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(71)Name of Applicant :

**1)Chitkara University**

Address of Applicant :Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----

**2)Chitkara Innovation Incubator Foundation**

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

**1)Dr. Ishu Sharma**

Address of Applicant :Assistant Professor-Research, Chitkara University Institute of Engineering and Technology, Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----

**2)Ms. Arshnoor Kaur**

Address of Applicant :B.E. (CSE), Chitkara University Institute of Engineering and Technology, Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----

**3)Mr. Tushar Khanna**

Address of Applicant :B.E. (CSE), Chitkara University Institute of Engineering and Technology, Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----

(57) Abstract :

ABSTRACT SYSTEM AND METHOD FOR WATER RESOURCE MANAGEMENT THROUGH INTEGRATION OF FEDERATED LEARNING AND DISTRIBUTED LEDGER The present disclosure discloses a system (102) for water resource management through the integration of federated learning and distributed ledger, the system comprising a wireless sensor network (WSN) (104) with distributed sensor nodes collecting water usage data from diverse sources, cluster heads (106) within the WSN aggregating and verifying data authenticity through unique identifiers, message authentication codes (108) employed to ensure data integrity during transmission, machine learning module (110). The machine learning module (110) execution of the federated learning process on local cluster heads, resulting in the creation of model updates and conversion of model updates into an efficient encoded format for storage and transmission and analysis module (112) configured for the implementation of a secure multiparty chip to ensure the integrity and validation of computations from base stations. FIG. 1

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