



JK LAKSHMIPAT UNIVERSITY
Institute of Design
NAAC 'A' Grade Accredited

Reimagining the ticketing experience at L&T metro rail Hyderabad.

VOL. 2 of 2

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Programme :

Bachelor of Design (B.Des)

Interdisciplinary Design

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for graduation from **Institute of Design, JK LAKSHMIPAT UNIVERSITY**
with specialization in **Interdisciplinary Design**

Herewith, for the project titled **“Reimagining the ticketing experience of the L&T Metro Rail Hyderabad”**
on fulfillment of requirements by

<u>Jury Chairman</u>	<u>Devanuj Kanta Balkrishan</u>	
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<u>Jury Member</u>	<u>Shaon Sengupta</u>	
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Subsequent remarks regarding fulfillment of requirements

	Dean, Institute of Design JK Lakshmipat University
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Place _____

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Reimagined Experience

End to end journey planner

Given that the proposed solutions were developed in response to various challenges within different parts of the metro system, it was essential to create a unified approach to ensure consistency and effectiveness. The decision was made to integrate these validated solutions directly with the user journey, thereby aligning each improvement with the specific stages of passenger interaction.

This approach involved meticulously mapping out the user journey, identifying key touchpoints where interventions could have the most impact, and then strategically embedding the solutions at those points. By doing so, we ensured that the enhancements were not only addressing isolated issues but also contributing to a more cohesive and streamlined overall experience.

Journey planner

Plan your journey with us,

Origin location

Destination location

Search

Options:

FMC

Cab services	12 mins	₹ 60-80*
Bus	19 mins	₹ 20-30
Walk	35 mins	-

Transit

RDG - MET	40 mins	₹ 45
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LMC

Cab Services	6 mins	₹ 30-40*
Bus	10 mins	₹ 10-20
Shuttle	8 mins	-

More Details

Interactive map

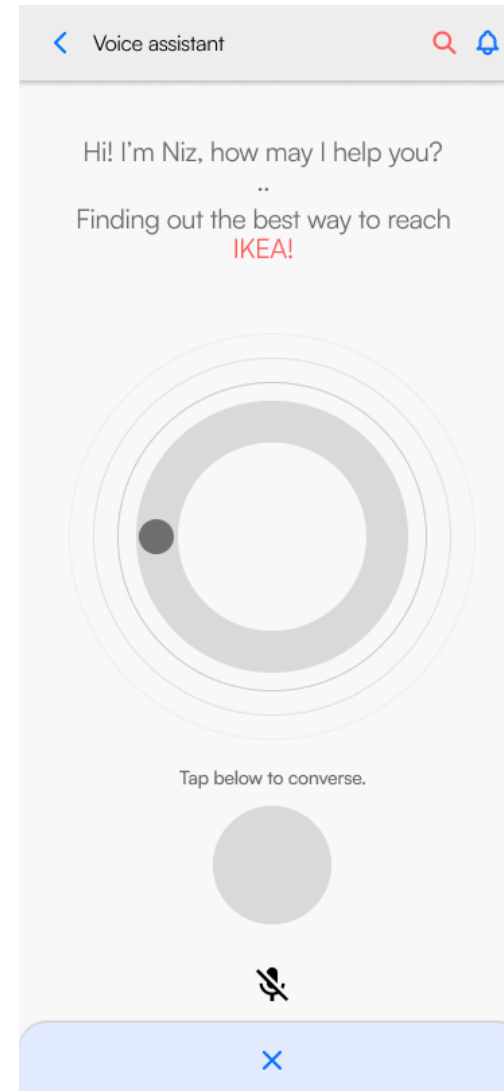
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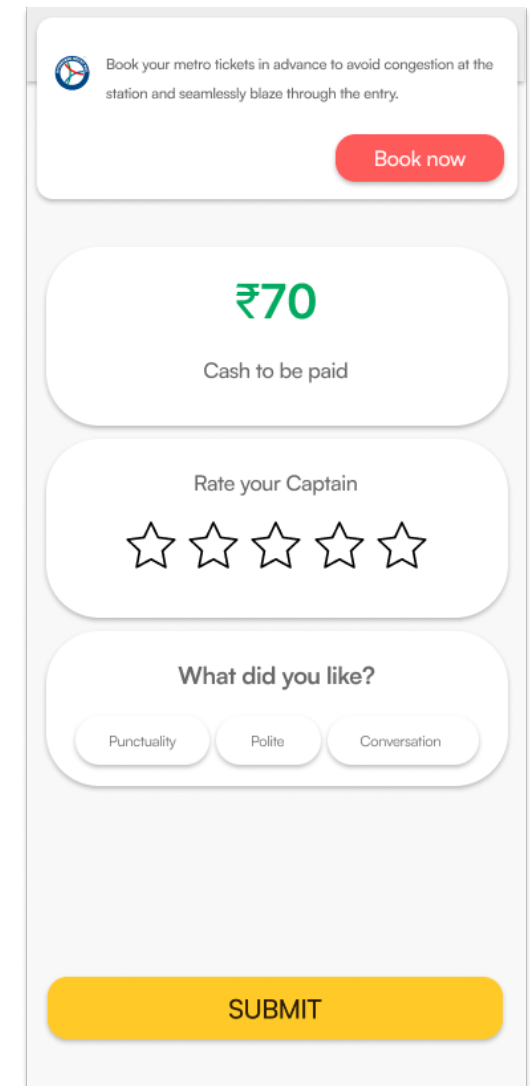
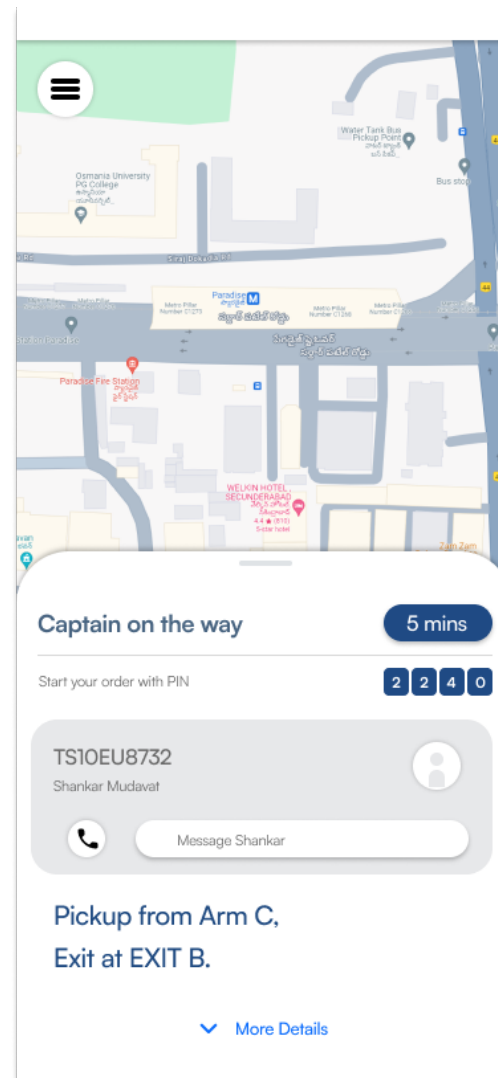
Voice assistant

Integrating a voice assistant into the TSavaari application is crucial to support users who may not be well-versed in technology. This voice assistant would simplify the travel experience by providing detailed, real-time guidance throughout the entire journey. It would inform users about the mode of transport, the estimated travel time, and associated costs, while also offering alternative routes to reach their destination. By offering this personalized assistance, the solution aims to make the TSavaari app more accessible and user-friendly, especially for those who might otherwise struggle with digital interfaces.



Integration with LMC/FMC apps

This feature is designed to ensure passengers purchase their tickets before entering the station, addressing the common issue of crowding near the AFC gates where many people pause to book tickets, leading to unnecessary congestion. Integrated into the LMC application of Rapido, the feature prompts users to book a metro ticket as soon as they select a metro station as their destination. By streamlining the ticketing process, it not only alleviates bottlenecks and improves the flow of passengers within the station but also enhances overall efficiency by reducing delays. Additionally, it offers a more convenient and stress-free experience, encouraging consistent usage of the metro system and making travel planning easier for passengers.



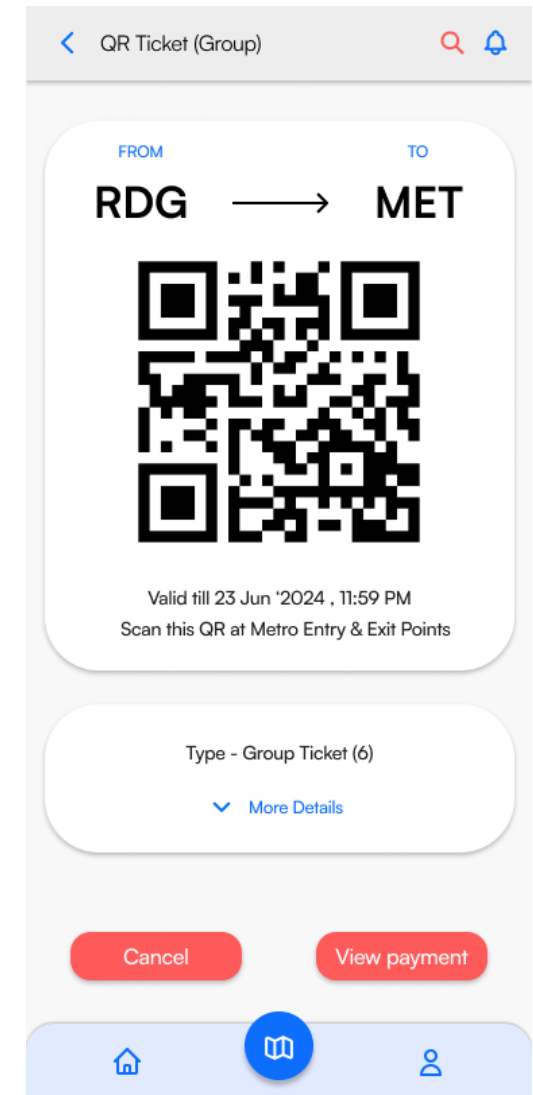
QR codes in lifts and stairs

This solution tackles the same problem of congestion near the AFC gates as the previous approach but adopts a different method by placing QR codes near the lifts and staircases. By scanning these QR codes, passengers can quickly and easily purchase their tickets before reaching the gates, reducing the need to stop and book tickets at the last moment. This approach not only alleviates crowding but also enhances the overall efficiency of the station, ensuring a smoother and more organized flow of passengers. Additionally, it offers a convenient option for users to complete their transactions on the go, contributing to a more seamless and stress-free travel experience.



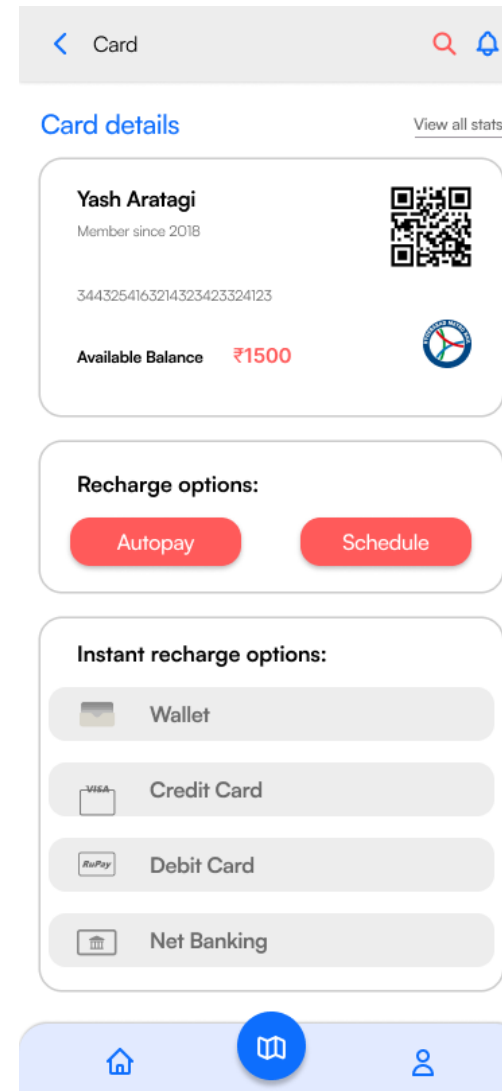
Group travelling with a single QR

It's common to see groups of passengers booking their tickets on a single device, then passing the phone around as each member passes through the AFC gates. This process often results in delays and confusion, as not all group members are familiar with locating and scanning the next QR code correctly. To address this, a single QR code for the entire group is proposed, allowing all members to pass through the gate more efficiently. The existing trip sensor at the AFC gate can be leveraged to track the number of people entering, ensuring that the group passes through seamlessly without the need for multiple scans. This solution not only reduces trial and error but also streamlines the entry process, improving the overall flow and user experience at the station.



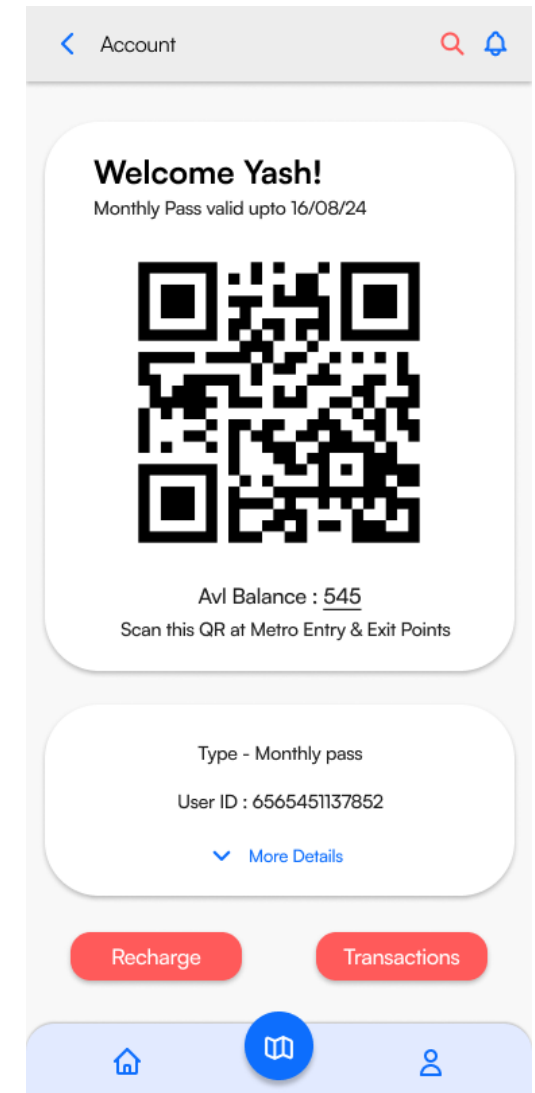
Card experience

Currently, the system lacks a way to track the balance of the smart card, which can be quite inconvenient for passengers. When they attempt to recharge their cards, it often takes up to 20 minutes for the balance to update, causing frustration and delays. To address this issue, implementing a balance tracking feature would be beneficial. Additionally, incorporating an Autopay option could greatly enhance user convenience. This feature would support various payment methods and allow passengers to set up automatic recharges on a monthly or weekly basis, ensuring they always have sufficient funds and reducing the hassle of manual recharges.



Monthly/weekly pass

For passengers who prefer not to carry a physical card, a valuable feature would be to provide a unique QR code for each passenger within the application. This QR code would store a predefined balance, allowing passengers to simply scan it each time they travel. This approach reduces the need for repetitive transactions, minimizes confusion, and eliminates the hassle of managing a physical card. Additionally, it streamlines the entry process by eliminating the need for multiple scans or transactions at the gates. This system can also be more eco-friendly, as it reduces the need for plastic cards and minimizes paper usage. Additionally, this feature could be used by tourists or passengers that travel occassionally.



Seamless entry gate

A seamless entry gate system, akin to Digi Yatra, could be a forward-looking solution for improving the passenger experience. In this system, passengers would register their biometrics in advance, allowing them to pass through the gates effortlessly without the need for physical tickets or cards. This radical approach could greatly enhance efficiency and convenience by eliminating manual checks and reducing wait times at the gates. While it represents a more advanced solution for future phases, its potential to streamline the entry process and improve passenger flow makes it an exciting prospect for long-term development.



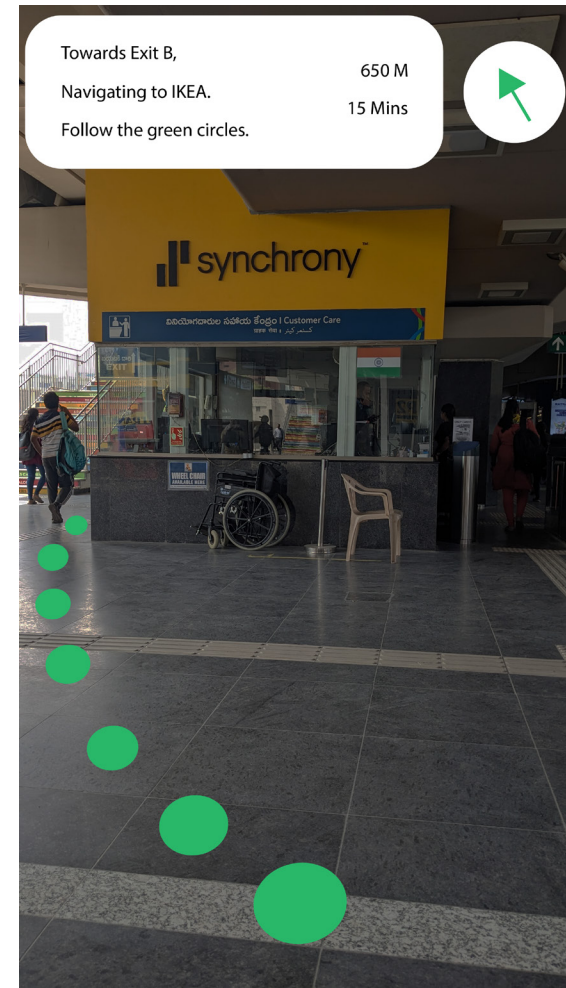
Simplifying interface of the AFC

The interface of the AFC (Automated Fare Collection) system has been significantly simplified to reduce passenger confusion, particularly regarding the use of QR codes. Passengers often struggled with the previous design, which presented them with a cluttered array of options for tokens, credit cards, debit cards, smart cards, and QR scanners. This complexity led to inefficiencies and user frustration. The revised interface consolidates all necessary functions into a single, streamlined display. The left section is reserved for smart card transactions, the middle section is dedicated to all types of QR tickets, and the right section supports open-loop contactless ticketing. This reorganization ensures a more intuitive and user-friendly experience for all passengers.



AR Navigation feature

To enhance passenger convenience, an AR navigation feature has been integrated into the station's system. This solution is designed to guide passengers seamlessly both within the station and in its surrounding areas. By using augmented reality, the feature provides real-time directions, making it easier for users to locate platforms, exits, amenities, and nearby points of interest. The AR navigation is intuitive and accessible, ensuring that passengers can confidently navigate the station and its vicinity, improving overall travel efficiency and experience.



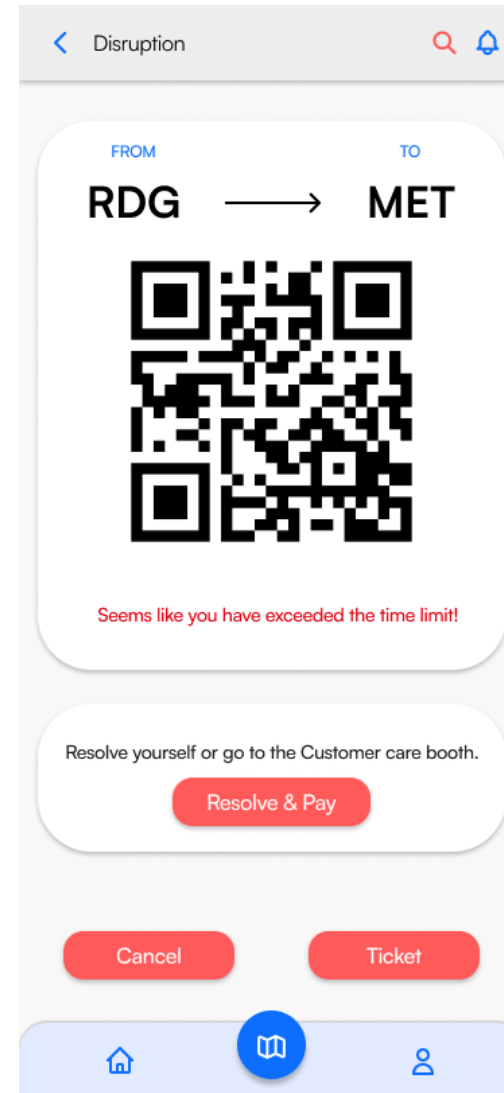
Exit gate signage system

Many passengers often face confusion about which side of the station to exit from, leading to unnecessary delays. A straightforward yet effective solution is to place clear signage near the exits where passengers arrive after deboarding the train. These signs would list the key locations accessible from each exit, helping passengers quickly determine the correct direction. Additionally, this information can be printed on paper QR tickets or displayed on digital QR tickets, providing passengers with exit guidance even before they reach the station.



Resolution screen

A significant amount of time is often wasted at the control center as passengers try to understand and resolve ticket-related disruptions. Introducing a feature that allows passengers to identify and resolve these issues themselves such as paying fines directly through a mobile application can be highly beneficial. This solution not only saves time and effort for passengers but also reduces queues at the control center's customer support window, streamlining the overall process.



Two way screen at CC

The loud and bustling environment of the concourse level in metro stations often leads to communication gaps, misunderstandings, and errors when passengers interact with customer support staff. This can be especially frustrating when there's a language barrier. A practical solution is to integrate a screen facing the passenger at the customer support counter, allowing them to see the transaction details in real-time. This not only helps passengers stay informed about what's happening but also reduces the risk of errors, such as purchasing tickets to the wrong station. Additionally, this feature can enhance transparency, build trust between passengers and staff, and improve overall service efficiency. It also empowers passengers to confirm their choices before finalizing transactions, leading to a smoother and more reliable customer support experience.



Conclusion

In reflecting on the journey of this project, it is clear that the process of reimagining the ticketing experience for Hyderabad Metro Rail Limited has been both challenging and rewarding. This project has provided a unique opportunity to apply a range of systems design principles, drawing on a diverse set of tools and methodologies to address the complexities of the metro ticketing system. The integration of various solutions into the user journey has been a critical aspect of ensuring that improvements are not only effective individually but also work cohesively to enhance the overall passenger experience. By aligning each solution with specific stages of interaction, the aim has been to create a more intuitive, efficient, and user-friendly system. This holistic approach has demonstrated the value of considering the entire user experience, ensuring that each enhancement contributes to a seamless journey for metro passengers.

Throughout the project, several key insights have emerged. The importance of a user-centric approach has been underscored, highlighting the need for continuous feedback and iterative improvements. The challenges faced, such as working independently and adapting to a professional environment without fixed deliverables, have been significant learning experiences. These challenges have been met with resilience and creativity, resulting in solutions that are both innovative and practical. The collaboration with Hyderabad Metro Rail Limited and the guidance from mentors and peers have been invaluable. Their support and feedback have played a crucial role in shaping the outcomes of this project. The process has reaffirmed the importance of thorough research, rigorous analysis, and the integration of diverse perspectives in creating effective solutions.

Appendix :

Survey Questionnaire –

1. Name

2. Age

3. Gender

- a. Male
- b. Female
- c. Non-binary
- d. Prefer not to say

4. Profession

- a. Student
- b. IT Professional
- c. Government Employee
- d. Private Sector Employee
- e. Other

5. Travel Type

- a. One-way
- b. Two-way

6. Travel Companions

- a. Alone
- b. Group

7. What do you do together while traveling with a group? How do you coordinate?

- a. Chat and discuss plans
- b. Use messaging apps
- c. Plan in advance
- d. Use phone calls
- e. Other

8. Purpose of Travel

- a. Work
- b. Education
- c. Leisure
- d. Errands
- e. Other

9. Format of Ticket Purchase

- a. Paper Ticket
- b. UPI
- c. Metro Card
- d. Mobile App
- e. Other

10. What do you think about the Paytm/PhonePe app to buy metro tickets?

- a. Very Convenient
- b. Convenient
- c. Neutral
- d. Inconvenient
- e. Very Inconvenient

11. Most Traveled - Lines and Stations

- a. Green Line
- b. Blue Line
- c. Red Line
- d. Parade Ground
- e. MGBS

12. Most Used LMC/FMC Options

- a. Recharge Metro Card
- b. Buy Tickets
- c. Check Timings
- d. Track Trains
- e. Other

13. Most Hectic/Annoying Stations

- a. Parade Ground
- b. MGBS
- c. Begumpet
- d. Hitech City
- e. Other

14. How do you plan your journey? Use of Metro Map?

- a. Use Metro Map
- b. Use Mobile App
- c. Ask for Directions
- d. Know the Route
- e. Other

15. Are you aware of the T-Savaari app?

- a. Yes
- b. No

16. Have you ever encountered any delays or disruptions in metro services due to ticketing related issues?

- a. Yes
- b. No

17. If yes, what are the reasons for causing delay/disruption?

- a. Ticket Scanning Issues
- b. Card Malfunction
- c. System Errors
- d. Long Queues
- e. Other

18. How often did you have to get help/ assistance while scanning ticket or card?

- a. Always
- b. Often
- c. Occasionally
- d. Rarely
- e. Never

19. If you use a card, where do you store it and how do you access it?

- a. In a Wallet
- b. In a Phone Case
- c. In a Bag
- d. In a Pocket
- e. Other

20. Advice for First-Time Metro Users?

- a. Plan Your Route
- b. Check Timings
- c. Carry Sufficient Cash/Card
- d. Use Mobile App
- e. Other

21. Tips and Tricks to Travel in Crowded Stations?

- a. Avoid Rush Hours
- b. Stand in Designated Areas
- c. Use Alternative Routes
- d. Stay Calm
- e. Other

22. Witnessing Any Uncommon Things?

- a. Yes
- b. No

23. What are Your Go-To Retail Stores in the Metro Station?

- a. Food and Beverage Outlets
- b. Bookstores
- c. Convenience Stores
- d. Apparel Shops
- e. Other

24. If you had the power to change something about the metro, what would it be? And why?

- a. Improve Ticketing System
- b. Increase Train Frequency
- c. Enhance Cleanliness
- d. Expand Network
- e. Other

25. How do you tackle the boarding/ deboarding? How do you avoid getting pushed while boarding/deboarding? What are your feelings?

- a. Queue Properly
- b. Use Designated Areas
- c. Wait for Passengers to Disembark
- d. Maintain Personal Space
- e. Other

27. Efficiency - On a Scale of 1 to 5

- a. 1 (Very Poor)
- b. 2 (Poor)
- c. 3 (Average)
- d. 4 (Good)
- e. 5 (Excellent)

28. Comfort - On a Scale of 1 to 5

- a. 1 (Very Poor)
- b. 2 (Poor)
- c. 3 (Average)
- d. 4 (Good)
- e. 5 (Excellent)

29. Passenger Behavior - On a Scale of 1 to 5

- a. 1 (Very Poor)
- b. 2 (Poor)
- c. 3 (Average)
- d. 4 (Good)
- e. 5 (Excellent)

30. Accessibility - On a Scale of 1 to 5

- a. 1 (Very Poor)
- b. 2 (Poor)
- c. 3 (Average)
- d. 4 (Good)
- e. 5 (Excellent)

31. Ease of Navigation - On a Scale of 1 to 5

- a. 1 (Very Poor)
- b. 2 (Poor)
- c. 3 (Average)
- d. 4 (Good)
- e. 5 (Excellent)

32. Importance of Announcements and Screens - On a Scale of 1 to 5

- a. 1 (Not Important)
- b. 2 (Slightly Important)
- c. 3 (Moderately Important)
- d. 4 (Very Important)
- e. 5 (Extremely Important)

33. How satisfied are you overall with the ticketing process?

- a. Very Dissatisfied
- b. Dissatisfied
- c. Neutral
- d. Satisfied
- e. Very Satisfied

34. On a Scale of 1-10, How Important is Finding a Seat to You?

- a. 1 (Not Important)
- b. 2
- c. 3
- d. 4
- e. 5
- f. 6
- g. 7
- h. 8
- i. 9
- j. 10 (Very Important)

35. In What Situations Do You Need to Sit?

- a. Long Commutes
- b. During Peak Hours
- c. When Feeling Tired
- d. When Carrying Heavy Items
- e. Other

36. What is Your Preferred Position to Stand in the Metro?- a. Near the Doors

- b. In the Middle of the Carriage
- c. Near the Window
- d. Close to Handrails
- e. Other

37. When Do You Start Moving to the Train Doors?

- a. 1 Station Away
- b. When Doors Open
- c. At the Current Station
- d. After the Train Slows Down
- e. Other

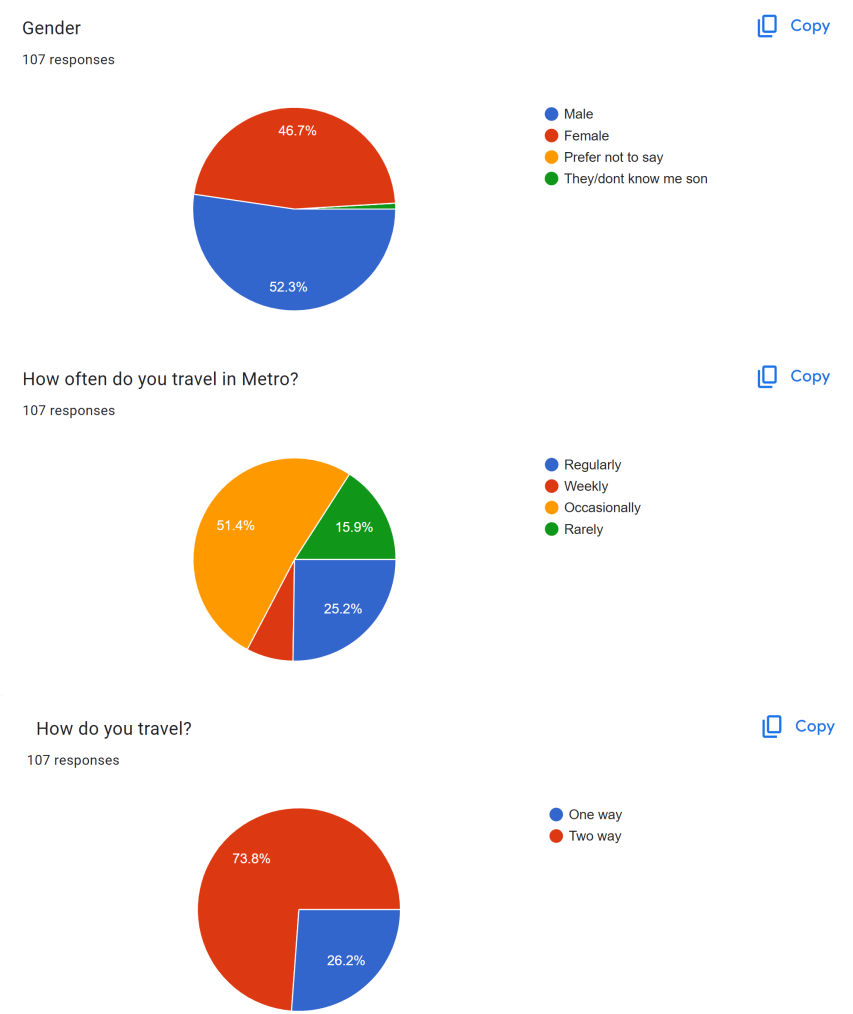
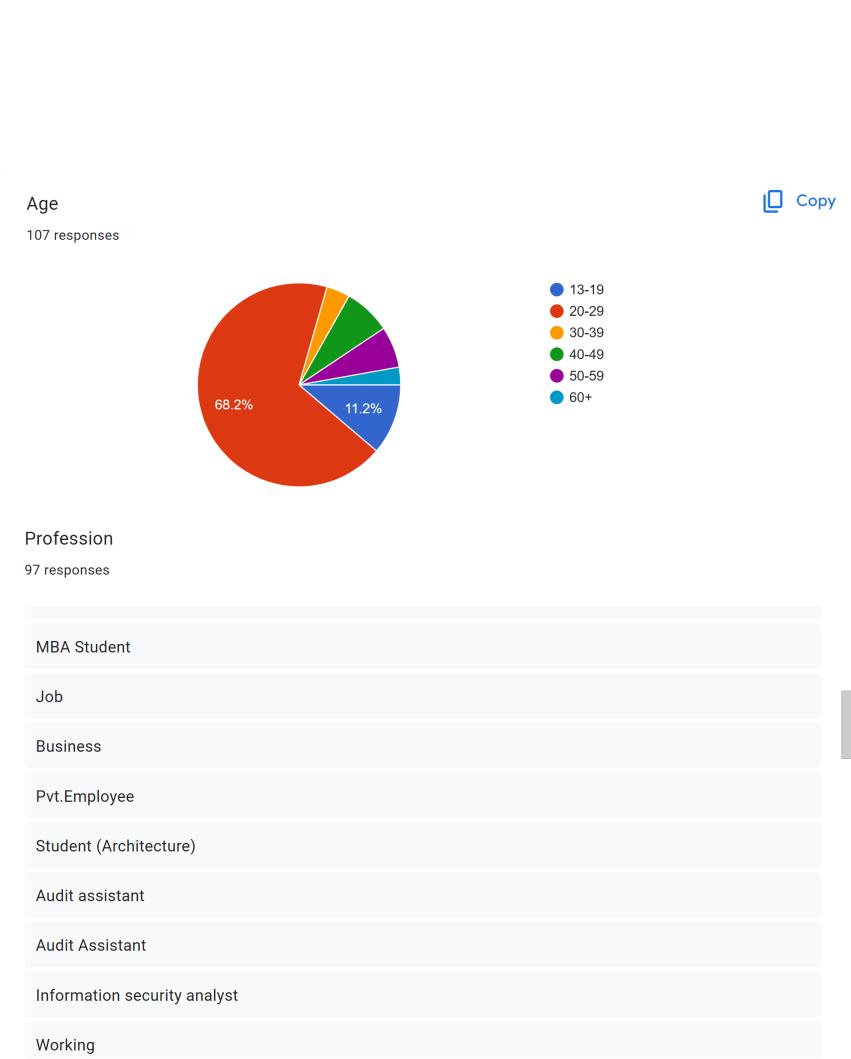
38. Hitech - Raidurg Fiasco?

- a. Familiar with Incident
- b. Not Familiar with Incident
- c. Other

39. Upload Pictures Section

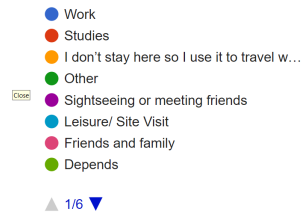
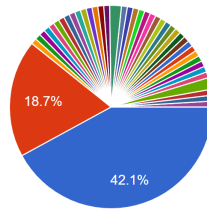
- a. Upload Relevant Pictures of Metro Experience
- b. Optional Upload
- c. No Upload

Survey results:



Purpose of travelling?

107 responses

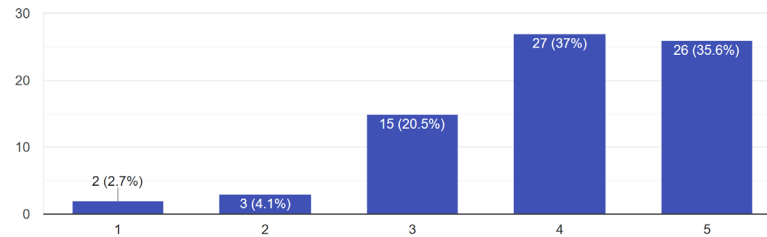


UPI

On the scale of 1-5, rate your experience of using UPI to buy ticket.



73 responses



What do you not like about UPI ticketing?

52 responses

Process of verifying the transaction is time consuming, especially during peak hours

Some time issues with bank server (rarely)

The ticket seller once shouted at me while im asking in calmly , my phone battery is very lo I thought QR ticket will be problem and i went to counter and asked abt ticket he was so rude to tell me that " it doesnt matter weather you take QR or here while paying through upi .. (i asked for physical ticket or that coin) .. he denied my question and made to do in phone itself and i some how managed to go out by approaching other members

I don't see any problem

Using it for the first time can get tricky because there are codes from different wallets put up on stations. And the first time ever, one person asked me to download metro app and book ticket from there. I think the process doesn't cater first time users we'll enough. Oh, and I just remembered finding the qr code once I close the app took me sooo much time that's bad ui

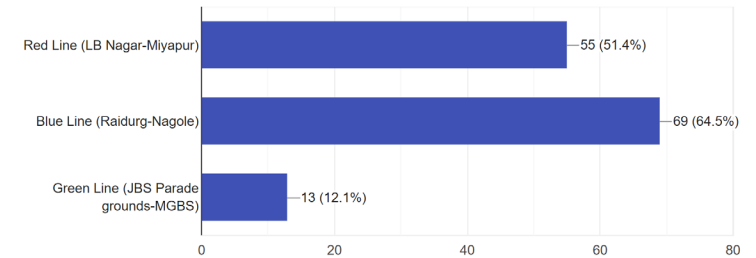
QR Code not getting scanned by the machine while I awkwardly try 10 times & My phone getting switched off

Station Data

Your most travelled metro lines



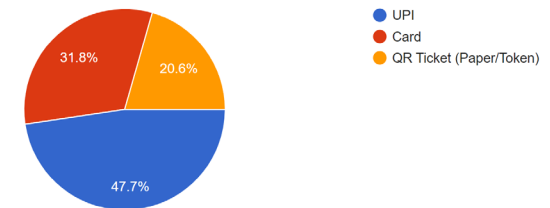
107 responses



How do you purchase metro tickets?



107 responses

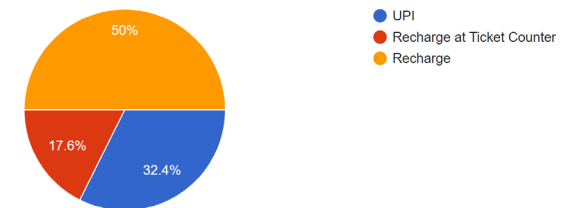


Purchase of tickets

How do you recharge your card?

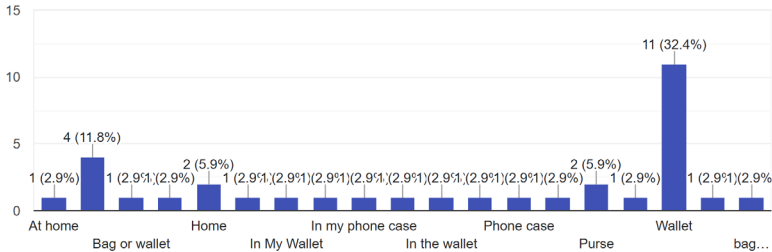


34 responses



Where do you keep your card when not using it?

34 responses



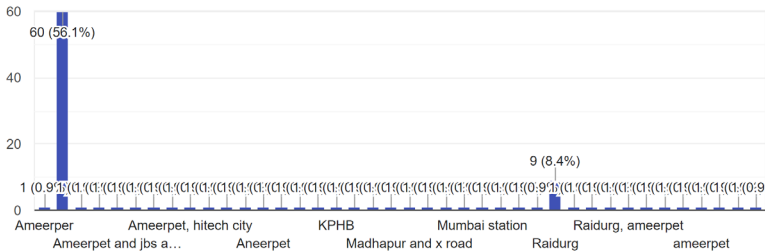
Your most travelled stations

107 responses



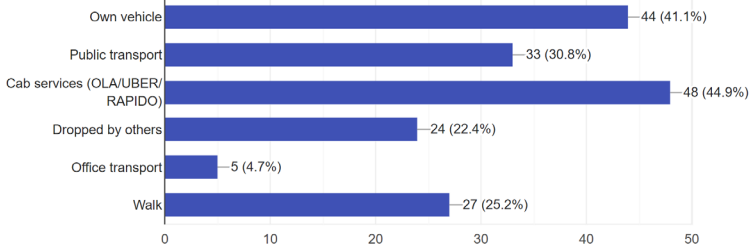
Which station do you find the most chaotic or hectic?

107 responses



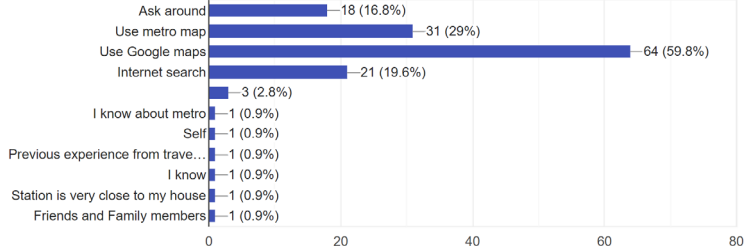
How do you travel to and from the metro station?

107 responses



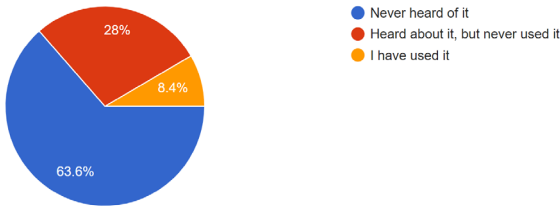
How do you plan your journey? (How do you find the closest metro station)

107 responses



Are you aware of the T-Savaari app? And do you use it?

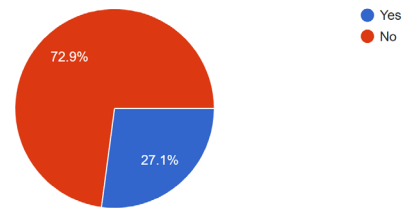
107 responses



Have you encountered any delays or disruptions in metro services due to ticketing related issues?

 Copy

107 responses



Reason for delay

What are the reasons for delays / disruptions in ticketing? Describe what went wrong?

29 responses

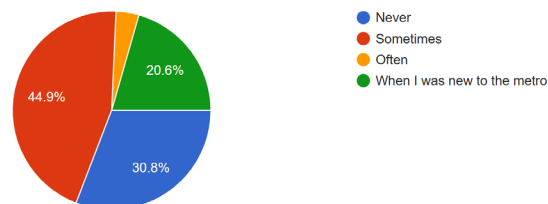
The ticket vending machine problem
Its time consuming
Card online payment is reflected slow.
Chaos around
Ratio of counter to the people , it wont get scanned properly
Recharge takes about 4 hours, while they Mention it to be 10 mins
Server down
Overcrowded/unable to recharge cards using e -ticketing machine
Connectivity issues

Assistance

How often did you have to get help / assistance from metro staff or other passengers?

 Copy

107 responses



What tips and tricks do you recommend for first time metro users based on your own experience?

107 responses

Follow the map
Make sure you're getting on the right platform otherwise you'll end up going in the opposite direction. Check the maps available
Wait for the next train to travel with our any discomfort
1. Read the signs carefully. 2. Be alert while on the train, so that you don't miss your station.
More use of displays
Ask around
Remember colour of the track you are traveling on
Using Google for route

Could you provide examples of uncommon behaviours you've seen on trains?

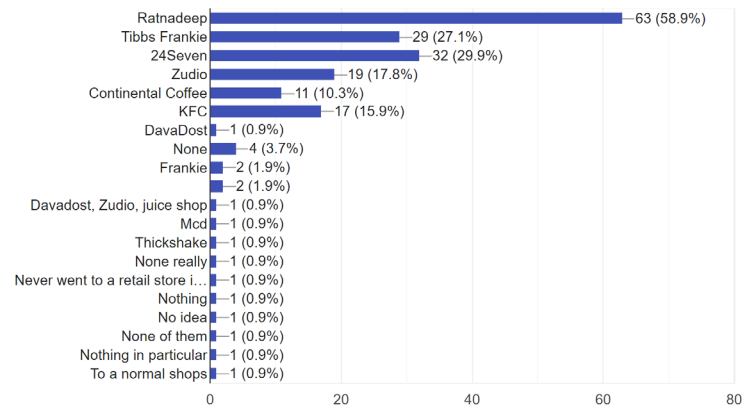
107 responses

None
No
NA
Ntg
Nothing
-
Nothing
None
Kids pressing emergency button while playing in the train.

What are your go to retail stores in the metro station?

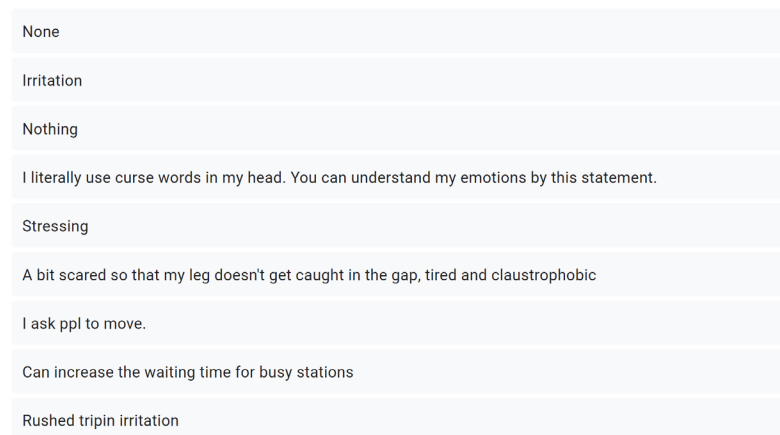
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107 responses



How do board and de-board the train in crowded stations? What emotions do you experience?

107 responses

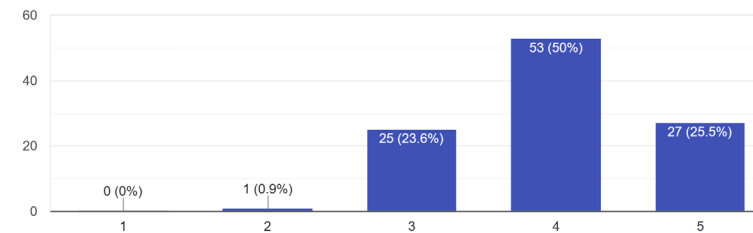


Rating

Efficiency of the metro

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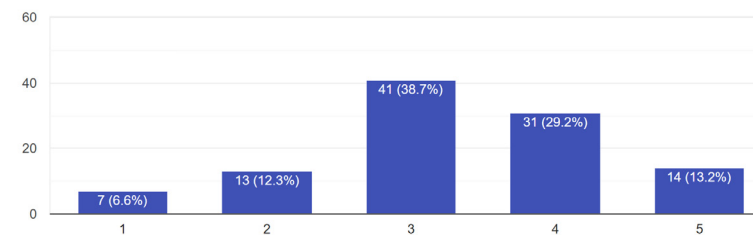
106 responses



Comfort

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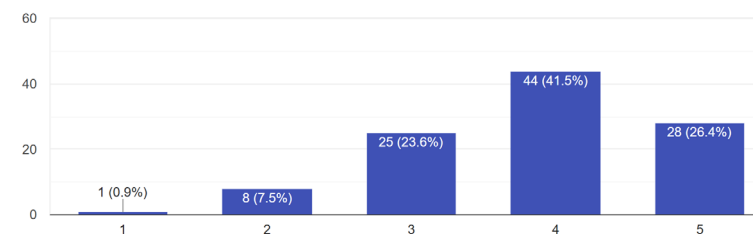
106 responses



Ease of navigation

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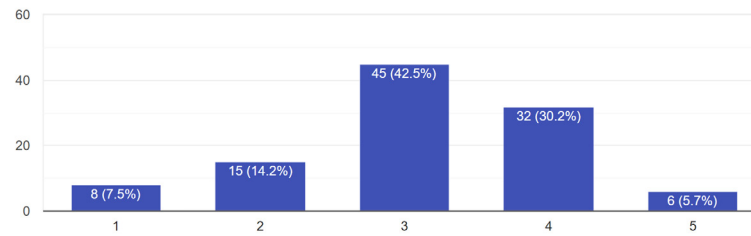
106 responses



Passenger Behaviour

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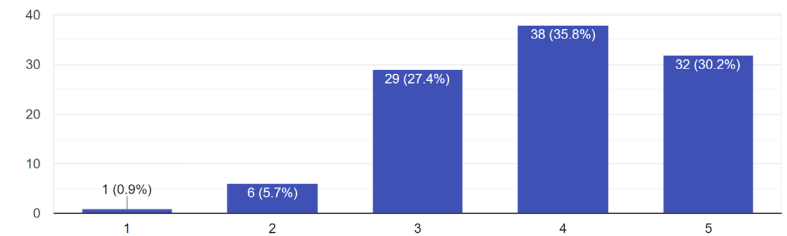
106 responses



Ticketing process

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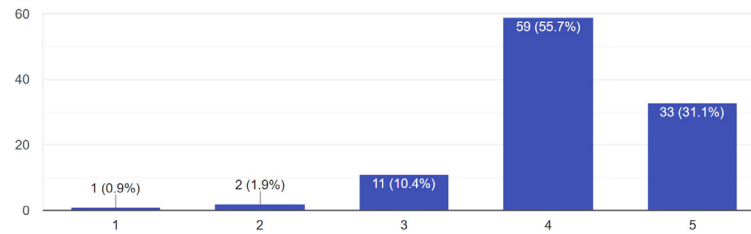
106 responses



Cleanliness

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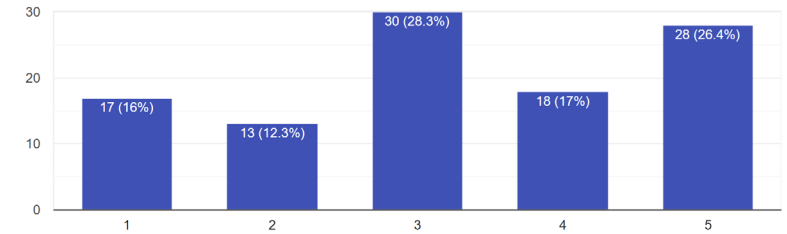
106 responses



How important is finding a seat to you?

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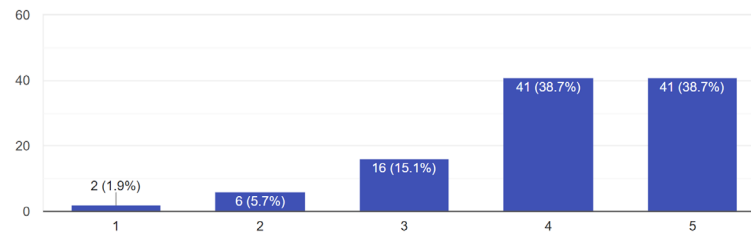
106 responses



Announcements and train station signage

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106 responses



In what situations do you need a seat?

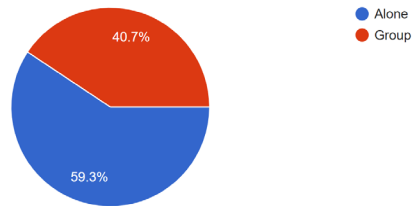
106 responses

- After a tiring day
- Long journeys
- Every situation
- Long distance
- Every
- Tired
- When tired, while holding heavy luggage, while sick. But nobody understands
- Everyday i need seat i dont
- When the journey is long

How do you prefer to travel?

86 responses

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Group travel

Why do you prefer travelling in a group?

86 responses

I don't
Safety
I don't
I don't
No reason
Safety
i don't
Fun
Company

How can you organize plans and coordinate with people you want to travel with on the Hyderabad metro?

86 responses

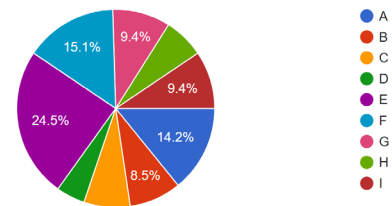
NA
Planning
Na
Whatsapp
None
Option 1
.
Maybe meet in the common station or navigate within the train
We coordinate based on the distance of the metro station to our house.

Final Section

What is your preferred position to stand in the metro (when the seats are occupied)

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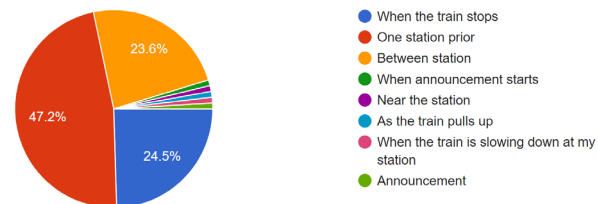
106 responses



At what time do you begin moving towards the doors to exit the train?

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106 responses



If you had power to change something about the metro, what would it be? And why?

106 responses

Nothing
NA
I would add another compartment.
Manage the public rush
Orderliness of getting in and getting out, management of crowd during peak hours
The seat locations
Frequency of the metro in some of the busy lines can be increased and decrease the frequency of the other lines. Blue line is too crowded because of office going crowd
Ntg
Need more blocks for ladies

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↑ Nagole
↑ ناگولہ

↑ Emergency Exit
↑ آگے نکلنے کی جگہ



