Project Design Phase

Project Planning Template (Product backlog, Sprint planning, Stories, Story points)

Date	03 November 2025
Team ID	NM2025TMID01374
Project Name	To Supply Leftover Food to Poor
Maximum Marks	5 Marks

Goals:

Convert leftover food into renewable energy to reduce waste and generate clean power for communities.

Key Outcomes:

- Reduce landfill waste
- Produce biogas/electricity from food wast

Product Backlog:

ID	Feature / Epic	Description	Priority	Story Points (SP)
EP1	Waste Collection System	Design smart bins & logistics for food waste collection	High	13
EP2	Waste Segregation Unit	Develop sorting process to separate biodegradable waste	High	8
EP3	Biogas Production Module	Build anaerobic digester setup to convert food waste to gas	Critical	21
EP4	Power Generation Unit	Integrate biogas with a generator or turbine	High	13
EP5	Monitoring Dashboard	Create IoT-based system to track input/output & energy	Medium	8
EP6	Data & Analytics	Generate reports on energy produced, waste reduced	Medium	5
EP7	Public Awareness App	App for users to track food disposal, rewards, & sustainability score	Low	5

User Stories:

ID	User Story	Acceptance Criteria	Story Points
US1	As a resident, I want to dispose of leftover food in a smart bin so it can be collected efficiently.	Food is detected, logged, and scheduled for pickup.	5
US2	As a system admin, I want to track waste volume per zone to plan collection routes.	Dashboard shows collection data by zone.	3
US3	As a plant operator, I want to convert waste into biogas efficiently.	Digester outputs stable methane yield (≥60% CH_4).	8
US4	As an energy manager, I want to monitor real-time power generation.	Dashboard shows current output (kWh) and efficiency.	5
US5	As a citizen, I want to see how much power was generated from my area's waste.	App displays localized power stats.	3

Sprint Planning (Sample 3 Sprints):

Sprint	Duration	Sprint Goal	Selected Stories	Total SP
Sprint 1	2 weeks	Build waste collection & segregation prototype	US1, US2	8
Sprint 2	2 weeks	Implement and test biogas conversion process	US3	8
Sprint 3	2 weeks	Create dashboard + app integration	US4, US5	8

Progress & Review

Metric	Description
Velocity	Average 8 SP per sprint
Burndown Chart	Tracks completion of SPs over time
Retrospective Notes	Identify blockers, process improvements

Roles:

Role	Responsibility
Product Owner	Defines features, priorities
Scrum Master	Ensures Agile process flow
Dev Team	Engineers, IoT developers, and data scientists
Energy Specialist	Oversees biogas and generator system
UI/UX Designer	Designs dashboard and app