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### Patent Search

Invention Title	NOVEL IOT BASED PHARMACEUTICAL LAMINAR FLOW DIGITAL INFORMATION WORKSTATION
Publication Number	41/2023
Publication Date	13/10/2023
Publication Type	INA
Application Number	202321048936
Application Filing Date	20/07/2023
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	H04L0067120000, F24F0003163000, B64C0021060000, H04L0041060000, G06T0007200000

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#### Abstract:

ABSTRACT The present invention relates to a novel IoT-based hybrid pharmaceutical laminar flow digital information workstation (100). The novel IoT-based hybrid pharmaceutical laminar flow digital information workstation (100) that combines the functionality of a laminar flow hood with integrated digital information manager capabilities. The novel IoT-based hybrid pharmaceutical laminar flow digital information workstation (100), comprises a laminar flow hood, Internet of things (IoT) core module, digital information management unit, data analytics module, and central processing unit and display unit. The Internet of Things (IoT) connectivity in the workstation (100) enables real-time monitoring and control of critical parameters, such as airflow velocity, temperature, humidity, and filter status. The novel IoT-based hybrid pharmaceutical laminar flow digital information workstation (100) is configured to provide laboratory personnel with immediate access to essential data, ensuring prompt responses to deviations and facilitating proactive maintenance.

#### Complete Specification

##### Description: FIELD OF INVENTION

The present invention relates to the field of pharmaceutical manufacturing and laboratory operations. Specifically, it pertains to a novel IoT-based hybrid pharmaceutical laminar flow digital information workstation that combines the functionality of a laminar flow hood with integrated digital information management capabilities.

##### BACKGROUND OF THE INVENTION

In the pharmaceutical industry, maintaining a controlled environment free from contaminants is crucial for ensuring the safety and efficacy of drug manufacturing processes and laboratory operations. Contaminants such as airborne particles, microorganisms, and other impurities can compromise the quality of pharmaceutical products and pose risks to patient health.

Laminar flow hoods have been widely used in laboratories and cleanrooms to create a sterile working environment. These hoods utilize a continuous flow of filtered air to create a unidirectional airflow over the workspace, preventing contaminants from entering the critical areas. The laminar flow hood's design ensures that any potential contaminants generated by the operator or equipment are swiftly removed from the workspace, reducing the risk of contamination.

On the other hand, pharmaceutical laboratories generate vast amounts of data during various processes, including research, development, manufacturing, and control. This data includes information on formulations, test results, standard operating procedures (SOPs), and regulatory compliance documentation. Efficient management of this data is essential for ensuring data integrity, traceability, and compliance with regulatory requirements.

Traditionally, laminar flow hoods and digital information management systems have operated as separate entities in pharmaceutical laboratories. The laminar

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