

Product Requirements Document (PRD) - Bigezo Lite V1.5

Attribute	Detail
Product Name	Bigezo Lite V1.5 (The Fees Recovery Tool)
Developer	G-Realm Studio
Target Market	Low-income, small primary/secondary schools in Uganda.
Business Goal	Achieve UGX 20,400,000 Total Gross Profit/Year.
Monetization Model	UGX 0 Freemium (Core Admin); 100% Metered SMS sales (UGX 50/- per SMS).
Technology Stack	Frontend: Angular (PWA Enabled); Backend: Node.js/Express.js; Database: PostgreSQL.
Payment Gateway	Pesapal (for subscription and top-ups).

1. Core Platform & Technical Requirements

1.1. Frontend and Performance (PWA)

Requirement	Details & Rationale
Framework	Angular (selected for stability, security, and developer efficiency).

PWA Implementation	CRITICAL: Configure the app as a Progressive Web App (PWA) to enable service workers for offline access to cached data and faster initial load times on low-end smartphones, mitigating Angular's bundle size.
Progress Indicators (NEW)	Must implement clear visual progress indicators (spinners, loading bars) for all long-running tasks, including: bulk data uploads (CSV/XLSX), sending bulk SMS messages, payment processing, and complex data entry/saving.
Aesthetics (Google UI Style)	Design must be clean, minimal, and intuitive (Google UI simplicity). Font: Poppins. Color Palette: Background: White; Body Text: Black; Primary: #ff9933; Secondary: #0059b3. UI must be vivid.

1.2. Security and Data Isolation

Requirement	Details & Logic
Data Isolation (Foreign Keying)	Every database transaction and query MUST filter by the unique <code>school_id</code> via a Foreign Key (FK) . Data from different schools must never be mixed.
Authentication	Implement 2FA (Two-Factor Authentication) for the school Admin/Bursar role.

2. User Account & School Onboarding Flow

The flow begins with individual user sign-up and then allows the user to create an organizational school account.

Phase	Action/Requirement	Logic/Status

User Sign-up	Options: "Sign up with Google" (Firebase Auth) OR Email/Phone + Password.	Creates the generic individual user account.
Dashboard Navigation	Show: 1. Manage School Account (if school exists) and 2. Create School Account.	
School Account Status	Default Status: Dormant.	Feature Lock: The Communication/SMS module is locked until subscription payment.

School Account Details (Database: **Schools** Table)

Field	Requirement	Default/Logic
<code>school_id</code>	Primary Key (PK)	Auto-generated sequential ID.
<code>user_id</code>	Foreign Key (FK) to User	Links the school record to the user who created it.
<code>school_name</code>	Required	Text input.
<code>admin_phone</code>	Required	Default: Account owner's phone number. (Can be edited later).
<code>location_district</code>	Required	Dropdown of Ugandan Districts.
<code>student_count_range</code>	Dropdown/Radio	<500,501–1000,1001–2000,>2000..

account_status	Default: Dormant	Dormant, Active (Subscribed), Suspended.
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3. Student Database Management (FREE Core Utility)

3.1. Student Data Requirements (Database: Students Table)

Field	Requirement	Default/Logic
school_id	Foreign Key (FK)	CRITICAL for data isolation.
reg_number	Auto-Generated (Unique)	Logic: [School ID]-[Last 6 digits of Parent Phone]-[Counter].
student_name	Required	Full name.
class_name	Required	Dynamic Dropdown: Options are filtered based on the School Type (See 3.2 below).
year_enrolled	Required	Year picker/input.
student_status	Default: Active	Dropdown with options: Active, Inactive, Expelled, Alumni, Suspended, Sick.

fees_status	New Field (FK)	Foreign Key to the Fees_Records table, dynamically updated (e.g., Paid, Defaulter, Pending).
---	PARENT DETAILS (CRITICAL FOR COMMUNICATION/SMS)	---
parent_primary_name	Required	Name of the primary guardian (e.g., Father or Mother).
parent_phone_sms	Required	The phone number to be used for all SMS communication for this child. This is the source for the reg_number logic.
parent_name_mother	Optional	Mother's name.
parent_name_father	Optional	Father's name.
residence_district	Required	Dropdown of Ugandan Districts (Residence).

3.2. Dynamic Class Categorization Logic (Frontend/Backend) - REVISED

School Type (Based on Admin's Selection)	Default Classes Available for Dropdown
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Nursery School / Kindergarten	Baby, Middle, Top
Primary School (Local)	P.1, P.2, P.3, P.4, P.5, P.6, P.7
Secondary School (Local)	S.1, S.2, S.3, S.4, S.5, S.6
Nursery & Primary School (Local)	Baby, Middle, Top, P.1 – P.7 (Combined List)
International Primary	Year 1, Year 2, Year 3, Year 4, Year 5, Year 6
International Secondary	Year 7 (or Form 1), Year 8, Year 9, Year 10 (IGCSE), Year 11, Year 12 (A-Level/IB 1), Year 13 (A-Level/IB 2)

3.3. Student Management Dashboard UI/UX

- **Core List:** Display Student Name, Student Class, and Fees Status.
- **Asynchronous Search:** Single search input allowing real-time look-up by Student Name or Registration Number.
- **Categorization/Filtering:** Dedicated filters for: Class/Section (Dropdown), Student Status (Dropdown: Active, Alumni, etc.), Year Enrolled (Dropdown).

3.4. Student List UI Actions

For each student row, provide two action buttons:

- **FEES Button:** Opens an editable form/modal linked to the Fees Management Dashboard for the selected student.
- **SMS Button:** Opens a dedicated UI for single-student messaging: Displays selected student's name, Parent Phone (uneditable), Text Field for message, and Send Button.

4. Fees Management Module (FREE Core Utility)

4.1. Fees Records Data (Database: `Fees_Records` Table)

Field	Requirement	Default/Logic
student_id	Foreign Key (FK)	Links fees record to the specific student.
term	Required	Dropdown (Term 1, 2, 3).
year	Default: Current Year	Year input.
total_fees_due	Required	Numeric input (The amount owed for the term).
balance_due	Auto-Calculated	total_fees_due - amount_paid.
due_date	Date Picker	Required for targeted reminders.
rsvp_number	Default: School Admin Phone	Input field (Contact for parents to call).

5.0 Communication & Monetization Module (LOCKED/PAID) - FINAL REVISED

5.1. Feature Lock and Subscription

Requirement	Details & Logic
Access Control	The entire module is locked and inaccessible if the school's Schools.account_status is Dormant .

Payment Gateway	Integration with Pesapal is required for secure and seamless checkout when purchasing SMS credit packages.
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5.2. Targeted Fees Reminder SMS

Requirement	Details & Logic
Goal	Enable highly specific targeting of parents to maximize the ROI on SMS credits by focusing only on relevant defaulters.
Action	Sends a personalized SMS to the filtered list of parents. The message must contain: Student Name, Amount Paid, Remaining Balance , and Due Date .
UI Control 1: Target Class (Dynamic Filter)	The Admin must select a target class from a dropdown filter. This dropdown will be dynamically populated to show <i>only</i> the classes (e.g., P.1, S.2, or Year 7) relevant to the school's registered School Type .
UI Control 2: Balance Threshold (Numeric Filter)	The Admin must input a numerical value in an input field. The system will only send reminders to defaulters whose <u>balance_due</u> is equal to or greater than (\geq Filter) this entered amount.

5.3. General Bulk SMS Module (NEW)

Requirement	Details & Logic
Purpose	To send non-fees related announcements (e.g., school closures, event invites, emergency alerts).

Recipient Filter	Dropdown: Options include: All Students , or specific Class/Section (dynamically loaded based on school type).
Text Input UI	A large text area for message composition with a visible character counter UI .
Character Logic	Logic must clearly indicate when the message exceeds 160 characters, warning the user that 1 SMS credit is consumed for every 160 characters .
Send Action	Button is disabled if SMS credit balance is zero. On click, the system validates credits and sends messages.

5.4. Volume Packages

The pricing structure is based purely on SMS volume, with no feature differentiation.

Package	Price (UGX)	SMS Credits	Target Client
Pay-As-You-Go 1	5,000	100	Small/Testing
Pay-As-You-Go 2	20,000	400	Small/Steady Use
Premium 1 (Volume)	500,000	10,000	Large Schools
Premium 2 (Volume)	1,000,000	20,000	Largest Schools