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(57) Abstract :
The present invention provides an integrated system combining air conditioning and reverse osmosis water treatment, constructed using environmentally sustainable bamboo and enhanced with Internet of Things (IoT) technology. This system employs a bamboo-based structure and a bamboo fiber reverse osmosis membrane, designed to optimize environmental sustainability and efficiency in cooling and water treatment processes. IoT-enabled sensors integrated within the system monitor various environmental parameters and control the operation based on real-time data, ensuring optimal performance and resource management. This dual-functional system is tailored for non-drinkable water applications, such as irrigation and industrial processes, promoting efficient use of resources while maintaining a low environmental footprint. The design allows for easy installation, user-friendly operation, and remote monitoring, providing a cutting-edge solution for modern infrastructure challenges.

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