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QUANTUM DOT CELLULAR AUTOMATA BASED PARITY GENERATOR AND DETECTOR: A REVIEW

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ABSTRACT

Quantum dot cellular automata (QCA) is a computing approach, in which binary information is represented as the charge configuration among the quantum dots. In nanoscale integrated circuit energy consumption and area utilization are a major concern, hence in recent years QCA has attracted a lot of attention as a result of its extremely small feature size and low power consumption. This technology is best suited for the semiconductor fabrication because of its less time consuming and less expensive methods. As per Moore's law, number of transistors in an integrated circuit doubles for every two years, fabrication process faces some technical barriers. In context of this, QCA has emerged as the most promising technology, as an alternative to CMOS technology. In this paper efforts have been made to show the work carried out on QCA and focused on the science and technology applications of QCA due to its many interesting and important applications such as parity generator and checker.

KEYWORDS: Quantum Dot Cellular Automata, Nano-Electronics, QCA Clocking, Majority Gate, QCA Designer, Parity Generator and Checker