



American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

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Section: B

Software Quality Assurance and Testing

ZeroBin – A Smart Waste Management System

A Report submitted By

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Date:

Software Test Plan

for

ZeroBin – A Smart Waste Management System

Version 3.0 approved

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Date: 26-06-25

Table of Contents

Revision History	3
1. TEST PLAN IDENTIFIER:RS-MTP01.3	4
2. REFERENCES.....	4
3. INTRODUCTION.....	4
Background to the Problem.....	4
Solution to the Problem.....	5
4. REQUEIREMNT SPECIFICATION	6
4.1 System Features.....	6
4.2 System Quality Attributes	8
4.3 System Interface	9
4.4 Project Requirements.....	20
5. FEATURES NOT TO BE TESTED.....	21
6. TESTING APPROACH	21
6.1 Testing Levels	21
6.2 Test Tools	22
6.3 Meetings	22
7. TEST CASES/TEST ITEMS	23
8. ITEM PASS/FAIL CRITERIA	63
9. TEST DELIVERABLES.....	63
10. STAFFING AND TRAINING NEEDS.....	63
11. RESPONSIBILITIES	64
12. TESTING SCHEDULE.....	64
13. PLANNING RISKS AND CONTINGENCIES	65
14. APROVALS.....	65

Revision History

Revision	Date	Updated by	Update Comments
0.1	09-06-25	Rifat Arafin	First Draft
0.2	17-06-25	Rahiq Al-Makhtum Rahi	Improved & Refined Test Cases
0.3	24-06-25	Shahadat Hossain Sakib	Final Report (Performed minor improvements)

1. TEST PLAN IDENTIFIER:RS-MTP01.3

2. REFERENCES

1. Book: Software Requirement, 3rd Edition2. The Software Requirement Memory Jogger
2. Website: <https://www.guru99.com/software-testing.html>

3. INTRODUCTION

Background to the Problem

With the rapid pace of urbanization in Bangladesh, the challenge of effective waste management has become increasingly prominent. According to data from municipal reports and environmental studies, cities such as Dhaka produce several thousand tons of solid waste daily. A significant portion of this waste remains untreated or is disposed of through unsanitary and unregulated means, contributing to serious environmental pollution and health risks.

Despite the gravity of the issue, there is a noticeable lack of structured mechanisms to engage citizens in proper waste disposal practices. Waste collection services are often inconsistent, and the absence of digital monitoring or public incentive systems has resulted in limited participation from the community. As a consequence, urban areas continue to suffer from unmanaged waste accumulation, clogged drainage systems, and deteriorating hygiene standards.

To address these systemic shortcomings, a mobile-based application named ZeroBin has been developed. The objective of this platform is to facilitate structured waste management by allowing users to schedule pickups, report service-related issues, track recycling activity, and contribute to environmental campaigns. The application also serves as an educational tool to promote sustainable habits through informative content and real-time notifications.

Problems:

- i. The core issues include a lack of public awareness, minimal technological integration in municipal waste systems, inadequate recycling infrastructure, and irregular waste collection services.
- ii. Implementing effective waste management can significantly reduce health risks, enhance the quality of urban life, and foster civic responsibility through environmentally sustainable practices.

Solution to the Problem

To address the challenges outlined, we propose the development and deployment of ZeroBin, a mobile-based smart waste management system. This solution is designed to facilitate organized, accessible, and accountable waste collection while encouraging community participation and awareness through technology-driven engagement.

The proposed solution is particularly appropriate for solving the problem because it integrates multiple essential features such as real-time pickup scheduling, recycling tracking, and complaint submission—into a single platform. By leveraging Firebase for backend operations and Flutter for cross-platform mobile development, the application ensures scalability, low latency, and accessibility for users across various devices. The solution directly aligns with the business objectives of improving waste management efficiency, increasing public participation, and reducing operational challenges for municipal authorities.

ZeroBin enables users to:

- Schedule garbage pickups at their convenience
- Track recyclable submissions and earn eco-rewards
- View and pay service bills digitally
- Submit complaints with location-based details
- Stay updated on community cleanup events
- Read blogs and tips related to sustainable living
- Contribute to verified environmental donation campaigns

The primary benefits of the system include enhanced transparency, improved service delivery, increased civic engagement, and a cleaner, healthier urban environment. The goal is not only to streamline waste collection operations but also to foster a culture of environmental responsibility and proactive participation.

In terms of existing solutions, a few mobile applications such as Recycle Coach, TrashOut, and Bin-e have explored similar domains. However, most of these are region-specific and lack a unified platform that combines waste scheduling, citizen reporting, and reward-based recycling in the context of Bangladesh. ZeroBin is uniquely tailored to address local infrastructure challenges while also offering educational and community-driven features, which sets it apart from conventional models.

4. REQUIREMENT SPECIFICATION

4.1 System Features

1. User Registration and Login

Functional Requirements

- 1.1 The system shall allow users to register using a valid email and password.
- 1.2 The system shall verify the user's email address through an OTP sent via email.
- 1.3 The system shall allow users to log in using their registered email and password.
- 1.4 If incorrect credentials are entered three times, the system shall prompt a CAPTCHA verification.
- 1.5 If incorrect credentials are entered five times, the account shall be temporarily locked for 15 minutes.
- 1.6 The system shall allow users to reset their password via OTP verification.

Priority Level: High

Precondition: User must have a valid email and password

2. Schedule Pickup

Functional Requirements

- 2.1 The system shall allow users to select a date and time slot for garbage pickup.
- 2.2 The system shall show availability based on the user's location zone.
- 2.3 The system shall allow users to cancel or reschedule an existing pickup.
- 2.4 Pickup history shall be stored and viewable in the user profile.

Priority Level: High

Precondition: User must be logged in and location services must be enabled

3. Recycling Submission

Functional Requirements

- 3.1 The system shall allow users to enter types and quantities of recyclable materials.
- 3.2 The system shall calculate eco-points based on submitted quantities.
- 3.3 The system shall allow users to request a recycling pickup.
- 3.4 Recycle history and rewards shall be viewable in the user dashboard.

Priority Level: High

Precondition: User must be logged in

4. Billing and Payments

Functional Requirements

- 4.1 The system shall generate a monthly bill for waste collection services.
- 4.2 Users shall be able to view, download, and pay their bills online.
- 4.3 The system shall update payment status immediately upon successful transaction.
- 4.4 Billing history shall be archived and accessible by the user.

Priority Level: Medium

Precondition: User must be logged in and have a payment method configured

5. Complaint Submission

Functional Requirements

5.1 The system shall allow users to submit service complaints with a title, description, and location.

5.2 Users shall receive acknowledgment of complaint submission.

5.3 The system shall display real-time status of complaint resolution.

Priority Level: High

Precondition: User must be logged in and have GPS permissions enabled

6. Events and Awareness

Functional Requirements

6.1 The system shall allow users to browse upcoming environmental events.

6.2 Users shall be able to RSVP to events and track their participation.

6.3 The system shall send reminders and updates related to the events.

Priority Level: Medium

Precondition: User must be logged in

7. Donations

Functional Requirements

7.1 The system shall allow users to view and select verified donation campaigns.

7.2 Users shall be able to donate using digital payment methods.

7.3 The system shall display a summary of past donations for the user.

Priority Level: Medium

Precondition: User must be logged in and have an active payment method

8. Blogs and Tips

Functional Requirements

8.1 The system shall display a collection of blogs and tips related to recycling and sustainability.

8.2 Users shall be able to bookmark and share blog entries.

Priority Level: Low

Precondition: None

9. Settings and Preferences

Functional Requirements

9.1 The system shall allow users to change language, notification preferences, and theme.

9.2 Users shall be able to view legal policies and application version.

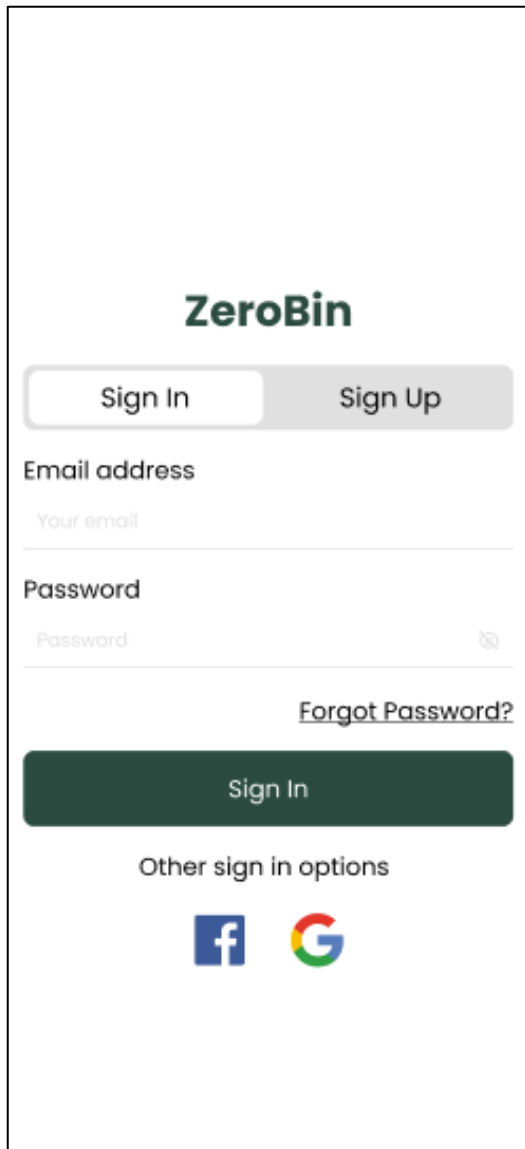
Priority Level: Low

Precondition: User must be logged in

4.2 System Quality Attributes

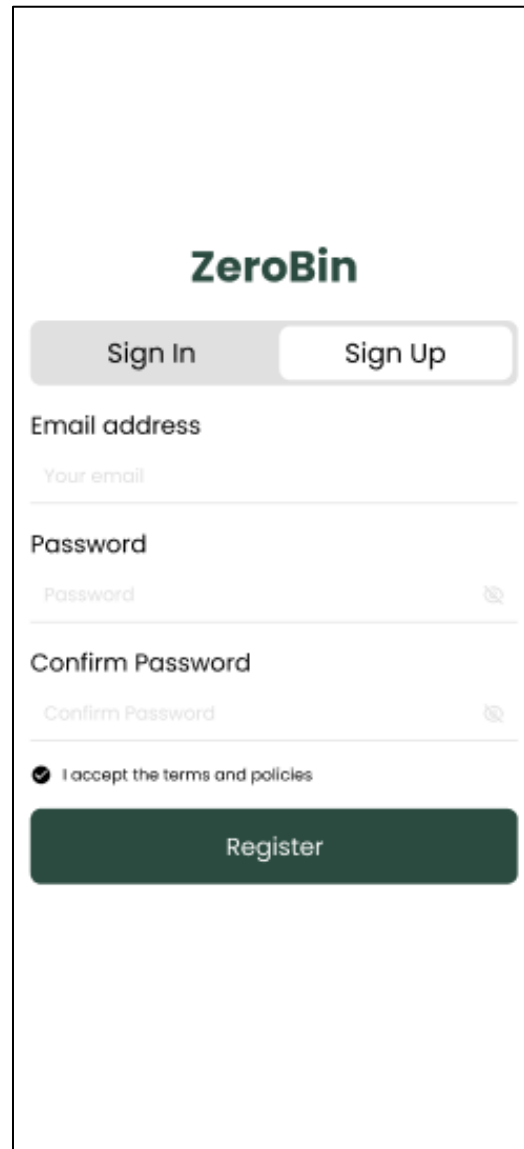
- Usability: The application shall offer a clean, intuitive interface allowing a new user to schedule a pickup or submit a complaint within an average of three minutes.
- Performance: The system shall load core features (home screen, schedule, complaint form) in under 2 seconds under normal 4G or Wi-Fi conditions.
- Reliability: The system shall maintain 99.5% uptime and ensure that scheduled pickups and submissions are logged and retrievable even after unexpected interruptions.
- Scalability: The backend architecture shall support scaling up to 100,000 concurrent users during city-wide campaigns or promotions without performance degradation.
- Security: All sensitive user data including login credentials, payment details, and complaint history shall be encrypted using industry-standard encryption protocols (e.g., AES-256).
- Maintainability: Codebase shall follow modular design principles to support smooth updates and feature enhancements. Bugs shall be resolvable with zero downtime through CI/CD pipelines.
- Availability: Services shall be accessible 24/7 with a maximum allowable maintenance window of 30 minutes per month.
- Efficiency: The application shall optimize resource usage to minimize battery drain and data consumption, especially during background GPS or notification updates.

4.3 System Interface




The ZeroBin login interface features a dark green header with the 'ZeroBin' logo. Below the logo are two buttons: 'Sign In' (highlighted in white) and 'Sign Up' (in dark green). The form includes an 'Email address' field with a placeholder 'Your email', a 'Password' field with a placeholder 'Password' and a toggle icon, and a 'Forgot Password?' link. A large dark green 'Sign In' button is positioned below the fields. At the bottom, the text 'Other sign in options' is followed by Facebook and Google icons.

Figure-01: Login



The ZeroBin sign up interface features a dark green header with the 'ZeroBin' logo. Below the logo are two buttons: 'Sign In' (in dark green) and 'Sign Up' (highlighted in white). The form includes an 'Email address' field with a placeholder 'Your email', a 'Password' field with a placeholder 'Password' and a toggle icon, and a 'Confirm Password' field with a placeholder 'Confirm Password' and a toggle icon. Below these fields is a checkbox labeled 'I accept the terms and policies'. A large dark green 'Register' button is positioned at the bottom.

Figure-02: Sign Up



First Name

Last Name

Phone Number



+880

Address

Pick Location >

Next

Figure-03: Onboarding 1/2



Your Profile Picture

Choose Existing Picture

Take a Picture

Skip

Figure-04: Onboarding 2/2

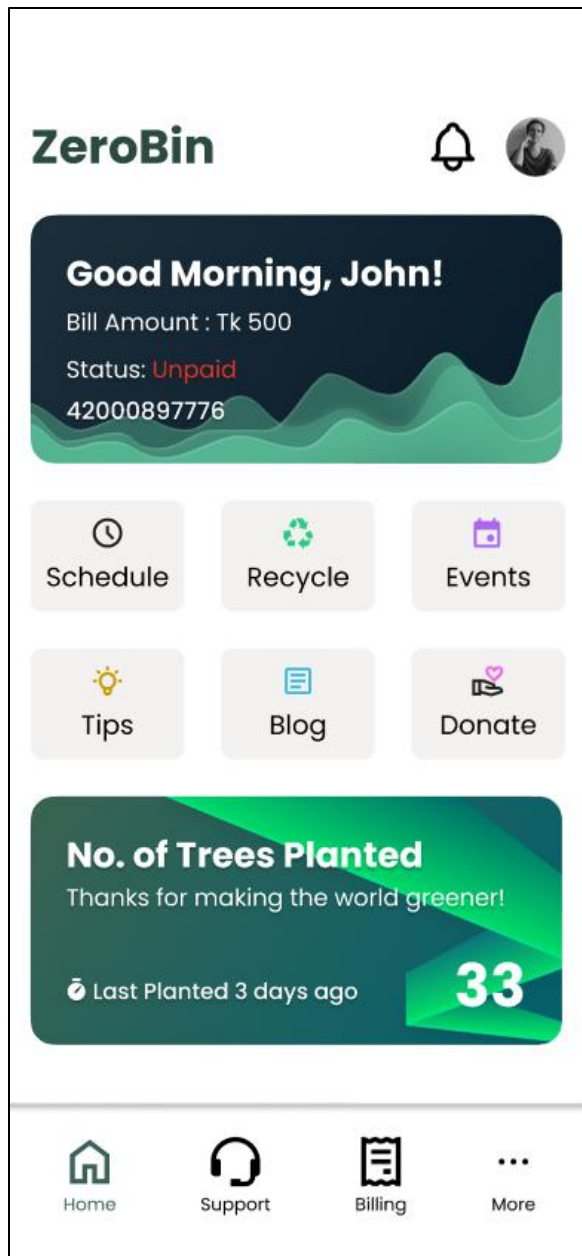


Figure-05: Home

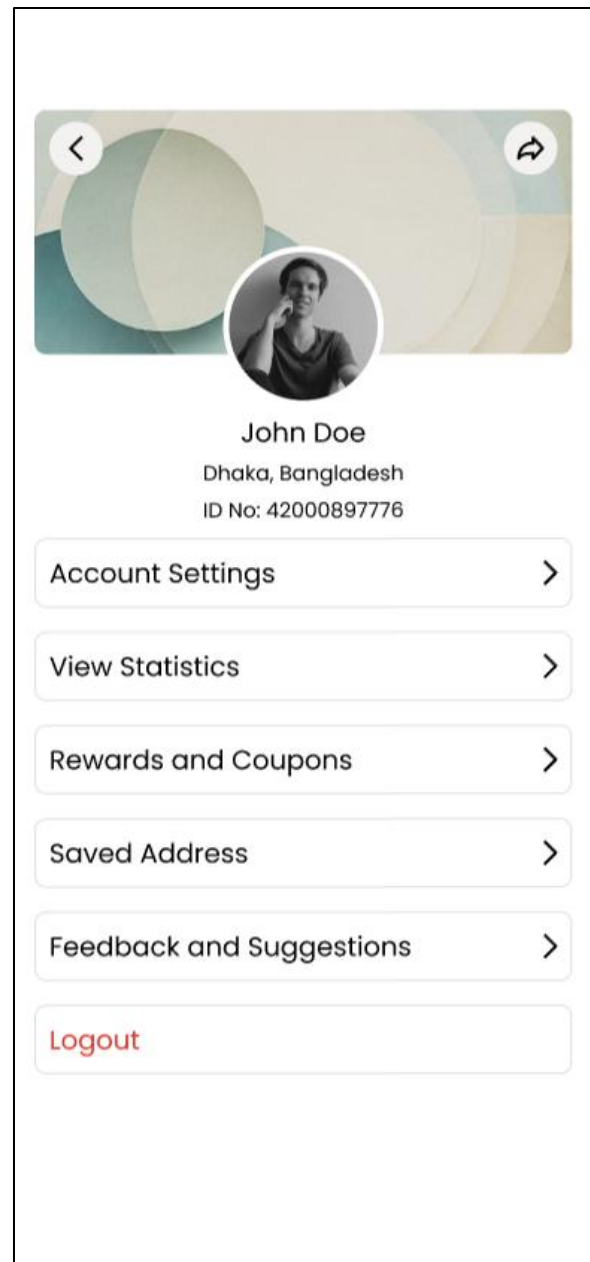


Figure-06: Profile

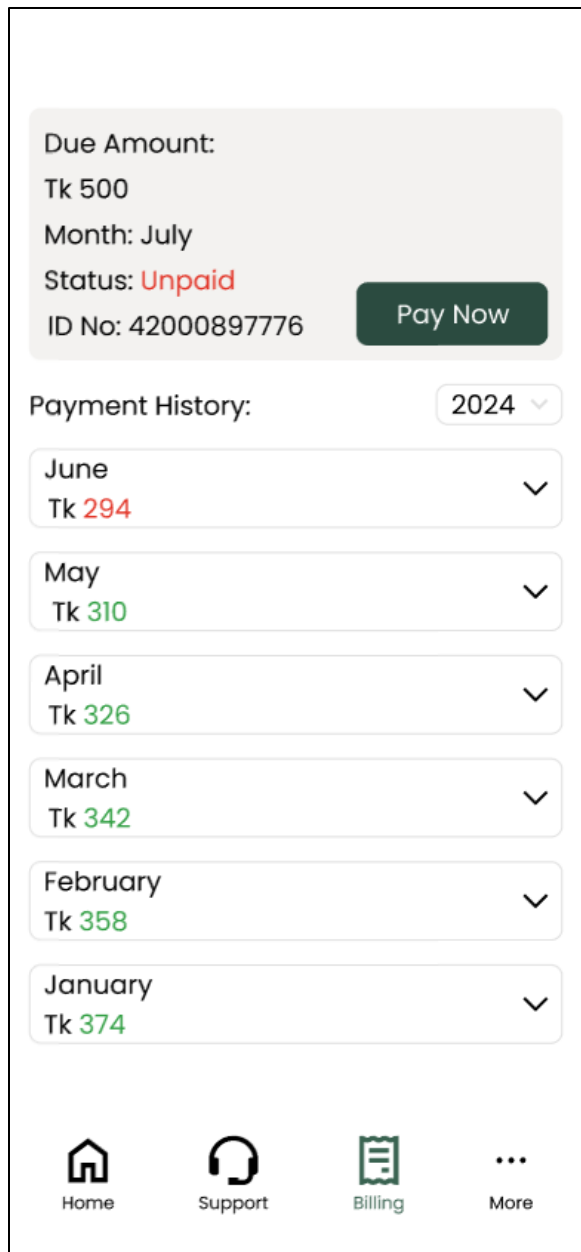


Figure-07: Billing

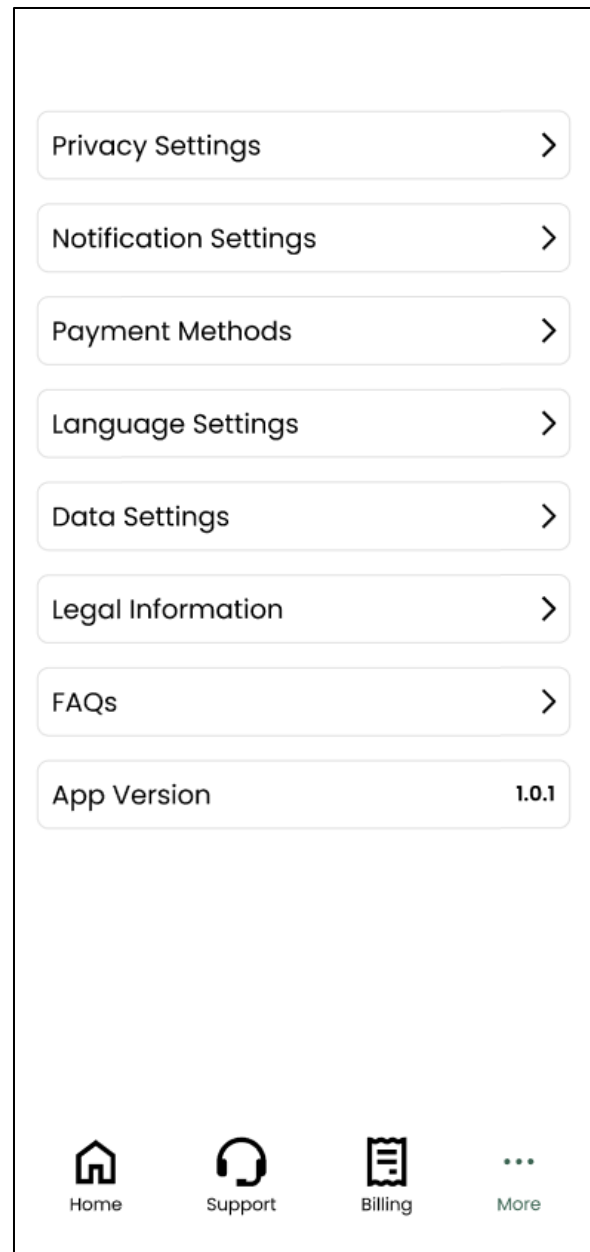


Figure-08: More Settings

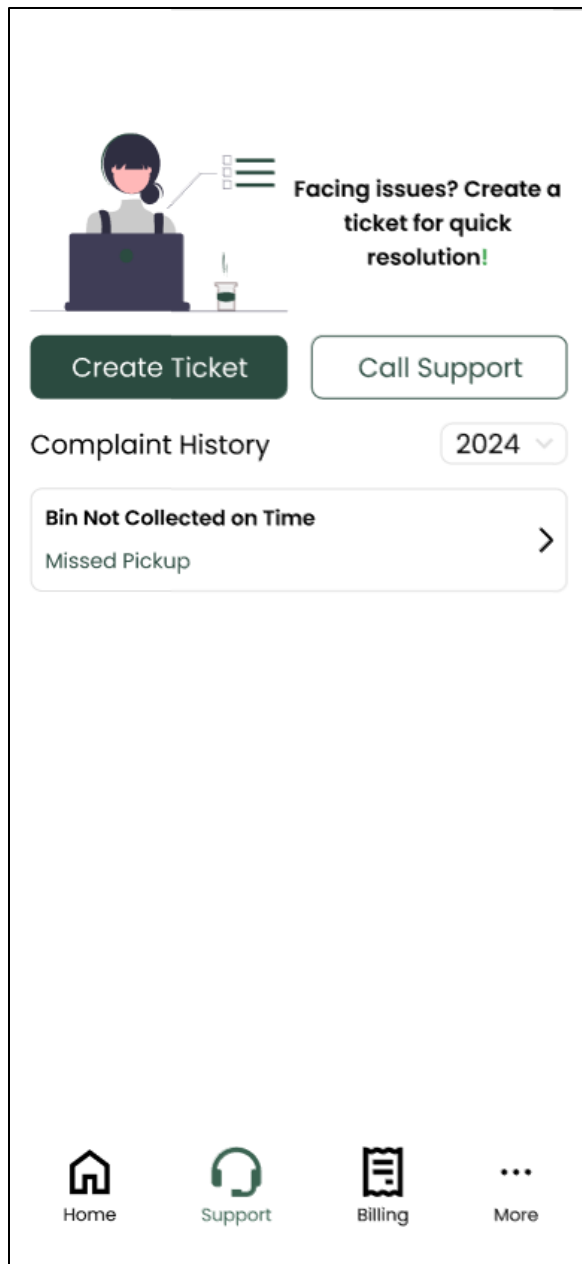


Figure-09: Support

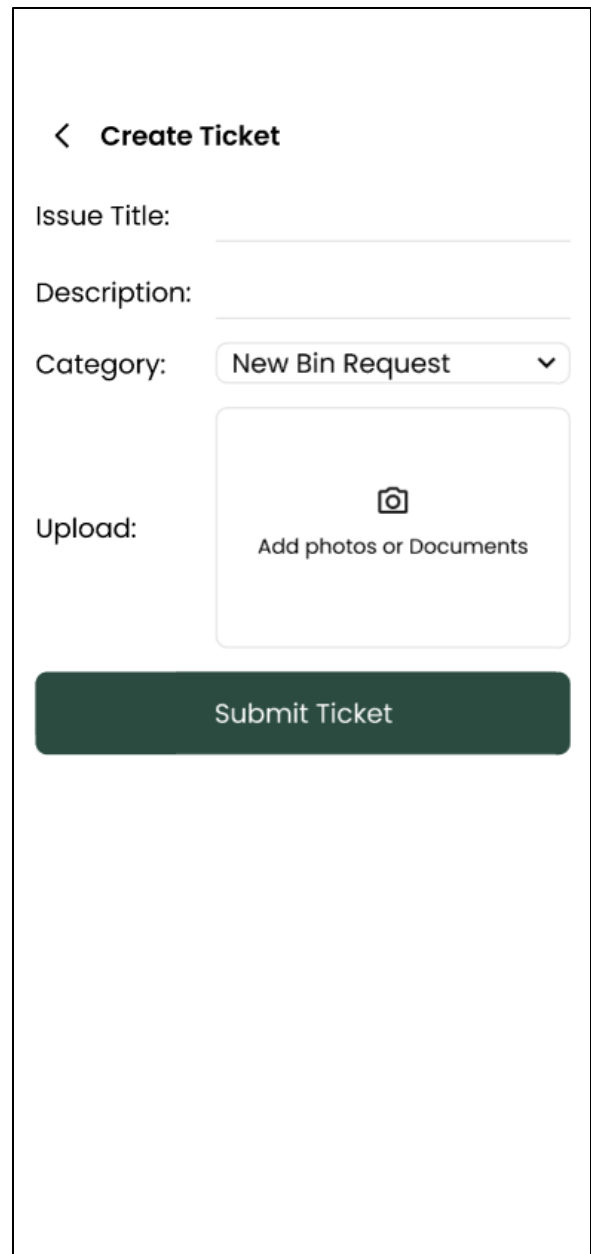


Figure-10: Create Ticket

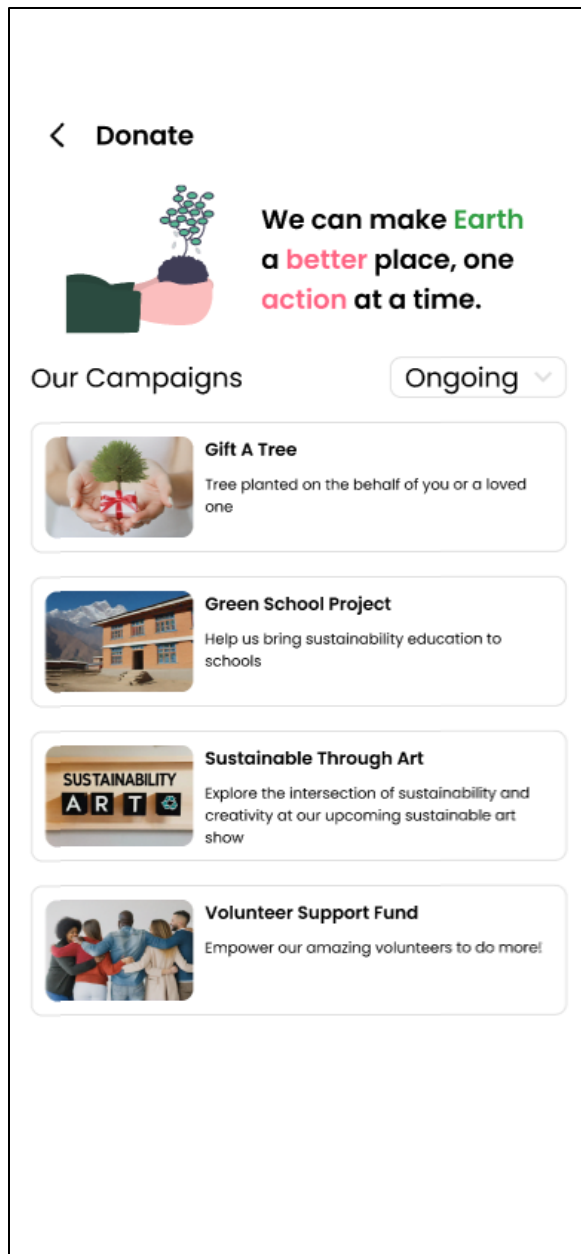


Figure-11: Donate

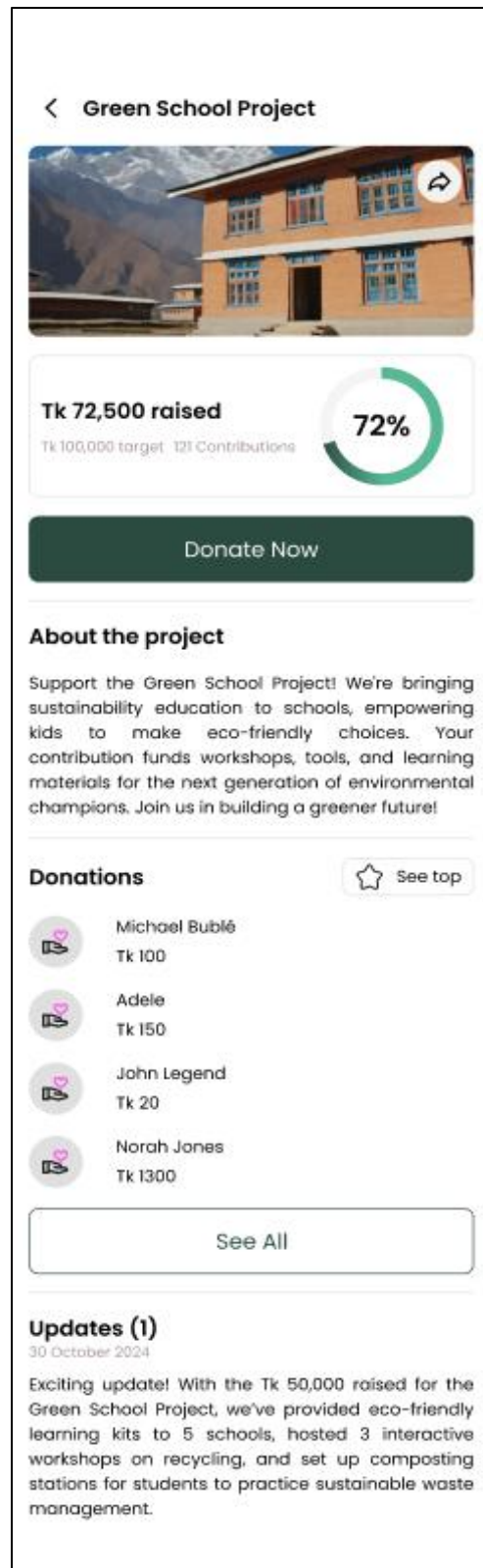


Figure-12: Donate Campaign

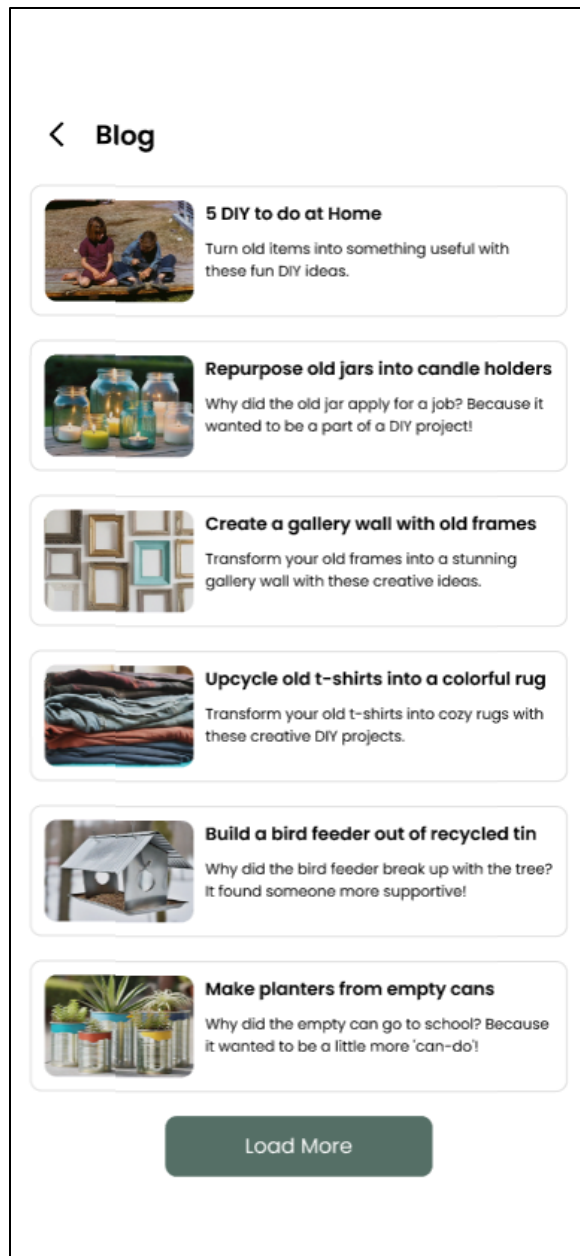


Figure-13: Blog



Figure-14: Blog Post

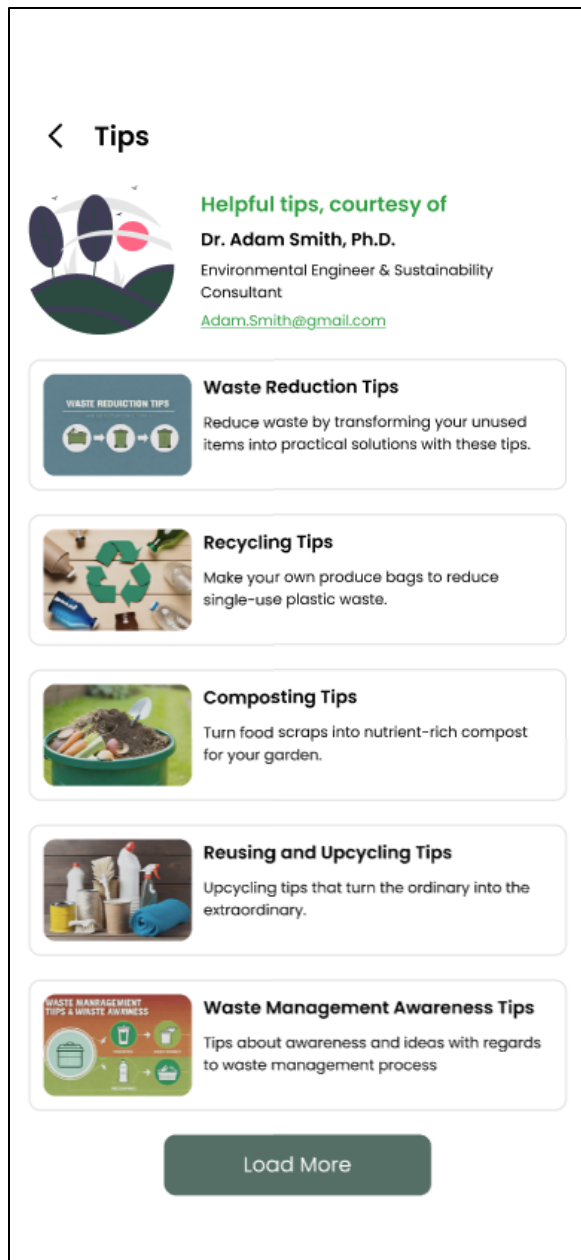


Figure-15: Tips



Figure-16: Recycling Tips

<

Recycle

i

Paper

-

+

Bottle

-

+

Metal

-

+

Cardboard

-

+

Calculate

Request a Pickup

<

Recycle

i

Paper

-

03

+

Bottle

-

45

+

Metal

-

02

+

Cardboard

-

02

+

Calculate

Request a Pickup

Figure-17: Recycle

Figure-18: Recycle Calculation

Events

Your Location:

Dhaka, Bangladesh

Change Location

All Events:

July

02

Riverside Cleanup Campaign

Thu, 8 am .Buriganga River Bank, Dhaka

RSVP

04

Tree Plantation Drive

Sat, 11 am .Ramna Park, Dhaka

RSVP

11

Street Cleanup Campaign

Sun, 9 am .Mirpur 10, Dhaka

RSVP

16

Community Gardening Project

Wed, 10 am .Dhanmondi Lake Park, Dhaka

RSVP

Figure-19: Events

Metrics

Paper

kg

Bottle

pc

Metal

kg

Cardboard

kg

Figure-20: Matric

<

Schedule

Your Location:

Dhaka, Bangladesh

Change Location

JULY

01-09

01

Sunday

5:00 AM

02

Monday

-

03

Tuesday

-

04

Wednesday

-

05

Thursday

5:00 AM

06

Friday

-

07

Saturday

6:00 AM

08

Sunday

-

09

Monday

5:30 AM

Figure-21: Schedule

4.4 Project Requirements

Total Development Time

The project is planned over a duration of **6 months**, divided into the following phases:

- **Requirement Analysis & Planning:** 1 month
- **UI/UX Design and Prototyping:** 1 month
- **Core Development:** 2 months
- **Testing & Quality Assurance:** 1 month
- **Deployment and Final Review:** 1 month

Human Resources

- **2 Flutter Developers** – responsible for frontend and backend integration.
- **4 QA Testers** – responsible for test case design, execution, and reporting.
- **1 UI/UX Designer** – responsible for designing user interface and user experience.
- **1 Project Manager (shared responsibility)** – responsible for team coordination, task tracking, and milestone management.

Total Budget Estimation

Category	Quantity	Rate (BDT/Month)	Duration	Total (BDT)
Developer Cost	2 Developers	30,000	2 months	120,000
QA and Testing	4 Testers	25,000	1 month	100,000
UI/UX Design	1 Designer	20,000	1 month	20,000
Total				240,000

Development and Testing Environment

- **Frontend Technology:** Flutter (Dart)
- **Backend Services:** Firebase (Authentication, Firestore, Cloud Functions)
- **IDEs & Tools:** Android Studio, Visual Studio Code, GitHub, Postman, TestRail
- **Design Tools:** Figma, Canva
- **Testing Tools:** Lightshot, OBS Studio, Fake Filler, Trello

- **Supported Platforms:** Android 8.0 (Oreo) and above, iOS 11 and above
- **Cloud & Deployment:** Firebase Hosting and Cloud Storage

5. FEATURES NOT TO BE TESTED

The following components and features are excluded from direct testing in the current scope of the ZeroBin project. These items are either informational, out of scope, or planned for future development cycles:

- **Blog and Tips Section:**
The eco-awareness articles and informational posts provided in the blog section are manually curated. The accuracy and relevancy of this content will not be verified through formal testing.
- **Performance Testing Under High Load Conditions:**
Load or stress testing for high-volume users or concurrency (e.g., 10,000+ users) is not included in this testing cycle due to limited infrastructure and time constraints.
- **Third-Party Backend Logic (e.g., Firebase Security Rules):**
Core backend services such as Firebase Authentication, Cloud Firestore security rules, and hosting configurations are assumed to be functional per platform standards and will not be unit tested separately.

These exclusions were made considering the limited timeline, resource availability, and the current feature priorities of the project.

6. TESTING APPROACH

6.1 Testing Levels

The testing strategy for the ZeroBin Smart Waste Management System will include **Unit Testing**, **System/Integration Testing**, and **Acceptance Testing**. Given the limited size of the team and the academic nature of the project, testing will be executed collaboratively by designated QA testers with direct support from the development team.

- **Unit Testing**

Unit testing will be carried out by the developers during the implementation phase. The primary focus will be on validating individual functions, modules, and backend components such as:

- User registration and login logic
- Scheduling and recycling calculation modules
- Firebase CRUD operations for complaints, donations, and billing

Each developer is responsible for maintaining a record of unit test cases, expected and actual outputs, and logging any discovered defects. These records must be submitted to the testing team for review and tracking purposes prior to system-level testing.

- **System/Integration Testing**

System and integration testing will be conducted by the QA testers in coordination with the developers. This phase will validate the interaction between application modules, ensuring seamless data flow and functional cohesion across:

- Flutter frontend and Firebase backend
- Form validation and cloud storage integration
- Scheduled pickups, notifications, and billing logic

System testing will only proceed once major blocking issues in the unit phase are resolved. Minor issues may be temporarily bypassed if workarounds exist and do not disrupt test execution.

- **Acceptance Testing**

Acceptance testing will be performed by a representative sample of the target users—primarily fellow students and academic reviewers—with support from the test team. This phase will simulate real-life user scenarios to validate that the application meets all specified requirements and provides a smooth user experience. Acceptance testing will include:

- Scheduling pickups end-to-end
- Submitting a complaint and tracking resolution
- Completing a payment and downloading a receipt

The acceptance phase will be executed after the successful completion of system/integration testing and will determine whether the software is ready for deployment and final submission.

6.2 Test Tools

To maintain efficient and accurate testing, the following tools will be utilized:

- **Postman** → API testing to verify backend functionality.
- **TestRail** → Managing test cases and tracking execution progress.
- **Fake Filler** → Automated form testing for input validation.
- **Lightshot** → Capturing screenshots for bug reporting.
- **OBS Studio / Loom** → Recording test execution for documentation purposes.

6.3 Meetings

Emergency Bug-Fix Meetings: Immediate action on critical defects.

Scrum Meeting: 15 minutes scrum meeting.

Monthly QA Team Meetings: Reviewing test progress and identifying issues.

Quarterly Test Reviews: Collaborative discussions among testers, developers, and project managers.

Emergency Bug-Fix Meetings: Immediate action on critical defects.

Communication Tools: Microsoft Teams, Skype → For real-time discussions and coordination.

7. TEST CASES/TEST ITEMS

TC-001: User Login with Valid Credentials

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_001		Test Designed Date: 09-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Authentication – Login		Test Execution Date:		
Test Title: Verify successful login with valid email and password				
Description: This test verifies that a registered user can log in using correct credentials and gain access to the application dashboard.				
Precondition(If any): User is already registered and the app is installed.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Launch the ZeroBin application 2. Enter a valid email address in the email field (e.g., testuser@example.com) 3. Enter a valid password (e.g., Test@1234) 4. Tap the Sign In button	Email: testuser@example.com Password: Test@1234	User is successfully logged in and redirected to the Home screen		
Post Condition: User is authenticated and granted access to the main dashboard				

TC-002: Login Attempt with Invalid Password

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_002		Test Designed Date: 09-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Authentication – Login		Test Execution Date:		
Test Title: Verify login fails with incorrect password				
Description: This test confirms that incorrect login credentials prevent access and an appropriate error message is displayed.				
Precondition(If any): User has an existing account with known credentials.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open the ZeroBin app 2. Enter registered email: testuser@example.com 3. Enter an incorrect password: WrongPass123 4. Tap Sign In	Email: testuser@example.com Password: WrongPass123	An error message appears: “Incorrect email or password”		
Post Condition: User remains on the login screen without access				

TC-003: Registration with Valid Inputs

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_003		Test Designed Date: 09-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Authentication – Registration		Test Execution Date:		
Test Title: Verify user registration with all valid inputs				
Description: This test verifies that new users can successfully register with correct input values.				
Precondition(If any): User is not logged in and has not registered with the given email.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Tap on Register 2. Enter valid email: newuser@example.com 3. Enter password: NewPass@123 4. Confirm password: NewPass@123 5. Check the "Accept terms and policies" box 6. Tap Register	Email: newuser@example.com Password: NewPass@123	User is registered and redirected to onboarding step 1		
Post Condition: New user account is created in the database				

TC-004: Onboarding – Personal Information Submission

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_004		Test Designed Date: 09-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: User Onboarding		Test Execution Date:		
Test Title: Verify submission of name, phone, and address				
Description: This test ensures that the user can input and submit required personal details during onboarding.				
Precondition(If any): User has successfully completed registration and landed on onboarding screen.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. After registration, proceed to Onboarding screen 2. Enter first name: John 3. Enter last name: Doe 4. Enter phone number: +880123456789 5. Select location using Pick Location 6. Tap Next	First Name: John Last Name: Doe Phone: +880123456789 Address: Selected on map	User is redirected to profile picture setup screen		
Post Condition: User information is saved and session proceeds				

TC-005: Onboarding – Skip Profile Picture Setup

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_005		Test Designed Date: 09-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: User Onboarding		Test Execution Date:		
Test Title: Verify user can skip profile picture setup				
Description: This test verifies that users can bypass the profile picture upload and still complete onboarding.				
Precondition(If any): User has completed personal information step during onboarding.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. On Profile Picture screen, tap Skip 2. Confirm that the app proceeds to the home screen	No image selected	The app proceeds to Home screen with default profile icon		
Post Condition: User completes onboarding without uploading a picture				

TC-006: Logout Functionality

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_006		Test Designed Date: 10-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: User Profile		Test Execution Date:		
Test Title: Verify that the user can successfully log out from the application				
Description: This test ensures that the user can safely terminate their session from the profile section and return to the login screen.				
Precondition(If any): User is logged into the application.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the application 2. Tap on the profile icon on the top-right of the home screen 3. Scroll to the bottom of the profile menu 4. Tap on Logout	Logged-in session with valid credentials	User is logged out and redirected to the login screen		
Post Condition: User session is terminated and credentials are cleared from memory				

TC-007: View Billing Details

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_007		Test Designed Date: 10-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Billing		Test Execution Date:		
Test Title: Verify the billing section displays current due and payment history				
Description: This test confirms that users can access their current and previous billing statements from the billing screen.				
Precondition(If any): User is logged in and has existing billing records.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the application 2. Tap on Billing from the bottom menu 3. Observe the displayed due amount 4. Expand any month to view historical billing data	User account with billing records for Jan–June 2024	Due amount and historical billing data are displayed correctly		
Post Condition: Billing data remains viewable; no modifications made				

TC-008: Change App Language

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_008		Test Designed Date: 10-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: More → Language Settings		Test Execution Date:		
Test Title: Verify that users can switch the app language from settings				
Description: This test ensures that the language setting can be changed and the app UI responds accordingly.				
Precondition(If any): User is logged into the app and on the settings page.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the app 2. Tap More 3. Go to Language Settings 4. Select a different language (e.g., Bangla)	Initial language: English Target language: Bangla	App UI updates to the selected language		
Post Condition: App remains in selected language for future sessions				

TC-009: View Event Listings by Month

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_009		Test Designed Date: 10-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Events		Test Execution Date:		
Test Title: Verify the user can view upcoming events filtered by month				
Description: This test checks that users can filter events based on the selected month from the dropdown menu.				
Precondition(If any): User is logged in and events are available in the selected location/month.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the application 2. Tap on the Events icon 3. Select a month from the dropdown (e.g., July) 4. View list of scheduled events	Selected month: July Location: Dhaka	All July events are listed with date, time, and RSVP button		
Post Condition: User can interact with the listed events				

TC-010: RSVP to an Event

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rifat Arafin		
Test Case ID: ZB_TC_010		Test Designed Date: 10-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Events		Test Execution Date:		
Test Title: Verify RSVP button marks the user as attending an event				
Description: This test confirms that RSVP functionality works and user interest in attending is recorded properly.				
Precondition(If any): User is logged in and viewing available events.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open the Events section 2. Find an event from the list 3. Tap the RSVP button beside the event	Event: Riverside Cleanup Campaign – 02 July User: Logged-in with profile info	RSVP status is saved and button changes to “Going” or shows confirmation		
Post Condition: User is marked as attending in backend and UI				

TC-011: Edit Profile Information

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_011		Test Designed Date: 11-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: User Profile		Test Execution Date:		
Test Title: Verify that the user can update their profile details				
Description: This test confirms that the user can successfully edit personal details such as name, phone number, and location.				
Precondition(If any): User is logged in and on the profile page.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the application 2. Tap on the profile icon 3. Tap on Edit Profile 4. Change first name and phone number 5. Tap Save Changes	First Name: Alex Phone: +8801987654321	Changes are saved and reflected in the profile view		
Post Condition: Updated information is stored in the user database				

TC-012: View Notifications

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_012		Test Designed Date: 11-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Notifications		Test Execution Date:		
Test Title: Verify that users can view notifications from the system				
Description: This test verifies that users can access and read push or in-app notifications.				
Precondition(If any): User is logged in and has received at least one notification.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the application 2. Tap on the notification icon on the home screen 3. View the list of system-generated notifications	Notifications: Pickup Reminder, Billing Alert	Notifications are displayed with correct titles and timestamps		
Post Condition: Notifications remain accessible until cleared				

TC-013: Submit Recycling Data

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_013		Test Designed Date: 11-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Recycle Tracker		Test Execution Date:		
Test Title: Verify that users can submit data about recyclable materials				
Description: This test ensures that users can log recyclable material quantities and receive estimated eco points.				
Precondition(If any): User is logged in and on the Recycle tab.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in and navigate to Recycle tab 2. Enter quantity of paper, plastic, and bottles 3. Tap Calculate 4. Tap Submit	Paper: 2 kg Plastic Bottles: 30 pcs	Points are calculated and entry is saved in recycle history		
Post Condition: Recycle points are reflected in user rewards				

TC-014: View Recycle History

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_014		Test Designed Date: 11-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Recycle Tracker		Test Execution Date:		
Test Title: Verify recycle submission history is shown correctly				
Description: This test ensures users can access their past recycling submissions and points earned.				
Precondition(If any): User has previously submitted recycling data.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in and go to the Recycle tab 2. Tap View History 3. Review past entries by date and category	Past Entries: Paper – 2kg, Plastic – 3kg	List displays correct materials, dates, and earned points	History remains unchanged unless cleared manually	
Post Condition: History remains unchanged unless cleared manually				

TC-015: Schedule Waste Pickup

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_015		Test Designed Date: 11-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Pickup Scheduling		Test Execution Date:		
Test Title: Verify that a user can schedule a waste pickup				
Description: This test verifies that the user can select a date and time for pickup and submit a request.				
Precondition(If any): User is logged in and address/location is set.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open the Schedule Pickup section 2. Choose desired date and time Tap Confirm Pickup	Date: 03 July 2025 Time: 08:00 AM	Pickup is scheduled and reflected in user’s pickup history		
Post Condition: Pickup is queued in system backend and marked pending				

TC-016: Reschedule a Pickup

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_016		Test Designed Date: 12-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Pickup Scheduling		Test Execution Date:		
Test Title: Verify a scheduled pickup can be rescheduled				
Description: This test confirms the user can update the pickup date/time before the scheduled slot.				
Precondition(If any): A future pickup is already scheduled.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to Scheduled Pickups 2. Select an upcoming pickup 3. Tap Reschedule 4. Choose new date/time and confirm	Old: 03 July, 08:00 AM New: 04 July, 10:00 AM	Pickup date/time is updated successfully		
Post Condition: System updates pickup queue with new schedule				

TC-017: Cancel a Scheduled Pickup

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_017		Test Designed Date: 12-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Pickup Scheduling		Test Execution Date:		
Test Title: Verify that user can cancel a scheduled pickup				
Description: This test ensures users can cancel a previously scheduled waste pickup if plans change.				
Precondition(If any): User has at least one upcoming scheduled pickup.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Pickup History 2. Select the scheduled pickup 3. Tap Cancel and confirm	Pickup ID: PK02346	Pickup status changes to “Cancelled”		
Post Condition: Pickup is removed from the active queue				

TC-018: Submit a Complaint

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_018		Test Designed Date: 12-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Support		Test Execution Date:		
Test Title: Verify that users can submit a service-related complaint				
Description: This test verifies that users can report issues such as missed pickups via the complaint module.				
Precondition(If any): User is logged in and has encountered a service issue.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Support 2. Tap Create Ticket to submit Complaint 3. Fill in title and description 4. Submit	Title: Missed Pickup Description: Garbage not collected on 02 July	Complaint is saved and acknowledged		
Post Condition: Complaint appears in history with pending status				

TC-019: View Complaint History

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_019		Test Designed Date: 12-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Support		Test Execution Date:		
Test Title: Verify submitted complaints are listed in user history				
Description: This test confirms users can view past complaints with status updates.				
Precondition(If any): At least one complaint has been submitted previously.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Support 2. Tap Complaint History 3. Review of past complaints	Entry: Missed Pickup – 02 July	Complaint is listed with status (e.g., Pending/Resolved)		
Post Condition: History is viewable and updated on resolution				

TC-020: Pay Monthly Waste Bill

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Rahiq Al-Makhtum Rahi		
Test Case ID: ZB_TC_020		Test Designed Date: 12-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Billing		Test Execution Date:		
Test Title: Verify payment of monthly bill via app				
Description: This test confirms the user can complete a transaction to pay their monthly waste collection bill.				
Precondition(If any): User is logged in and has an outstanding bill.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Billing 2. View current dues 3. Tap Pay Now 4. Complete payment using integrated gateway	Amount: 150 BDT Payment Method: Card	Payment is processed and status changes to Paid		
Post Condition: Receipt is generated and saved in history				

TC-021: View Payment History

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_021		Test Designed Date: 13-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Billing		Test Execution Date:		
Test Title: Verify that user can view previous payment records				
Description: This test ensures that the user can view all successful past transactions in the payment history section.				
Precondition(If any): User has made at least one payment via the app.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Log in to the app 2. Navigate to Billing 3. Tap on Payment History 4. Scroll through previous payment entries	User account with multiple previous transactions	All past transactions are shown with dates and amounts		
Post Condition: No data changes; records are viewable only				

TC-022: Download Payment Receipt

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_022		Test Designed Date: 13-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Billing		Test Execution Date:		
Test Title: Verify that users can download payment receipts				
Description: This test confirms that after a successful payment, the user can download or view the receipt.				
Precondition(If any): At least one successful payment exists with a receipt.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Billing 2. Tap on Payment History 3. Tap on a transaction 4. Tap Download Receipt	Paid invoice ID: 01486-JUN25	Receipt is downloaded or opened in PDF view		
Post Condition: Receipt is saved locally or viewed in browser				

TC-023: Make Donation to Environmental Campaign

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_023		Test Designed Date: 13-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Donations		Test Execution Date:		
Test Title: Verify that users can donate to an active campaign				
Description: This test verifies that users can select a listed donation campaign and complete a contribution.				
Precondition(If any): User is logged in and active donation campaigns are listed.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to Donations 2. Select a campaign from the list 3. Enter donation amount 4. Tap Donate Now and confirm payment	Campaign: Tree Plantation Week Amount: 300 BDT	Payment is processed and thank-you confirmation is shown		
Post Condition: Donation is recorded and visible in user donation history				

TC-024: View Donation History

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_024		Test Designed Date: 13-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Donations		Test Execution Date:		
Test Title: Verify past donations are listed for the user				
Description: This test confirms the user can access their donation history and see confirmed contributions.				
Precondition(If any): User has made at least one donation.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Donations 2. Tap on My Donations 3. View list of past donations with campaign name and amount	Donation record: 300 BDT to Tree Plantation Week	Donations are listed in reverse chronological order		
Post Condition: Records remain visible for reference				

TC-025: Bookmark a Blog Post

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_025		Test Designed Date: 13-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Blog		Test Execution Date:		
Test Title: Verify that users can bookmark a blog for later				
Description: This test verifies that the user can bookmark articles in the blog section for later reading.				
Precondition(If any): User is logged in and viewing a blog article.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open the Blog section 2. Select any article 3. Tap the Bookmark icon	Blog Title: “5 Tips for Urban Waste Reduction”	Blog post is saved to Bookmarks		
Post Condition: Article appears in My Bookmarks list				

TC-026: Share Blog Article

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_026		Test Designed Date: 14-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Blog		Test Execution Date:		
Test Title: Verify blog posts can be shared through external apps				
Description: This test confirms users can share blog posts using system share options (e.g., WhatsApp, Messenger).				
Precondition(If any): A blog article is open and shareable apps are available on the device.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open a blog post 2. Tap on Share 3. Choose any available app from the share tray	Blog Title: “Why Recycling Saves Cities”	Article link is shared through selected app		
Post Condition: No change in app state; blog remains unchanged				

TC-027: Report a Blog Post

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_027		Test Designed Date: 14-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Blog		Test Execution Date:		
Test Title: Verify users can report inappropriate content				
Description: This test ensures users can flag a blog post as inappropriate or misleading.				
Precondition(If any): User is logged in and blog article is open.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open any blog post 2. Tap More Options 3. Select Report Article 4. Submit reason and tap Confirm	Reason: Misleading content	User sees confirmation message and report is submitted		
Post Condition: Admin receives flagged report for moderation				

TC-028: Access Settings Page

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_028		Test Designed Date: 14-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Settings		Test Execution Date:		
Test Title: Verify that the user can access app settings				
Description: This test ensures that the user can navigate to the settings page from the profile section.				
Precondition(If any): User is logged in and on profile or home screen.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Tap on profile icon 2. Tap on Settings 3. Review of available preferences	User account: Logged in	Settings page loads with available options		
Post Condition: No changes unless the user modifies preferences				

TC-029: Toggle Push Notifications

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_029		Test Designed Date: 14-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Settings		Test Execution Date:		
Test Title: Verify push notifications can be enabled/disabled				
Description: This test confirms that users can toggle push notifications from settings.				
Precondition(If any): User is in the Notifications Settings page.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Settings 2. Tap on Notifications 3. Toggle push notifications OFF 4. Toggle them back ON	Initial State: Enabled	System saves toggle preferences without error		
Post Condition: Push setting reflects user's current choice				

TC-030: Change Password

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: Shahadat Hossain Sakib		
Test Case ID: ZB_TC_030		Test Designed Date: 14-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Settings – Account		Test Execution Date:		
Test Title: Verify users can update their account password				
Description: This test verifies that a user can change their password from the account settings section.				
Precondition(If any): User is logged in and knows current password.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open Settings 2. Tap on Account Security 3. Tap Change Password 4. Enter old password and new password 5. Confirm and save	Old: Pass@1234 New: Secure@2025	Password is updated and user receives confirmation		
Post Condition: User must log in with new password next session				

TC-031: Reset Forgotten Password

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_031		Test Designed Date: 15-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Authentication – Password Reset		Test Execution Date:		
Test Title: Verify that user can reset password via forgot password option				
Description: This test confirms the user can initiate a password reset via email and set a new password successfully.				
Precondition(If any): User has access to the registered email inbox.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Open the app 2. Tap Forgot Password? on the login screen 3. Enter registered email address 4. Submit and check email for reset link 5. Open the link and enter a new password 6. Confirm new password and submit	Email: testuser@example.com New Password: Reset@1234	Password is updated and user is redirected to login screen		
Post Condition: User can log in with new password				

TC-032: Validate Empty Fields During Registration

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_032		Test Designed Date: 15-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Registration		Test Execution Date:		
Test Title: Verify error messages appear when mandatory fields are empty				
Description: This test ensures that the app properly alerts users when they leave the required fields empty during signup.				
Precondition(If any): User is on the registration screen.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Tap on Register 2. Leave all fields blank 3. Tap Register	All fields left empty	Validation messages appear for each required field		
Post Condition: User remains on registration page				

TC-033: Invalid Email Format on Registration

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_033		Test Designed Date: 15-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Registration		Test Execution Date:		
Test Title: Verify error for incorrectly formatted email				
Description: This test ensures email format is validated during registration.				
Precondition(If any): User is on the registration screen.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Tap Register 2. Enter an invalid email (e.g., testuser.com) 3. Fill other fields correctly 4. Tap Register	Email: testuser.com Password: ValidPass@123	Error: "Please enter a valid email address"		
Post Condition: Registration is halted until valid email is provided				

TC-034: Load Application Without Internet Connection

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_034		Test Designed Date: 15-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: General Behavior		Test Execution Date:		
Test Title: Verify app behavior without internet access				
Description: This test evaluates how the app responds when launched without an internet connection.				
Precondition(If any): Internet is disabled on the device.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Disable internet 2. Launch the ZeroBin app 3. Try to log in or load home screen	No internet connection	App displays "No internet connection" message		
Post Condition: App remains non-functional until internet is restored				

TC-035: Validate Terms and Conditions Checkbox

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_035		Test Designed Date: 15-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: Registration		Test Execution Date:		
Test Title: Verify user must accept terms before registering				
Description: This test ensures the registration process enforces the acceptance of terms and policies.				
Precondition(If any): User is on registration form with all fields filled.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter all valid registration data 2. Do not check the Terms & Policies box 3. Tap Register	Valid credentials without checkbox ticked	Error: “You must accept terms and conditions”		
Post Condition: User cannot proceed until checkbox is selected				

TC-036: Access Profile Without Login

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_036		Test Designed Date: 16-06-25		
Test Priority(Low, Medium, High): High		Test Executed By:		
Module Name: User Profile		Test Execution Date:		
Test Title: Verify app prevents access to profile for unauthenticated users				
Description: This test confirms that the profile section is restricted to logged-in users only.				
Precondition(If any): User has not logged in.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Launch the app 2. Without logging in, try to access the Profile section	Unauthenticated session	User is redirected to login page		
Post Condition: Access to profile denied until user logs in				

TC-037: Test App Responsiveness on Tablet

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_037		Test Designed Date: 16-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: UI – Responsive Design		Test Execution Date:		
Test Title: Verify layout adapts properly on tablet screens				
Description: This test evaluates whether the app’s UI components adjust properly to larger tablet displays.				
Precondition(If any): App is installed on a tablet device.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Launch app on 10-inch tablet 2. Browse through various modules 3. Check spacing, alignment, and scaling	Device: Samsung Galaxy Tab A7	UI remains readable and well-aligned on all screens		
Post Condition: No visual glitches or broken layout				

TC-038: Validate Date Picker in Schedule Pickup

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_038		Test Designed Date: 16-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Pickup Scheduling		Test Execution Date:		
Test Title: Verify date cannot be scheduled in the past				
Description: This test ensures that the date picker prevents users from selecting past dates for pickup.				
Precondition(If any): User is in Schedule Pickup screen.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to Schedule Pickup 2. Try selecting a date from last week 3. Tap Confirm	Date: 25 June 2024 (past date)	Error: “Pickup date must be in the future”		
Post Condition: Pickup not scheduled; date remains unset				

TC-039: View Terms and Conditions

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_039		Test Designed Date: 16-06-25		
Test Priority(Low, Medium, High): Low		Test Executed By:		
Module Name: Legal / Settings		Test Execution Date:		
Test Title: Verify that users can view the terms and policies				
Description: This test ensures users can access and read the legal terms and conditions of the application.				
Precondition(If any): User is logged in and on settings screen.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Settings 2. Tap on Terms & Conditions 3. Read through content	No input needed	Terms page loads with legal content		
Post Condition: No data modified; read-only content				

TC-040: Contact Support via Email

Project Name: ZeroBin – A Smart Waste Management System		Test Designed By: MD Abid Hasan		
Test Case ID: ZB_TC_040		Test Designed Date: 16-06-25		
Test Priority(Low, Medium, High): Medium		Test Executed By:		
Module Name: Support		Test Execution Date:		
Test Title: Verify contact support redirects to default email app				
Description: This test checks whether tapping on "Contact Support" opens an email client with pre-filled recipient.				
Precondition(If any): Email client is installed and configured on the device.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Support section 2. Tap on Contact Us 3. Select Email Support	Support Email: support@zerobin.app	Email app opens with recipient and subject filled		
Post Condition: User can send message or cancel				

8. ITEM PASS/FAIL CRITERIA

A test case shall be classified as passed if the actual results align with the expected outcomes under defined conditions. The testing phase shall be considered complete when all high-priority functionalities perform as specified, a minimum of 95% of test cases pass, and any deviations are documented with appropriate corrective actions. Test cases failing to meet acceptance criteria shall be marked as failed and must be resolved prior to final approval and deployment.

9. TEST DELIVERABLES

- Test plans document.
- Test cases documents.
- Test Design specifications.
- Test Data.
- Test Execution Logs.
- Test Results.

10. STAFFING AND TRAINING NEEDS

It is recommended that at least one full-time Quality Assurance (QA) tester be allocated to the project during the system integration and acceptance testing phases. Initially, this individual may participate on a part-time basis for activities such as test planning and design, and shall transition to a full-time role approximately four months into the project. In the absence of a dedicated QA tester, the responsibilities may be undertaken by the project manager or test manager.

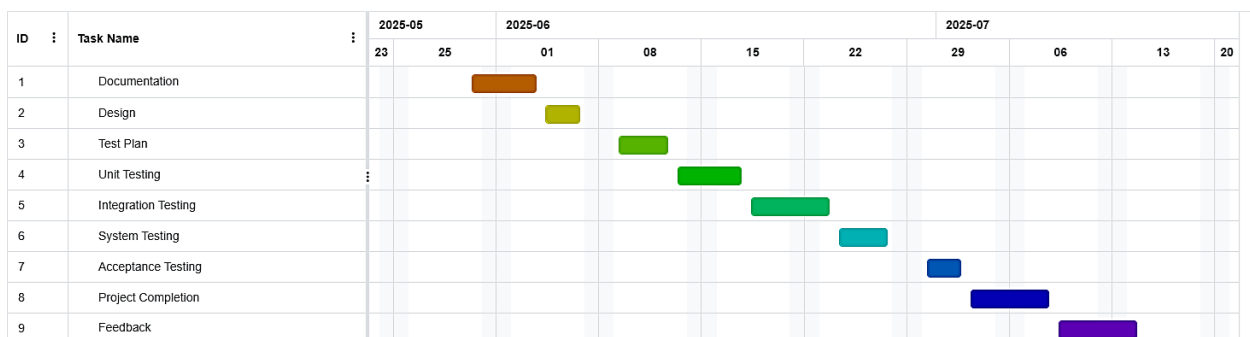
To ensure the effectiveness of the testing process, the following training needs must be addressed:

- **Development and QA Team:** Team members shall receive training on the operational aspects of Firebase services and Flutter-based testing workflows, including authentication, database operations, and cloud function testing.
- **Operations Staff:** Prior to final deployment, operations personnel shall be trained on the use of system features including service dashboards, complaint resolution workflows, and billing interfaces.

11. RESPONSIBILITIES

Responsibilities	TM	PM	Dev Team	Test Team	Client
Acceptance Test Documentation & Execution	✓	✓		✓	✓
System/Integration Test Documentation & Execution	✓		✓	✓	
Unit Test Documentation & Execution	✓		✓	✓	
System Design Reviews	✓	✓	✓		✓
Detail Design Reviews	✓	✓	✓	✓	
Test Procedures & Rules	✓	✓		✓	
Screen & Prototype Reviews			✓	✓	✓
Change Control & Regression Testing	✓	✓		✓	✓

12. TESTING SCHEDULE



13. PLANNING RISKS AND CONTINGENCIES

PLANNING RISKS AND CONTINGENCIES

- Lack of communication between cross functional teams.
- Complex design is hard to finish on time.
- Due to lack of proper testing skills.
- Poor management skills.
- Budget Changes.
- Employee turnover or unavailability (leave).
- Inaccurate estimation and scheduling.
- Server down for huge traffic. (overload).
- Unexpected user request.
- Application may crash in some of the operating systems version.
- Product instability after Monkey Testing.
- Requirement gaps are causing additional issues and delays.
- Improper knowledge transfer of the product.

14. APROVALS

Project Sponsor	
Development Management	
EDI Project Manager	
RS Test Manager	
RS Development Team Manager	
Reassigned Sales	
Order Entry EDI Team Manager	