

BACKGROUND

Women and girls in the Global South face significant safety risks (e.g., sexual harassment, assault) when using public transportation which is a barrier to women's mobility [1]. We believe autonomous vehicles (AVs) have the potential to address these challenges by providing a safe and efficient means of transportation. We aim to study female passengers' attitudes and preferences towards AVs considering the cultural and contextual factors in Bangladesh [2]. Based on the findings, we will present inclusive human-machine interfaces (HMIs) that address their unique needs to bring women safety in daily transportation.



METHODOLOGY

CHALLENGES OF FEMALE PASSENGERS

- **Sexual harassment- verbal, physical, or other forms**
- Safety concerns due to overcrowding, theft
- **Extended waiting times to get on the bus**
- Limited access to suitable seating arrangements

FOCUS GROUP STUDY

N=12 participants (3/4 participants per group)

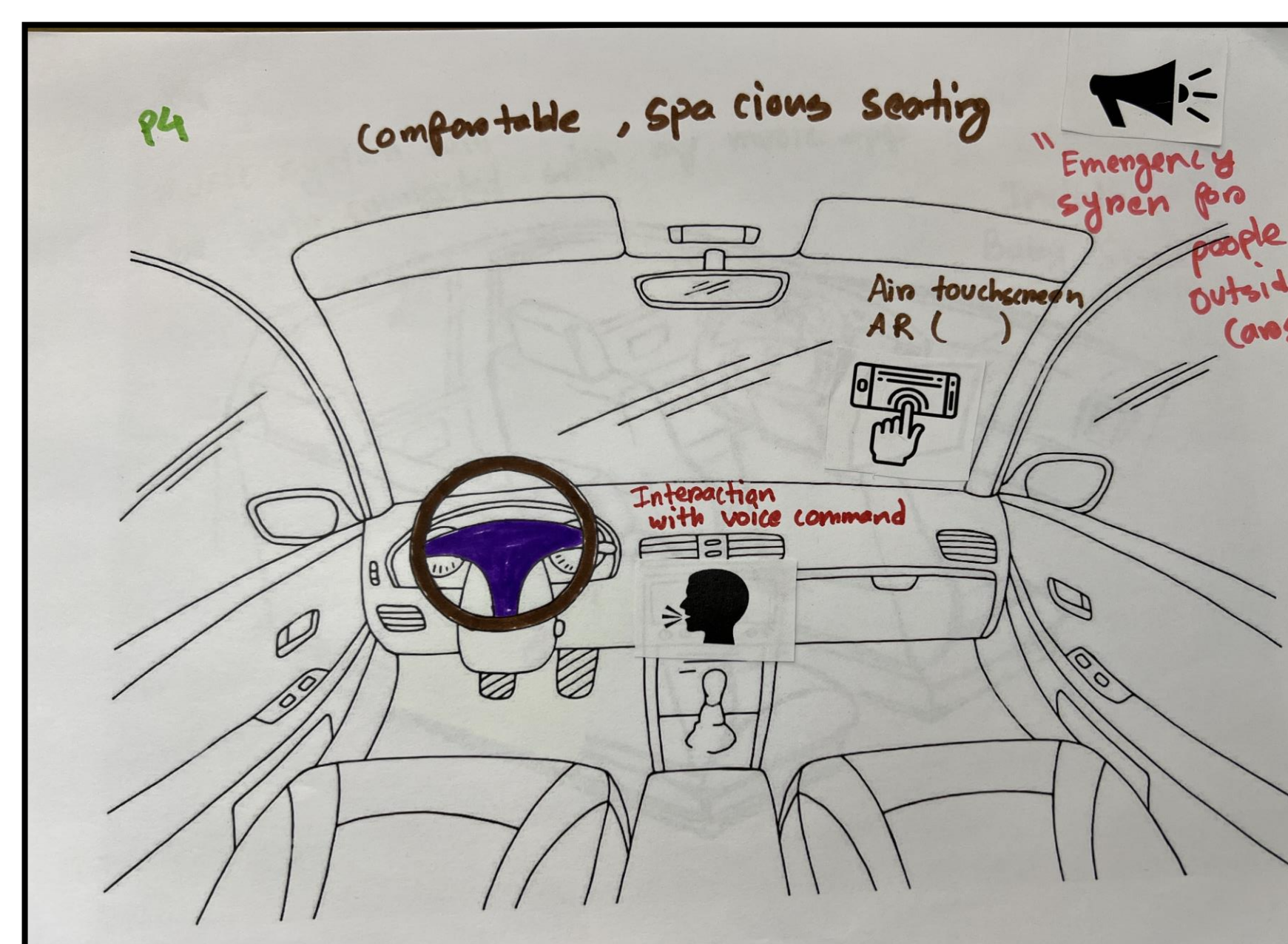
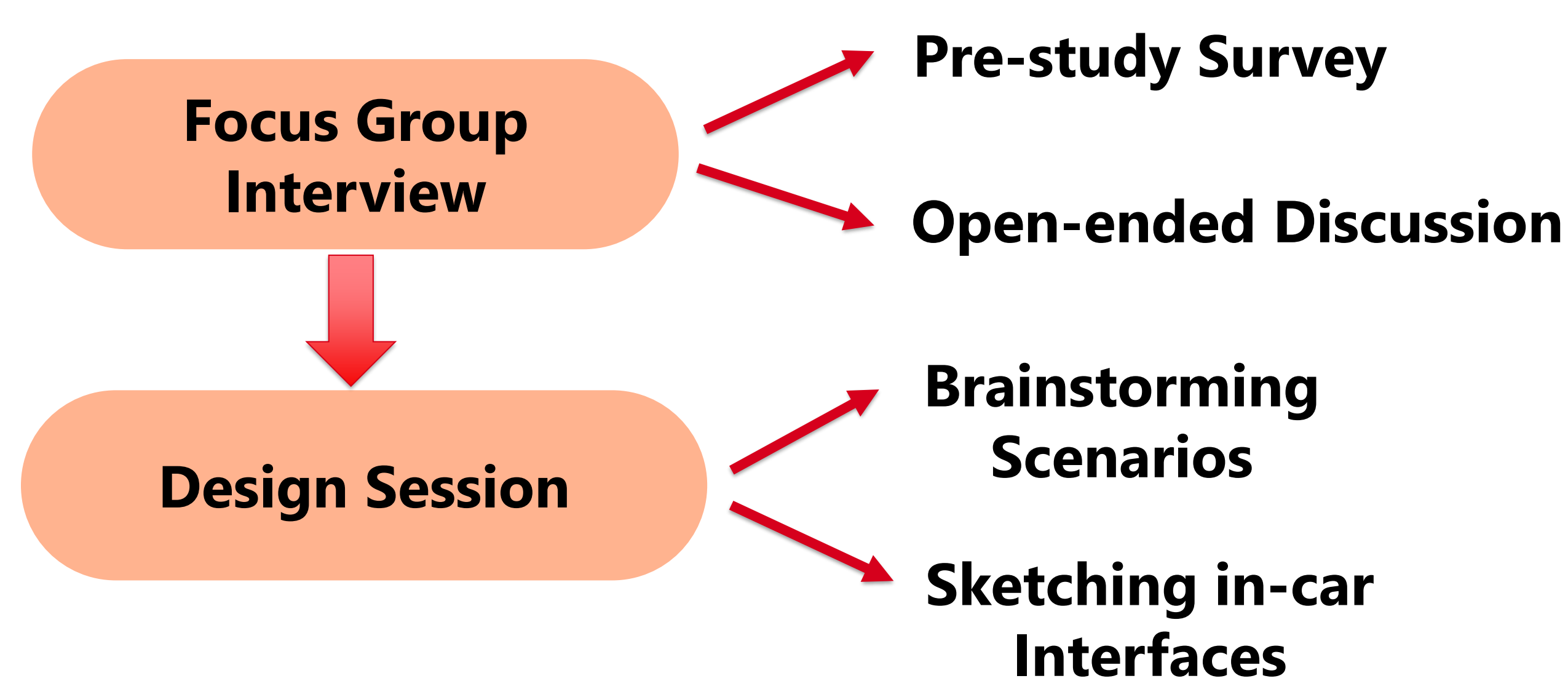


Figure 1: (Top) Study setup for the focus group design activity, (bottom) participant created sketches

STUDY FINDINGS

- ☐ **Camera Monitoring**
- ☐ **Automatic Emergency Response**
- ☐ **Alert Bystanders with Flashlights/ Sirens**
- ☐ **Passenger Rating System**
- ☐ **Spacious Seating & Emergency Barriers**

References:

[1] M. W. Hasan, A. H. Chowdhury, M. M. Hasan, A. R. Datta, A. Mahbubur Rahman, and M. A. Amin. lot-based smart application system to prevent sexual harassment in public transport. In *Advances in Computer, Communication and Computational Sciences: Proceedings of IC4S 2019*, pp. 341–351. Springer, 2021.

[2] N. Du, L. Robert, and X. J. Yang. Cross-cultural investigation of the effects of explanations on drivers' trust, preference, and anxiety in highly automated vehicles. *Transportation Research Record*, 2677(1):554– 561, 2023. doi: 10.1177/03611981221100528

DISCUSSION AND CONCLUSION

- The study identified key design suggestions for in-car interfaces to address safety concerns and improve the transportation experience for female passengers, including **CCTV cameras, emergency help buttons, passenger details, and real-time location sharing.**
- Overall, the participants suggested following:
 - ✓ **Prevention Rather than a Cure,**
 - ✓ **Law Enforcement to Implement Proper Policies**
 - ✓ **Uphold Social and Religious Values**
 - ✓ **Design Culturally Sensitive and Inclusive Solutions**

