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(71)Name of Applicant :
1)Dr.Bharat Bhushan Agarwal
 Address of Applicant :Associate Professor Computer Science & Engineering Department School of Computer Science And Applications IFTM University Moradabad , 244102 State:Uttar Pradesh Country:India -----

2)Ms. S.P.Chitra Preetha
3)Prof (Dr) Vani Ramesh
4)Mrs. Priti Sharma
5)Mr. Rachhpal Singh
6)Mr. Daya Shankar Prasad
7)P.P.Dandavate
8)Dr.Manoranjan Dash
9)Dr Shipra Shivkumar Yadav
10)Mr. Akash Gupta
11)Dr. Harikumar Pallathadka

Name of Applicant : NA
 Address of Applicant : NA

(72)Name of Inventor :
1)Dr.Bharat Bhushan Agarwal
 Address of Applicant :Associate Professor Computer Science & Engineering Department School of Computer Science And Applications IFTM University Moradabad , 244102 State:Uttar Pradesh Country:India -----

2)Ms. S.P.Chitra Preetha
 Address of Applicant :Assistant Professor BSA Crescent Institute of Science and Technology . Chennai Pin : 600048 State: Tamilnadu Country: India -----

3)Prof (Dr) Vani Ramesh
 Address of Applicant :Head Research and Innovation Centre Soundarya Institute of Management and Science Bangalore Pin:560073 State: Karnataka Country: India -----

4)Mrs. Priti Sharma
 Address of Applicant :Assistant Professor Department of Electronics and Communication Engineering Uma Nath Singh Institute of Engineering 2 & Technology(Department of Electronics & Communication Engineering),Veer Bahadur Singh Purvanchal University,Jaunpur Pin:222003 State: Uttar Pradesh Country: India -----

5)Mr. Rachhpal Singh
 Address of Applicant :Assistant Professor Punjabi University Regional Centre for Information Technology And Management, Mohal, Residential Area, Phase-7,Mohali Pin: 160059 State: Punjab Country: India -----

6)Mr. Daya Shankar Prasad
 Address of Applicant :Assistant Professor MVN University, 74th KM Stone, NH-2 Delhi-Agra Highway, NCR, Aurangabad, Haryana, India Pin: 121105 State: Haryana Country: India -----

7)P.P.Dandavate
 Address of Applicant :Asst Prof. VIT Pune Pin:411037 State: Maharashtra Country: India -----

8)Dr.Manoranjan Dash
 Address of Applicant :Associate Professor Siksha O Anusandhan University Bhubaneswar Pin: 751003 State: Odisha Country: India -----

9)Dr Shipra Shivkumar Yadav
 Address of Applicant :Assistant professor Computer science. Computer Science Inter Institute of Computer Centre, Nagpur. Pin: 440023 State: Maharashtra, Country: India -----

10)Mr. Akash Gupta
 Address of Applicant :Researcher National Institute of Delhi, Delhi Pin: 110036 State: Delhi Country: India -----

11)Dr. Harikumar Pallathadka
 Address of Applicant :Director and Professor Manipur International University, Ghari, Imphal, Imphal West, Pin: 795140 State: Manipur Country: India -----

(57) Abstract :
 The most recent iteration of the Industrial Internet of Things (IIoT) confers additional capabilities upon the traditional production model in preparation for Industry 4.0 through the use of cloud computing. Cloud integration expands the capabilities of manufacturing systems by providing cloud-based control and real-time process monitoring. This type of expansion is known as Cloud Manufacturing (CM). The incorporation of cloud computing, on the other hand, presents a new set of security concerns to the entire manufacturing ecosystem as well as increases in end-to-end latency. By moving security services closer to the network's edge, you can minimise message routing latency towards the cloud, remove the system's single most likely point of failure, and improve the overall performance of the system as a whole. We present a security service architecture that is supported by blockchain technology and fog computing, and it works on fog nodes that are located at the edge of manufacturing equipment clusters. The proposed service makes it easier for CM equipment to be authenticated and protects the privacy of the connection between equipment and the cloud, all while maintaining anonymity and unlinkability throughout the blockchain. We used Hyperledger Fabric to create the proposed design, and then compared the performance benefit it offered to that of the most recent and cutting-edge alternatives.