Track 2: Intelligent Ecosystems & Circular Economies

Case Study

Every day, Delhi struggles with two parallel realities. On one hand, thousands of tonnes of organic waste, plastics, and construction debris are trucked to mountains of refuse like the Ghazipur landfill, a symbol of our linear "take-make-dispose" economy. This waste contaminates air, water, and soil. On the other hand, the farms in the regions surrounding Delhi rely on chemical fertilizers to grow the food that feeds the city, while facing inefficiencies in a long, opaque supply chain where up to 30% of produce can be lost or wasted before it even reaches a consumer. We have a system where valuable organic nutrients are thrown into landfills, while farmers buy artificial nutrients to grow our food. The loop is broken.

Call for Innovation

We challenge you to use technology to reconnect this broken loop. This track is for the systems thinkers, the IoT builders, and the platform architects who see waste not as an endpoint, but as a resource. We need you to build the intelligent platforms that will power a **circular economy**. Your mission is to create solutions that track resources from farm to fork and from disposal to rebirth. We're looking for innovations that enhance transparency in the food supply chain, automate the sorting of waste, and create new marketplaces that turn one industry's trash into another's treasure. Build the tech that will transform our city from a consumer of resources into a thriving, circular ecosystem.

Problem Statements

1. The Farm-to-Fork Traceability System

Consumers are increasingly demanding to know where their food comes from. Your challenge is to build a platform that tracks produce from the farm to the retail shelf. Farmers would register their harvest, generating a unique QR code for each crate. At every step of the supply chain (transport, warehouse, retailer), a simple scan updates the product's journey on a transparent, accessible ledger. The final consumer can then scan the code with their phone to see the farm of origin, harvest date, and the complete timeline of its journey, enhancing trust and reducing food fraud.

2. AI-Powered Waste Segregation and Logistics

Source segregation of waste remains a massive challenge in Delhi. Your task is to design a smart sorting solution. Using computer vision and an AI model, your system should be able to identify and classify different types of waste (e.g., PET bottles, cardboard, organic waste) from a live video feed of a collection point or conveyor belt. Based on the classification, the system should automatically update a database and trigger an optimized collection request to the

appropriate vehicle (e.g., a compost collector vs. a plastics recycler), streamlining the entire segregation and collection process.

3. The Urban Industrial Symbiosis Marketplace

A huge amount of industrial and commercial waste could be a valuable raw material for another business. Your goal is to create a B2B digital marketplace that connects waste producers with potential users. For example, your platform could allow restaurants to list their daily organic waste for collection by a biogas plant, or a furniture maker to sell their wood scraps to a particleboard manufacturer. The platform should facilitate discovery, communication, and logistics, creating a hyperlocal, B2B circular economy and diverting thousands of tonnes of waste from landfills.