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(71)**Name of Applicant :**
1)Brainware University, Kolkata
Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 -----
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Mr. Subhadip Nandi
Address of Applicant :Assistant Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----
2)Dr. Kaushik Chanda
Address of Applicant :Associate Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----
3)Ms. Anudeepa Gon
Address of Applicant :Assistant Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----
4)Dr. Rahul Kumar Ghosh
Address of Applicant :Assistant Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----
5)Mr. Gourab Dutta
Address of Applicant :Assistant Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----
6)Mr. Sandip Chakraborty
Address of Applicant :Assistant Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----
7)Mr. Sudip Samanta
Address of Applicant :Assistant Professor at Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125 -----

(57) Abstract :
[040] The present invention discloses a smart irrigation management system that integrates soil moisture sensors, microcontroller-controlled irrigation, and blockchain technology to automate and transparently record irrigation events. The system monitors real-time soil moisture levels and activates water flow through solenoid valves when thresholds are breached, ensuring efficient water usage. Each irrigation event is immutably logged on a blockchain ledger with timestamp, sensor data, and zone information, enabling tamper-proof auditing and traceability. A user dashboard provides access to live and historical data, supporting informed decision-making and compliance with water management standards. The invention enhances sustainable agriculture by reducing water waste, increasing crop productivity, and enabling secure, data-driven farm operations. Accompanied Drawing [FIGS. 1-2]

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