lean Implementation specially in defect eliminates and layout transportation system, whereas, the CAD-CAM-CIM interesting in Inventory Control and reducing over processing and manufacturing lead time. His research interests include manufacturing, simulation, optimization, reliability, scheduling, manufacturing, and lean. At the social level, He is a treasurer of Engineering syndicate in 10<sup>th</sup> of Ramadan city and member of their council. Also, Veep of QUA of AIET, Alex.