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Advanced Robotics

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Abstract: *This paper seeks to discuss the effects caused by robotics and artificial intelligence (RI) on consumers as well as firms to reveal the pros and cons of the applications. Therefore, through discussion of the current trends in the usage of these technologies, their future deployment and case studies the paper seeks to establish how these technologies are changing various fields, with a special emphasis on manufacturing, health care, as well as the food industry. Introducing Industry 4.0 knowledge in the process of producing and developing advanced robotics. The 0 principles include improving pick and pack operations and transportation, while cloud robotics is opening up vast computation resources and solving questions of how to scale and protect data. However, problems like high production costs, energy consumptions and market competition still remain an obstacle, hence the need for call for application specific robots. In the field of healthcare, robots are making surgical operations more accurate and reviewing the quality of patients' lives through the application of advanced BMI systems for amputees. These applications of AI in manufacturing are now transforming quality control and predictive maintenance for improving efficiency. Traditional Industrial Automation was characterized by machines replacing the workers in bidding-line work and dangerous operations: the new generation of Collaborative robots, coots, is diminishing advantage by taking dangerous tasks and making humans work smarter. smooth interface between man and machine is still an ideal, and future developments of robots strive to create the natural one.However, safety measures as well as scalability issues remain an obstacle; therefore, the need for robotics is anticipated to rise with the incorporation of AI & ML. The following review gives an extensive study of the strengths and weaknesses of the robotics industry and the possibility of growth and development of robotics and AI in different fields.*

Keywords: Robotic Implementation, Automation Convergence, Self-Governing Systems, Cloud-Based Robotics, Condition Prognosis for Maintenance, Industrial Revolution 4. 0 Changes, Robot Penetration in Industries, Robot-Assisted Surgery, Role of Automation in Manufacturing Industries in Improving Production, Applications of Robotics in Supply Chain Management, Computerization of Robotics Systems, Systemic Consequences of AI Robotics