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# Authentication and Authorization Based Industry 4.0 Security System

**Kuber Topale[1], Aadeshkumar Sangale[2], Sunita Deshmukh[3]**
Student, Department of E&TC, NBN SINHGAD college of Engineering, Pune, India[1,2]
Associate Professor, Department of E&TC, NBN SINHGAD college of Engineering, Pune, India[3]

**Abstract:** *Cryptography plays a critical role in the security of data transfer. The advancement of registering innovation places more stringent requirements on cryptography plans. The Advanced Encryption Standard (AES) defeated the Data Encryption Standard (DES) in 2000.increasing security prerequisites The AES, often known as Rijndael, is a cryptographic algorithm. The United States government receives a square figure as an encryption standard, which determines a secure encryption computation for private and sensitive data This is a symmetrical computation. A square figure capable of encoding and decoding data Encryption transforms data into a different format. Figure content is a jumbled structure. The content of the figure is unscrambled. Plaintext is the process of reorganising material into its original structure. The AES computation uses keys of lengths of 128, 192, and 256 bits to encode and decode data in 128-bit squares; as a result, the names AES-128, AES-192, and AES256 have evolved separately. The AES computation equipment can provide superior, straightforward results. In comparison to its product partners, it offers more applicability and reliability. As the need for more cryptographic systems grows, there is an increasing worry about processing power and speed of reaction. A framework is built that uses a parallel processing network to speed up the encryption and decryption process more quickly A higher level synthesis tool was used to create the frame work. The C-coded blocks were then transformed into synthesizable Verilog modules using the synthesis tool. The modules were then put through their paces in waveform analyzers and compared to open-source Verilog implementation. The results of the experiments showed that our methodology delivered accurate output results while also achieving a somewhat faster performance due to its parallel processing design.*

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[5] Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur 54100, Malaysia 2 College of Engineering, Information Technology and Environment, Charles Darwin University, Darwin, Northern Territory 0909, Australia 3 School of Arts and Sciences, Felician University, Lodi, New Jersey 07644, USA

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