IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 2, Issue 7, June 2022

Review: Development of Industry 4.0 and the Role of Industrial Internet of Things in Manufacturing Industry

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Abstract:Industry 4.0 and Industrial Internet of Things are the two most advanced implementations used in some of the modern manufacturing industries. Development in Industry 4.0 and IIoT is the most popular area of interest of researchers and industries. Both the concepts are parallel, coincide and sometimes Industry 4.0 even considered to be the implementation of IIoT in automation and manufacturing industries. The current developments in Industry 4.0 have been brought significant improvements in efficiency, flexibility, communication, adaptability, customization, modularity and productivity of the industry. Authors are focusing on need of continuous developments in Industry 4.0 by implementation of various tools and applications under the roof of IIoT which is possible due to recent research in many branches. This advancement is today's need of the manufacturing industries and hence this paper covers the developments and status of Industry 4.0 by implementing the IIoT one path ahead of automation in manufacturing industries.

Keywords: Industry 4.0, IIoT, Modularity, Productivity, Communication, etc.

REFERENCES

- [1] Zanella, N. Bui, A. Castellani, L. Vangelista and M. Zorzi, 2014. "Internet of Things for Smart Cities", IEEE Internet of Things Journal, 1(1).
- [2] Li Da XU, Wu He, Shancang L.I., 2014. "Internet of things in industries: a survey", IEEE Transactions on Industrial Informatics, 10(4).
- [3] J.D. Lin, A.M.K. Cheng and G. Gercek, 2016. "Partitioning Real-Time Tasks with Replications on Multiprocessor Embedded Systems". IEEE Embedded Systems Letters, 8(4).
- [4] H. Son, N. Kang, B. Gwak and D. Lee, 2017. "An adaptive IoT trust estimation scheme combining interaction history and stereotypical reputation", 14th IEEE Annual Consumer Communications & Networking Conference (CCNC), pp. 349-352, Year, 2017.
- [5] C. Zhu, J.J. Rodrigues, V.C. Leung, L. Shu and L.T. Yang, 2018. "Trust-based communication for the industrial internet of things," IEEE Communications Magazine, 56(2): 16–22.
- [6] X. Li, D. Li, J. Wan, C. Liu, and M. Imran, "Adaptive transmission optimization in SDN-based industrial internet of things with edge computing," IEEE Internet of Things Journal, 2018.
- [7] B.M. Lee and H. Yang, "Massive mimo for industrial internet of things in cyber-physical systems," IEEE Transactions on Industrial Informatics, 2017.
- [8] L. Lyu, C. Chen, Z. Shanying, and X. Guan, "5g enabled co-design of energy-efficient transmission and estimation for industrial IoT systems," IEEE Transactions on Industrial Informatics, 2018.
- [9] J. Akerberg, M. Gidlund, and M. Bjorkman, 2011. "Future research challenges in wireless sensor and actuator networks targeting industrial automation," in Proceedings of the 9th IEEE International Conference on Industrial Informatics, 2011, pp. 410–415.
- [10] C. Gong, 2009. "Human-Machine Interface: Design Principles of Visual Information in Human-Machine Interface Design", International Conference on Intelligent Human Machine Systems and Cybernetics Year: 2009, Vol. 2.
- [11] "Industrial internet reference architecture," http://www.iiconsortium.org/IIRA.htm.

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DOI: 10.48175/IJARSCT-5108

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International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Impact Factor: 6.252

Volume 2, Issue 7, June 2022

- [12] J. DeNatale, R. Borwick, P. Stupar, R. Anderson, K. Garrett, W. Morris and J.J. Yao, "MEMS high resolution 4-20 mA current sensors for industrial I/O applications", TRANSDUCERS '03, 12th International Conference on Solid-State Sensors, Actuators and Microsystems. Digest of Technical Papers, Volume: 2, Year 2003.
- [13] Thing Worx, "Thingworx: Smart systems innovator," Harbor Research, Tech. Rep., 2013, http://www.thingworx.com/[accessed on: 2013-0822].
- [14] LogMeIn Inc., "Xively," 2013, https://xively.com/ [accessed on:201308-22].
- [15] Cantaloupe Systems, "Seed Platform," 2012, http://www.cantaloupesys.com/ [accessed on:2013-08-22].
- [16] HiKoB, "Project Grizzly," 2013, http://www.hikob.com/traficexploitation-routiere-its [accessed on: 2013-08-13].
- [17] V Roblek, M Mesko, A Krapez "A complex view of industry 4.0", SAGE Open 6(2) (2016).
- [18] C. Scheuermann, S. Verclas, B. Bruegge, Agile factory an example of an Industry 4.0 manufacturing process, In: 2015 IEEE 3rd International Conference on Cyber-Physical Systems, Networks and Applications (CPSNA), IEEE, 2015, pp. 43-47.

DOI: 10.48175/IJARSCT-5108