

Lab 1: Problem Discovery and Need Identification

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Course: Design Thinking

Topic: Lack of Real-Time Information at Bus Stops in Bengaluru

Step 1: Observation

As a regular public transport user in Bengaluru, the observation phase was carried out through daily and occasional travel using BMTC buses across multiple locations such as Majestic, KR Puram, Whitefield, Hebbal, and Yelahanka. Observations were made during both peak hours (8:00 AM–11:00 AM and 5:00 PM–9:00 PM) and non-peak hours.

From everyday commuting experience, it was observed that most bus stops do not provide clear or reliable information about bus arrival timings. Many stops either lack digital display boards or have non-functional boards. As a result, commuters are forced to wait without knowing when the bus will arrive.

It was also observed that elderly commuters and occasional users struggle the most due to the absence of bus numbers and route information. Younger commuters frequently check mobile applications or Google, while older commuters often wait and guess or ask fellow passengers. Long waiting times without information cause visible frustration and anxiety among users.

These observations highlight a major communication gap in public transport infrastructure, where uncertainty causes more stress than the actual delay.

Step 2: User Identification (Stakeholder List)

The public transport information system involves multiple stakeholders who interact with the system differently.

User Group	Role	Expectations
Young Commuters (Students)	Occasional users	Quick access to arrival timings

Elderly Commuters	Daily dependent users	Clear, simple, reliable information
BMTC Drivers & Conductors	Service providers	Reduced passenger confusion
Transport Authorities (BMTC)	Management	Improved service trust

These stakeholders have different needs, but all are affected by the lack of real-time information at bus stops.

Step 3: Interviews / Surveys

To support observations, a survey was conducted among bus users of different age groups, including students and elderly commuters.

Sample Survey Questions:

1. How often do you use buses?
2. Do you know when the bus will arrive?
3. What do you do when information is missing?
4. Have you missed a bus due to lack of information?
5. What improvement would help you the most?

Key User Responses:

- “There is no information about arrival time.”
- “I don’t know which bus is coming.”
- “I keep checking my phone.”
- “I just wait and guess.”
- “A digital board showing bus timings would help.”

Survey responses clearly indicate that real-time information is the most demanded improvement.

Step 4: Pain-Point Analysis

Based on observation and survey data, the pain points were categorized as follows:

Category	Identified Pain Points
Functional	No arrival timing, unclear bus numbers
Emotional	Stress, anxiety, frustration

Behavioral	Guessing buses, repeated phone checking
Accessibility	Elderly users unable to use apps

Critical Pain Point

The most critical pain point is **waiting without knowing when the bus will arrive**, which leads to confusion, stress, and missed buses.

Step 5: Root Cause Identification (5-Why Analysis)

Problem: Commuters do not know bus arrival timings.

1. Why is arrival time unknown?
→ No working digital display at bus stops.
2. Why are displays missing or not working?
→ Poor maintenance and lack of real-time systems.
3. Why is real-time tracking not implemented?
→ Limited use of operational data.
4. Why is data not used effectively?
→ Lack of integrated transport management.
5. Why is integration weak?
→ Fragmented planning and execution.

Root Causes Identified

- Absence of real-time information systems
- Poor infrastructure maintenance
- Lack of user-centered design

Step 6: Wicked Problem Understanding

The lack of bus stop information is a wicked problem because it is interconnected with traffic congestion, operational delays, infrastructure limitations, and governance issues. Simply increasing buses will not solve uncertainty unless real-time communication is improved.

Problem Classification: Wicked Problem

Step 7: Reflection

Initially, I believed that delays themselves were the main issue in public transport. However, through observation and survey analysis, it became clear that **uncertainty causes more stress than delay**. The absence of real-time bus arrival information reduces trust in the system and negatively affects daily commuters.

This exercise emphasized the importance of observing real user behavior before proposing solutions. It strengthened my understanding of how design thinking helps uncover deeper problems beyond surface-level complaints.