

## Recyclable Materials Management System

Team: B3

### Introduction

- Urban waste collection faces challenges of inefficiency, lack of transparency, and disjointed communication.
- This project proposes a unified digital platform to modernize and streamline the management of recyclable materials.
- The system connects three key stakeholders: Users, Collectors, and Administrators through dedicated dashboards.

### Objective

- DIGITIZE THE ENTIRE WASTE COLLECTION PROCESS.
- IMPROVE EFFICIENCY FOR COLLECTORS AND ADMINS.
- ENSURE TRANSPARENCY AND CONVENIENCE FOR USERS.
- PROMOTE SUSTAINABLE URBAN LIVING THROUGH SMART RECYCLING.

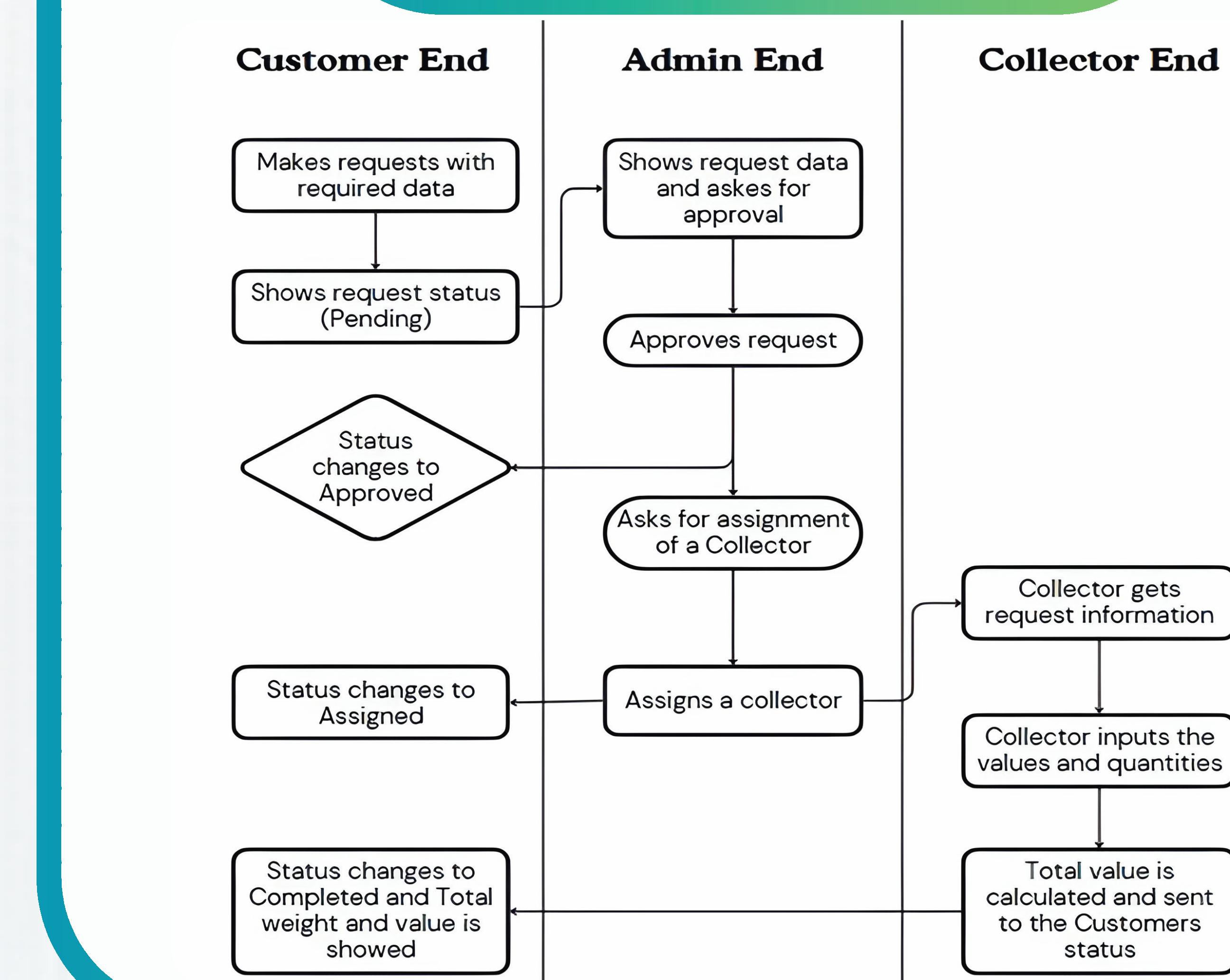
### Analysis

- ISSUE: INEFFICIENT MANUAL PROCESSES AND OPAQUE PRICING HINDER CURRENT WASTE MANAGEMENT.
- SOLUTION: A THREE-DASHBOARD DIGITAL SYSTEM IS REQUIRED TO MANAGE THE FULL REQUEST LIFECYCLE, MEETING THE NEEDS OF USERS, COLLECTORS, AND ADMINISTRATORS.

### Feasibility Study

- TECHNICAL FEASIBILITY: CAN BE DEVELOPED AS A WEB APPLICATION WITH MOBILE-RESPONSIVE DESIGN OR AS A NATIVE MOBILE APP. USES STANDARD TECHNOLOGIES (E.G., CLOUD DATABASE, GPS, REST APIs).
- OPERATIONAL FEASIBILITY: THE SYSTEM IS USER-FRIENDLY AND DESIGNED TO FIT INTO THE EXISTING WORKFLOWS OF ALL STAKEHOLDERS, IMPROVING THEM SIGNIFICANTLY.
- ECONOMIC FEASIBILITY: REDUCES ADMINISTRATIVE OVERHEAD, OPTIMIZES FUEL COSTS VIA BETTER ROUTING, AND HAS A CLEAR POTENTIAL FOR A SUSTAINABLE BUSINESS MODEL.

### System Workflow Diagram



### Advantages

- INCREASED EFFICIENCY
- FULL TRANSPARENCY
- DATA-DRIVEN DECISIONS
- COST OPTIMIZATION
- ENVIRONMENTAL BENEFITS

### Limitations

- INTERNET DEPENDENCE: NEEDS STABLE CONNECTIVITY.
- DIGITAL LITERACY: SOME USERS MAY NEED TRAINING.
- SETUP COST: REQUIRES INITIAL INVESTMENT.
- DATA SECURITY: MUST ENSURE STRONG PROTECTION.

### Conclusion

- THE SYSTEM IS A Viable, MODERN DIGITAL SOLUTION TO MANUAL RECYCLABLE MATERIALS COLLECTION PROBLEMS.
- IT ENSURES EFFICIENCY, TRANSPARENCY, AND A CONNECTED ECOSYSTEM FOR ALL STAKEHOLDERS.
- THE PROJECT IS FINANCIALLY JUSTIFIED.
- IT IS A KEY STEP TOWARD SMARTER, SUSTAINABLE URBAN MANAGEMENT.

### Team Members

Junayed Hasan  
0812310205101059

Mahbuba Mim  
0812310105101067

Md Abu Nayem  
0812310205101070

### Supervisor

Tanvir Anjom Siddique  
Lecturer, Dept of CSE,  
BAUET

Awaleen Nawar Suha  
Lecturer, Dept of CSE,  
BAUET