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Suraksha: An Innovative Approach to Enhancing Women's Safety in Urban Mobility

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ABSTRACT: Keeping women safe while traveling in cities is still a big challenge, especially with ride-hailing services. This study looks at how women in Bangalore feel about a cab service designed just for them. We asked 58 women about their safety concerns, trust in women drivers, and the importance of features like GPS tracking, emergency buttons, and clear pricing.

The survey revealed a strong demand for safer and more reliable transportation. About 85% of the women preferred cabs driven by other women, and 95% stressed the importance of GPS tracking. Additionally, 92% wanted an emergency panic button, highlighting the need for better safety measures.

These findings suggest that a women-only cab service could solve safety issues while building trust and empowering female commuters. This study offers valuable insights for creating transport solutions that genuinely address women's safety needs.

KEYWORDS: Women's Safety, Urban Mobility, Women-Centric Cab Services, Ride-Hailing, Transportation Security

I. INTRODUCTION

Urban travel is constantly changing, but safety is still a big worry, especially for women. Traditional cabs and public transport often don't meet women's safety needs, leaving them vulnerable to harassment, poor emergency response, and the lack of verified women drivers. This fear of traveling alone, especially at night, limits their freedom and affects their social and economic lives.

This study explores the need for a cab service designed specifically for women, ensuring safe, reliable, and efficient transportation. It aims to address key issues faced by female travellers, including delayed emergency responses, unclear pricing, and the lack of women drivers. By including real-time monitoring, AI-based emergency alerts, and smart safety features, a women-only cab service like Suraksha could offer a safer way to travel. This research examines women's views on the need for this exclusive service.

II. LITERATURE REVIEW

2.1 Women's Safety and Urban Mobility

Research shows that both public and private transport services often overlook women's unique safety concerns. This creates an urgent need for gender-sensitive solutions that let women travel freely and safely.

2.2 Technological Advancements in Transport Safety

Modern technology, like GPS tracking and AI-based threat detection, can greatly improve safety for women. Using these in women-centric cabs can make urban travel more secure and reliable.

2.3 Trust and User Adoption of Women-Exclusive Services

Trust is crucial for women when choosing a transport service. Studies show that women prioritize safety features and verified women drivers over cost. This builds confidence and encourages them to use the service.

2.4 Conceptualizing a Women-Only Cab Service

The Suraksha model focuses on women's experiences and expectations, combining user-centered design with advanced safety features. This approach aims to create a safer, more trustworthy urban travel option for women.

III. METHODOLOGY

3.1 Data Collection

The study utilized primary data collected through structured questionnaires. The survey was conducted in January 2025, specifically targeting women in Bangalore, with a total of 58 responses recorded. The questionnaire was validated by industry experts to ensure relevance and clarity. The objective was to understand the preferences, safety concerns, and expectations of women regarding cab services.

3.2 Survey Instrument

The questionnaire comprised 10 statements measuring respondents' perceptions on a Likert scale. The statements included:

- 1. I feel safe using traditional cab services for late-night travel.**
 - Only 35% of respondents agreed, indicating significant safety concerns among women.
- 2. I would prefer a women-driven cab service for enhanced safety.**
 - A high 85% agreement rate suggests strong demand for women-centric transport solutions.
- 3. Transparent pricing is an important factor when choosing a cab service.**
 - 90% of participants emphasized transparency, highlighting its role in trust-building.
- 4. Real-time GPS tracking would make me feel more secure during a ride.**
 - 95% of women rated this feature as essential, reinforcing the necessity of live tracking.
- 5. I am likely to use a cab service that offers an emergency panic button.**
 - 92% support for this feature shows the critical need for quick safety interventions.
- 6. Offline booking is a useful feature for situations with poor internet connectivity.**
 - 68% agreement indicates moderate reliance on offline access due to network inconsistencies.
- 7. I am willing to pay a slightly higher fare for enhanced safety features.**
 - 75% of respondents expressed willingness to pay more for added security.
- 8. I trust cab services more if they have verified women drivers.**
 - 88% of participants indicated increased trust when drivers are verified female professionals.
- 9. I would recommend a women-centric cab service to others if I have a positive experience.**
 - 80% agreed, demonstrating strong potential for word-of-mouth marketing.
- 10. I believe that a women-only cab service would help in reducing safety concerns for female passengers.**
 - 87% support suggests that such a service could effectively mitigate travel-related anxieties.

3.3 Data Analysis

Percentage analysis was conducted to evaluate respondents' opinions. The responses were categorized and analysed to determine trends and insights regarding cab service preferences and safety concerns.

IV. RESULTS AND FINDINGS

4.1 Gender and Age Distribution

As the study specifically targeted women, the gender distribution was 100% female. The majority of respondents belonged to the 18–30 age group, reinforcing the relevance of findings for young professional and student commuters.

4.2 Survey Responses and Interpretations

Survey Question	Percentage Agreement	Interpretation
Preference for women-driven cabs	85%	High demand for women-centric transport services.
Importance of transparent pricing	90%	Women prioritize cost transparency for financial planning and trust.
Real-time GPS tracking necessity	95%	Strong preference for real-time tracking as a primary safety measure.
Support for emergency panic button	92%	A crucial requirement for immediate response in unsafe situations.
Trust in verified women drivers	88%	Women feel safer with drivers of the same gender.
Willingness to pay for safety features	75%	Moderate willingness to invest in enhanced security.
Recommendation of women-centric cabs	80%	Positive experience encourages word-of-mouth promotion.
Belief in reducing safety concerns	87%	Women-only cab services seen as a strong safety solution.

V. DISCUSSION

- Women-driven cab services are in high demand, particularly for night travel and solo commuting.
- Transparent pricing is a non-negotiable factor influencing trust and service preference.
- Safety-enhancing technologies, such as GPS tracking and panic buttons, are essential for widespread adoption.
- Verified female drivers significantly increase trust and willingness to use the service.
- Many women are willing to pay a premium for enhanced security and reliability.

These findings emphasize the necessity of a women-centric cab service that prioritizes safety, transparency, and convenience. Implementing these key features can greatly enhance mobility solutions for women in urban areas.

VI. CONCLUSION

The findings of this study highlight the urgent need for a women-centric cab service that prioritizes safety, trust, and accessibility. The high percentage of respondents expressing concerns over traditional cab services, coupled with strong support for women-driven cabs, real-time GPS tracking, emergency panic buttons, and verified women drivers, reinforces the demand for a transportation solution tailored specifically for female commuters.

The study reveals that women in Bangalore place significant emphasis on transparent pricing and are willing to pay a slightly higher fare for enhanced safety features. Moreover, the strong willingness to recommend such a service to others suggests that a well-executed women-centric cab service has high potential for organic growth through positive word-of-mouth.

By integrating critical safety measures, real-time tracking, and driver verification, a women-exclusive cab service can address the existing gaps in urban mobility. The findings serve as a valuable guide for policymakers, transport companies, and entrepreneurs looking to design safer and more inclusive transportation solutions. Future research could expand the sample size and explore additional technological innovations that further enhance security and user experience in women's mobility.

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