

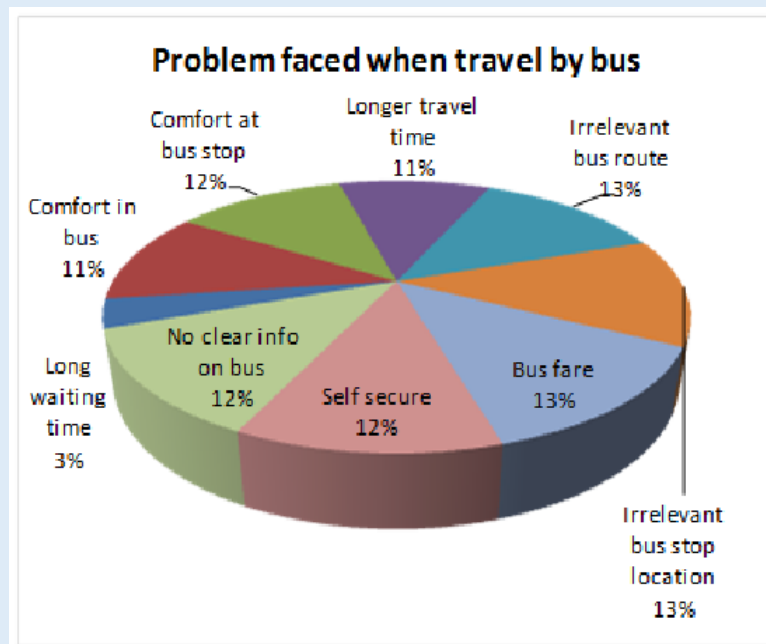
PRASANNA KUMAR M

CS23B1011

PROBLEM STATEMENT

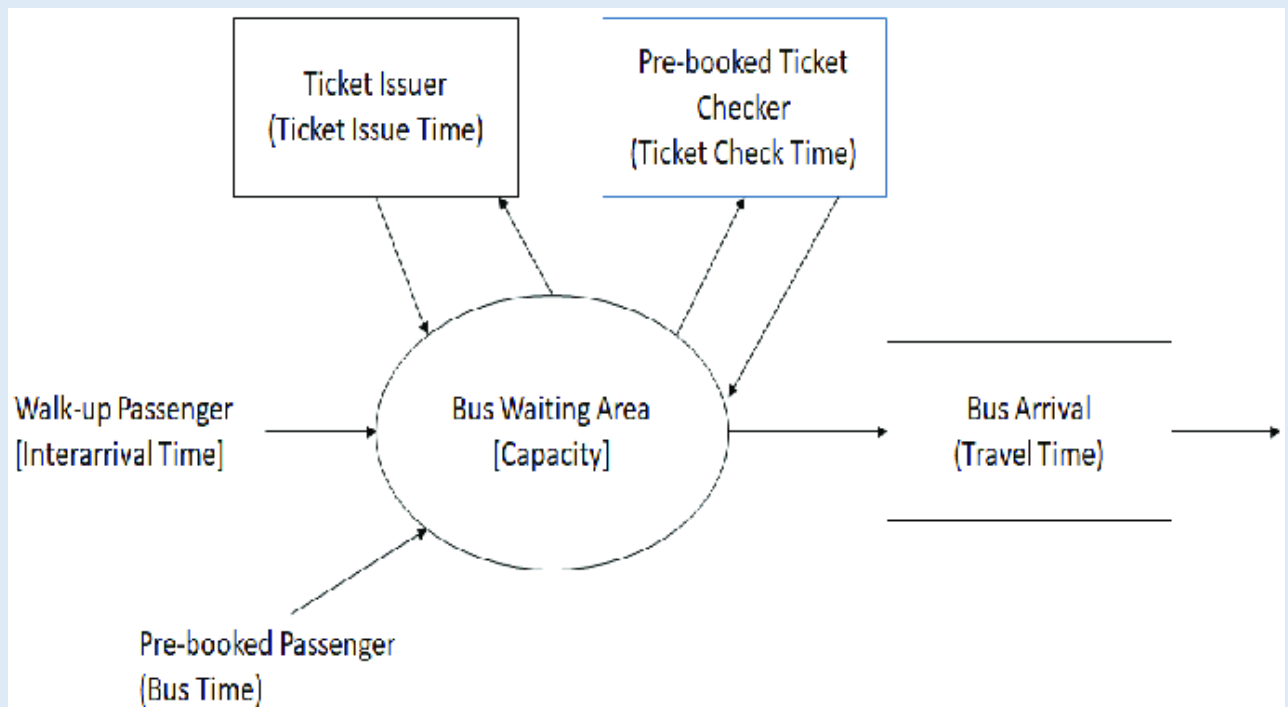
PROBLEM STATEMENT

Everyday Challenges Faced by Traveller (especially Non-Native Language Traveller) in Public Transportation



From this bar graph, it is evident that, all the problems are almost equally distributed and therefore it is important to consider each issue carefully for a comprehensive solution.

- Passengers traveling by bus often face problems like difficulty in communication, language barriers, and lack of clear stop announcements, making the journey confusing and stressful.
- Non-native speakers struggle with reading or identifying current place names on the bus, adding pressure to their journey.



OTHER CRITICAL PROBLEMS

- **Irregular Schedules**
- **Overcrowding**
- **Limited Route Coverage**
- **Poor Frequency**
- **Lack of Real Time Updates**

Here are several reasons why we should consider the challenges faced by travelers, in public transportation as an important problem:

Accessibility : Public transportation should be accessible to everyone, regardless of language proficiency. Addressing these challenges ensures that non-native speakers can navigate the system effectively.

Passenger Safety/Convenience : Misunderstandings due to language barriers can lead to safety issues, such as missing stops or getting lost.

Increased Usage of Public Transport: When non-native speakers feel confident using the bus system, they are more likely to choose public transportation over private vehicles, which ensures smooth ,cheap travel.

Enhanced Travel Experience: Addressing communication and comprehension challenges can significantly improve the overall travel experience, making it more enjoyable and less stressful for all passengers.

Barath Dharshan

CS23I1005

Problem Statement

Problem Statement:

A person traveling from A to B via bus faces many problems. The number of issues increases when the person is a non-native language speaker.

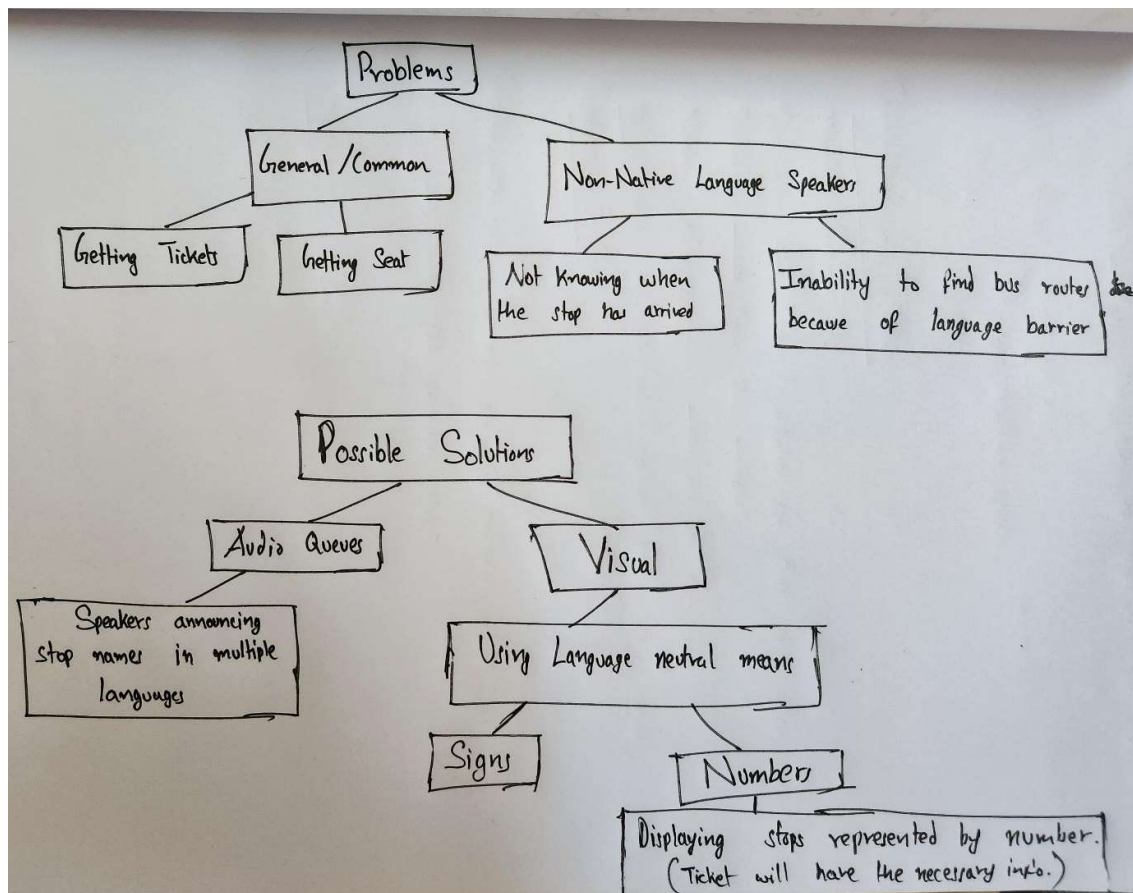
The problems start from identifying which bus to take to reach a certain location, buying a ticket in a crowded bus, getting the proper change from the bus conductor, and tracking the current and the next stop of the bus. This creates a sense of anxiety and paranoia in the traveller.

The traveller is forced to look into Google Maps (or any other alternatives) to track his current location and when he gets down at the bus stop he has to seek additional information to know which bus to take in order to reach his next location.

Non-Native language speakers face additional problems like reading signs in the bus, which bus to take and listening to the conductor for stop names (as they can't differentiate between the conductor calling out the bus stop name and when they are speaking other things).

Possible solutions:

- Keeping a number system-based bus stop circuit in the buses which light up when the stop is going to arrive. The designated number will be printed in the ticket.
- Adding speakers to buses.
- Adding bus stopping points in the bus stop so the traveller can identify which bus will travel to their location.
- UPI transactions in buses.



Name: Bhadresh L

Roll Number: CS23I1014

Course: Systems Thinking for Design (DS2000)

Topic: Assignment 3 – Problem Statement Finalization

3.1 – Our Team

Our name is **CONDUCTORS**, and we are a team of 5, namely, **Prasanna Kumar** (CS23B1011), **Barath Darshan** (CS23I1005), **Bhadresh** (CS23I1014), **Harith Yerragolam** (CS23I1027) and **Aditya Lokesh** (CS23I1029).

3.2 – Our Problem Statement: Flaws in Public Transport

Consider the bus system as the transport of reference and take any arbitrary person travelling by means of it. Steps involved in travelling from A to B by means of the bus:

1. Identifying the bus stop of A – P1
2. Waiting for the right bus there – P2
3. Getting on the right bus – P3
4. Buying the ticket – P4
5. Getting Seated – P5
6. Waiting for the bus to reach B – P6
7. Getting off the bus – P7

Factors that might affect these steps and if they are controllable by us:

1. Language – Controllable - F1
2. Frequency of Bus – Not Controllable - F2
3. Crowding/ Time of the day – Not Controllable - F3
4. Infrastructure of the Bus/ Bus Stop – Not Controllable - F4
5. External Factors (like noise, visibility, etc.)

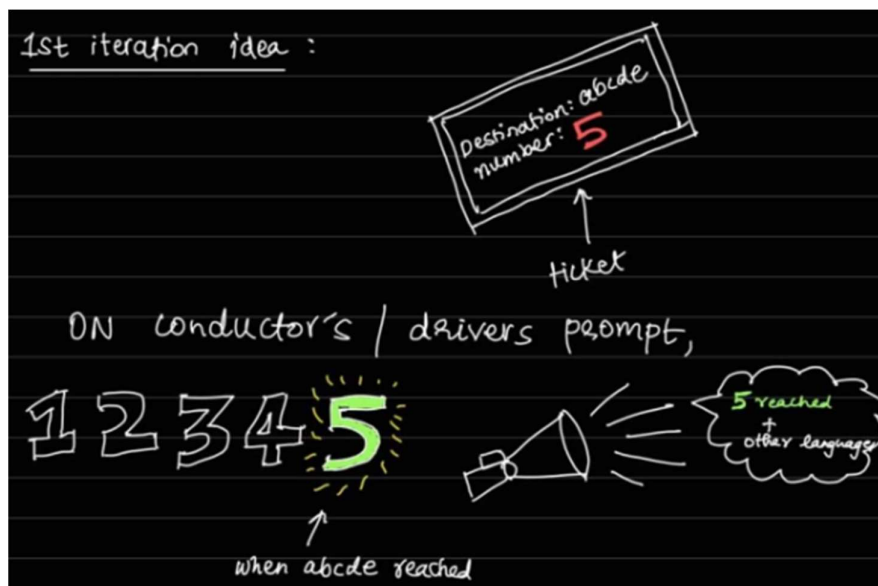
Consider the following table:

Problems	Factors affecting it
P1	F1, F3, F4, F5
P2	F1, F3
P3	F2, F5
P4	F1, F3, F4
P5	F3, F4
P6	F2, F4
P7	F1, F4, F5

From the table above, it's clear that F1, F3 and F4 affect a lot of steps, but F1 is the only controllable by us. Hence, we choose to work mainly on F1 – Clearing the language barriers. As a comprehensive solution, we also want to develop a system such that they get into the correct vehicle, get the correct ticket for their desired location, and get off at the right location – hence reducing their stress and anxiety regarding this.

3.3 – Objectives of our problem statement

1. Design a language independent system – assign values to each place that the vehicle stops at. Print this value on the ticket. When the stop arrives, devise a method to inform the passengers about the stop's arrival. Visual – On the name board at the stop, print this value + make a visual system in the vehicle to know the stop is arriving. Sound – A generic voice uttering “Stop with *value* is the next stop”
2. Have a board at the bus stop with a list of buses that'll arrive there + it's schedule
3. UPI Transactions in the buses – no hassle of buying ticket from the vendor



ASSIGNMENT – 3:
Problem Statement
Finalization

Harith Yerragolam

CS23I1027

Problem Statement:

Problems faced by a person travelling from one place to another. They all include:

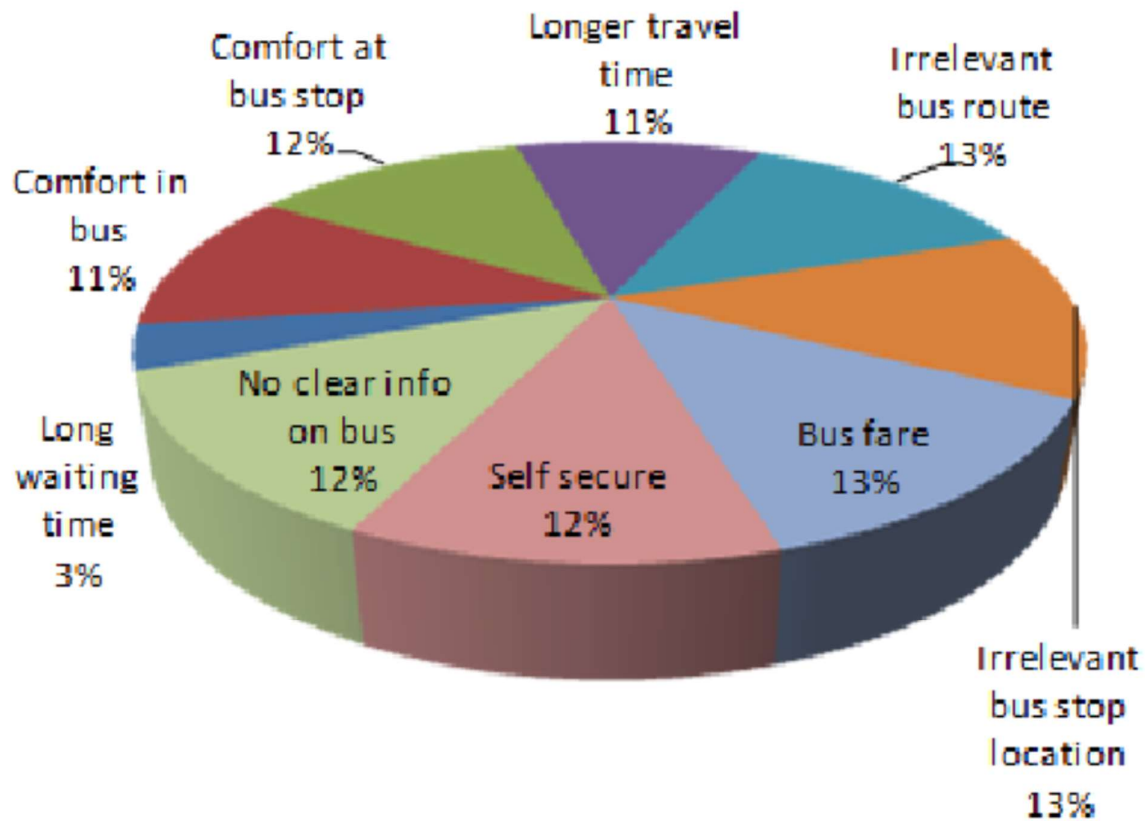
- Needing to look into Google Maps (Online – Network is required)
- Crowd in the vehicle
- Tracking next stop
- Language Issues
- Having the exact amount of change
- Security in the vehicle
- Comfort in the vehicle

One has to have proper internet connectivity. The Google maps shows the wrong location of the destination sometimes. The arrow mark, which shows your current location, sometimes gets ahead or behind where we currently are, so it gets confusing where to get down.

Managing the crowd In the buses is difficult when the busses are not punctual, which also makes the waiting time longer

Most of the time, the conductors in the bus announce in their regional language which causes issues for non-local travellers.

Problem faced when travel by bus



Possible Solutions:

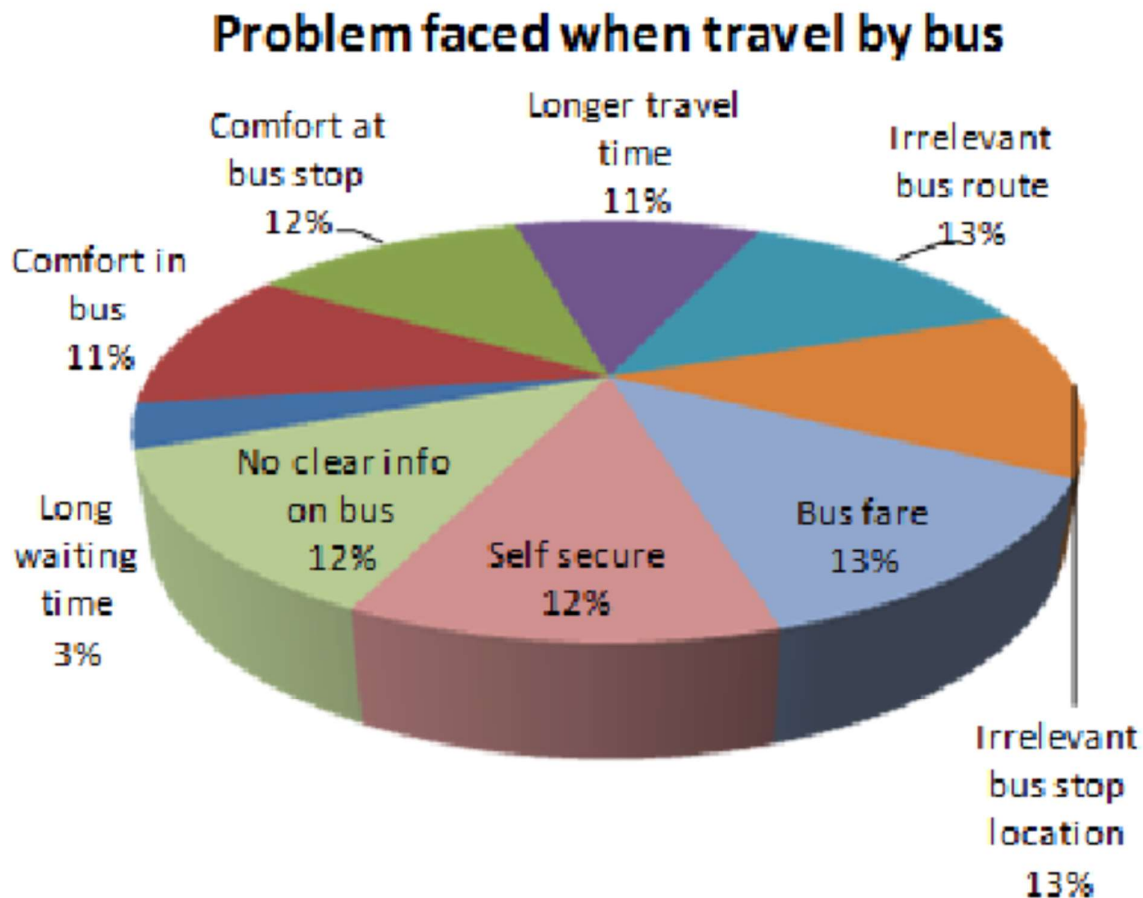
- Most of the time, the conductors shout in a language, which is not helpful for hearing-impaired people. Hence, a board can be set up showing the stop names. As well as setting up a speaker would help visually-impaired people.

- Implementing UPI transactions in the buses would help cashless payments and there would not be any need for having right amount of change with a person all the time while travelling.
- Implementing a system where a stop corresponds to a number and then when the stop is reached, the number gets highlighted and called upon along with the name. This helps in better routing and convenience.
- The bus conductors can also implement minimum of 3 languages for calling out the stop names, say English, Hindi and the regional language itself. This would cover the needs of top 95% of the people.

ADITYA LOKESH
CS23I1029
PROBLEM
STATEMENT

PROBLEM STATEMENT:

The primary problem our group wishes to solve is to help an individual travel from A to B without any worries and for a low price. These issues keep



increasing if the person is a non-native speaker. The pie graph above tells us that people face several issues, but most of the concerns are based on the user experience after they enter the bus.

Some of the issues as depicted in the pie graph are:

- Comfort in bus
- No clear info on the bus
- Self-security
- Irrelevant bus stop location
- Bus fare

If we ponder on this issue, we realise that most of these issues are faced by non-native travellers who are looking to travel for a low price.

WHY WE SHOULD SOLVE THIS PROBLEM:

- ***INCREASED USAGE OF PUBLIC TRANSPORT:***

If we make travel simpler through public transport it would increase the number of people using public transport, reducing the number of private vehicles used and reducing pollution.

- ***ACCESSIBILITY:***

Public transportation should be made available to all citizens. Solving this problem would help non-native speakers tremendously.

- ***AFFORDABILITY:***

Addressing this problem would benefit a lot of middle-class citizens by reducing the cost of travel. Most of the budding youth work jobs where they have to travel a huge distance to get to their workplace.

Solving this would be a huge boon to them and would provide useful in the future too.