

Project Design Phase

Problem – Solution Fit

Date	20 June 2025
Team ID	LTVIP2025TMID29572
Project Name	Sustainable smart city Assistant
Maximum Marks	2 Marks

Problem – Solution Fit :

In our **Sustainable Smart City project**, problem–solution fit means identifying real, everyday challenges faced by citizens, planners, and researchers — such as confusion about recycling, lack of sustainability data, and limited tools for future planning — and developing an AI-powered assistant hub that directly solves those problems through smart, personalized, and accessible features.

Purpose :

- ☐ Solve complex problems in a way that fits the state of your customers: Our project addresses challenges such as waste mismanagement, lack of sustainability awareness, and difficulty in comparing urban indicators — all of which are common in growing cities and underserved villages.
- ☐ Succeed faster and increase your solution adoption by tapping into existing mediums and channel of behavior: By using intuitive tools like Streamlit dashboards and chat-based FastAPI services, we make sustainability data and advice accessible in the formats users are already familiar with.
- ☐ Sharpen your communication and marketing strategy with the right triggers and messaging: Each module (e.g., waste recycling assistant, city comparison, dream city visualizer) is based on common user problems and is designed to deliver helpful information in a personalized and timely manner.
- ☐ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems: Our assistant helps users solve day-to-day issues like waste confusion or lack of data, building trust through repeated interactions and reliability.
- ☐ Understand the existing situation in order to improve it for your target group: We gather, process, and visualize sustainability indicators for multiple regions, helping users identify gaps and opportunities for improvement in a data-driven way.

1. Customer Segment(s): Citizens in growing urban areas, village planners, researchers, and environmentally conscious individuals.

2. Jobs-to-be-Done / Problems:

- Dispose of waste correctly
- Make eco-conscious daily decisions
- Compare sustainability across regions
- Visualize a future smart city
- Access real-time sustainability data

3. Triggers:

- Seeing others recycle or follow eco-habits
- Local news about pollution or government green policies
- Frustration from confusing waste bins or lack of information

4.Emotions (Before/After): Before : Confused ,uninformed, discouraged

After: Empowered, confident, engaged, proud of contributing to sustainability

5. Available Solutions:

- Government awareness websites
- Recycle info printed on bins
- Environmental blogs/articles
- Urban data portals (not integrated)

6. Customer Constraints:

- Limited time and awareness
- No access to centralized data
- Low technical knowledge
- Language or digital barriers

7. Behaviour:

- Search online for eco-practices
- Ask neighbors or community

- Rely on trial-and-error for recycling
- Rarely engage with smart city data

8.Channels of Behaviour:- **Online:** Google, YouTube, Instagram, WhatsApp, civic websites
Offline: Word-of-mouth, flyers, local community meetings

9. Problem Root Cause:

- Scattered or inaccessible data
- No integrated smart city sustainability tool
- Citizens want to act but lack clear, accessible guidance

10. Our Solution: An AI-powered Smart City Assistant Hub that includes:

- A sustainability dashboard
- Recycling/upcycling suggestions
- Village/city comparison tool
- Dream city visualizer
- SmartCityRAGSolver using RAG

Empowers users to act sustainably through a unified, easy-to-use digital platform.