

Problem Statement

Lack of awareness and easy organic waste separation methods hinders biogas adoption in rural Lucknow, despite its potential benefits. Daily waste separation remains a major challenge, affecting consistent long-term material collection for biogas production. Many households still mix all waste together due to limited guidance and limited access to proper segregation tools. As a result, communities miss out on a sustainable energy source that could reduce fuel expenses and improve waste management.

Project Team



GALAXY

Team Members

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Solution

This project introduces a smart dustbin designed to open only for wet waste such as leftover food and kitchen scraps. Its purpose is to automatically separate wet and dry waste and use the collected wet waste to produce biogas for household needs. The dustbin features a sensor-controlled flap that detects wet waste and opens automatically, while dry waste or plastic keeps the flap closed, preventing mixing and improving biogas efficiency. Once wet waste is added, it travels through a connected pipe to an outside storage tank, making collection simple and hygienic. The stored waste is then supplied to a biogas plant, where it is converted into clean, renewable fuel. Another pipeline brings the generated biogas back into the house for cooking or heating, reducing LPG consumption and promoting sustainable living. This system encourages households to recycle kitchen waste effectively, supports renewable energy generation, and contributes to a cleaner environment, making it a smart and eco-friendly solution for modern homes.

