FEASIBILITY REPORT FOR BinGo APPLICATION

1. Introduction

The rapid increase in urban population has led to a corresponding rise in municipal solid waste generation, creating challenges in efficient waste collection and recycling. Traditional waste management systems often operate on fixed schedules without real-time monitoring, leading to inefficiencies, lack of transparency, and poor citizen participation.

The **BinGo application** aims to address these issues by providing a **real-time waste collection and recycling tracking mobile application**. The system enables users to request waste pickup, track collection vehicles in real time, and receive status updates through a mobile interface. The application is targeted at urban residents, municipal authorities, and waste collection workers to improve operational efficiency and promote sustainable waste disposal practices.

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2. Types of Feasibility

2.1 Technical Feasibility

Availability of Technology:

The technologies required for developing the BinGo application are readily available and widely used. The mobile application is developed using **React Native (Expo)**, while the backend services are implemented using **FastAPI (Python)**. **PostgreSQL** is used for database management, and **Git/GitHub** is used for version control.

Developer Skills

The developer possesses fundamental knowledge of mobile application development, backend API development, database management, and version control systems. The selected technologies are beginner-friendly yet industry-relevant, enabling the project to be successfully designed, developed, and maintained by a single individual within an academic environment. This approach also helps strengthen practical skills in full-stack mobile application development and software engineering practices.

System Integration:
Integration of user authentication, waste pickup requests, real-time location tracking, and role-based access control is technically achievable using existing APIs and frameworks. GPS and map services can be integrated for live vehicle tracking.

Conclusion:
✅ The BinGo application is **technically feasible**.

2.2 Economic Feasibility

Development Cost:

The development cost is minimal, as the application is built using open-source technologies and developed by students as part of an academic project.

Operational Cost:

Operational expenses such as server hosting, database services, and API usage can be managed using free or low-cost student plans offered by cloud platforms.

Return on Investment:

Although the project is developed as a mini project, it has high potential for real-world implementation by municipalities or institutions, providing long-term value.

Conclusion:

✅ The BinGo application is **economically feasible** with low investment requirements.

2.3 Operational Feasibility

User Perspective:
The application provides a simple and intuitive interface that allows users to easily request waste pickup and track the service in real time.

Administrative Perspective:
Administrators can efficiently manage pickup requests, assign workers, and monitor performance through a centralized dashboard.

Worker Perspective:
Waste collection workers can access assigned tasks and update status using the mobile application, reducing manual coordination.

Conclusion:

✅ The BinGo application is **operationally feasible** with effective role-based functionality.

2.4 Schedule Feasibility

Phase	Activities Included	Duration	Period
Requirement Analysis	Problem definition, objectives, SRS preparation	2 weeks	11-12-2025 to 24-12-2025

Phase	Activities Included	Duration	Period
System Design	Use Case Diagram, ER Diagram, Class Diagram, Sequence Diagram, System Architecture	3 weeks	25-12-2025 to 14-01-2026
UI/UX Design	frames, user flow, User-friendly UI design using Figma	2 weeks	15-01-2026 to 28-01-2026
Backend Development	API development, database implementation (FastAPI & PostgreSQL)	4 weeks	29-01-2026 to 25-02-2026
Mobile App Development	React Native (Expo) UI development, API integration	4 weeks	26-02-2026 to 25-03-2026
Integration & Testing	System integration, functional testing	2 weeks	26-03-2026 to 05-04-2026
Documentation & Final Preparation	Final report, PPT, review readiness	1 day	06-04-2026

Total Duration: Approximately **16 weeks**

Conclusion:

✅ The project is **schedule feasible** within a single academic semester.

2.5 Legal Feasibility

Data Protection:
User data, including location information, is accessed only during active service requests and stored securely.

Compliance:
The application complies with basic data privacy principles and does not involve illegal or restricted content.

Ethical Considerations:
Proper authentication and role-based access ensure responsible use of system features.

Conclusion:

✅ The BinGo application is **legally and ethically feasible**.

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3. Summary

Aspect	Feasibility
Technical Feasibility	✅ Achievable
Economic Feasibility	✅ Affordable
Operational Feasibility	✅ User-friendly
Schedule Feasibility	✅ Manageable Timeline
Legal Feasibility	✅ Compliant

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4. Final Verdict

✅ The **BinGo: Real-Time Waste Collection and Recycling Tracking Mobile Application** is **highly feasible** from technical, economic, operational, schedule, and legal perspectives. The project is well-suited for a **6th semester mini project** and demonstrates the practical application of modern technologies to solve a real-world problem.

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