Rajarambapu Institute of Technology, Rajaramangar

Department of Science and Humanities

Engineering Exploration & Design Project Exhibition 2023-24

Engineering Prototypes : Innovation Unveiled

Under AICTE-RITIDEA Lab & NETRARIT Foundation

Development of Nanoadsorption process for Wastewater Treatment

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Need Statement

Wastewater contaminates the natural water sources.Existing practices often fall short.Therefore,there is an urgent need for innovative solutions that can efficiently treat wastewater , minimize environmental impacts & ensure compilance with regulatory standards.

Problem Statement

Designing a prototype for wastewater treatment using Nanotechnology (adsorption of Nanoparticles) which will filter out wastewater and thus filtered water can be reused again

Objectives

- **To design a prototype of waste water treatment using adsorption of nanoparticles**
- **To minimize environmental impacts**
- **To ensure reusability of treated wastewater**

Project Pic

Iron Nano-particles | Clay powder | Graphite powder | Activated charcoal

Technical Specifications

MATERIALS USED:

1. **Iron Nanoparticles**
2. **Clay powder**
3. **Graphite powder**
4. **Activated charcoal**

Results and Discussion

Wastewater treatment removes contaminants and undesirable components, or reduces their concentration so that the water becomes fit for its desired end-use. This treatment is crucial to human health and allows humans to benefit from both drinking and irrigation use.

Inference and Future scope

By integrating advanced treatment technologies , water reuse strategies and sustainable practices , we can achieve significant improvements in the treatment of waste water