**Project Design Phase**

**Problem – Solution Fit**

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| Date | 20 June 2025 |
| Team ID | LTVIP2025TMID29572 |
| Project Name | Sustainble 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.