

Automation Designed for Industry 4.0 Using Robotics and Sensors that Based on IoT & Machine Learning

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Abstract: *The adoption of Industry 4.0 is anticipated to enhance multiple facets of human existence. The integration of Industry 4.0 will influence various stages of production processes, distribution networks, consumers, supervisors, creators of digital systems, and all staff members engaged in the process. This will lead to changes in manufacturing models and business patterns. This technology enables self-identification, self-configuration, self-diagnosis, and self-optimization in different industries. This study explains the decision tree algorithm to monitor the energy usage of machines and appliances, predict their future actions. Upon assessment of the effectiveness of the proposed system and comparing it against current methodologies, it was determined that the system had a sufficient efficiency rate. The integration of this technology presents a number of obstacles, such as standardization dilemmas, security risks, difficulties with resource planning, legal considerations, and the necessity of adjusting to evolving business models. The success or failure of Industry 4.0 and its implementation relies entirely on the involvement and cooperation of all participants in the production chain, from manufacturers to end-users.*

Keywords: Robotics, Sensors, Artificial Intelligence (AI) and the Internet of Things (IoT)