

Below is a **DARoutes MVP PRD**

DARoutes – MVP Product Requirements Document (PRD)

1. Product Overview

Product name: DARoutes

One-liner: A web app that maps Dar es Salaam's public transport routes, stops, terminals, and fares, making commuting clearer for everyone.

High-level idea

- Public buses (dala dala) are crucial but their information (routes, stages, fares, terminals) is mostly informal.
- DARoutes digitizes this into a structured, visual, and explorable web app.
- MVP focuses on:
 - Discovering routes and stops
 - Viewing clear details for each
 - Allowing logged-in contributors to add/edit routes via a simple dashboard and "New Route" workflow.

2. Goals & Success Criteria

Primary Goals (MVP)

1. **Discoverability** – A commuter can:
 - Land on the homepage, browse route cards, open a specific route page, and navigate to stop/terminal pages.

2. **Clarity** – Each route/stop/terminal page clearly shows:
 - Path on a simplified map preview
 - Operating times, sample fare, and key details.
3. **Contribution** – A logged-in contributor can:
 - Create a new route (name, number, via roads, stops, coordinates, optional KML/CSV path).
 - See activity summary via a dashboard and personal profile.

Success Criteria (qualitative)

- A new user understands **within 10 seconds** what DARoutes is for (Explainer + Homepage).
 - A commuter can answer:
“Which route goes from X to Y and what is the approximate fare & times?”
 - An editor can add a new route from scratch **without external instructions**.
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3. Target Users & Roles

Personas

1. **Commuter (Anonymous user)**
 - Visits site without login.
 - Needs to quickly see which route to take, the stops, and fare range.
2. **Contributor / Editor (Logged-in user)**
 - Local enthusiast or transport nerd.
 - Adds/updates routes and stops using a simple admin UI.

- Cares about accuracy, coordinates, and consistency.

3. Admin / Maintainer

- Has all contributor abilities.
- Uses dashboard for overall stats and managing operators, data corrections, etc.
- For MVP, admin can use same UI as contributor but with a few extra views.

Roles & Permissions (MVP)

- **Anonymous:**

- Can view: Homepage, Route Page, Stop Page, Terminal Page, Explainer.
- Can't edit or add data.

- **Logged-in Contributor:**

- All anonymous abilities plus:
- Access Dashboard, Profile, New Route Page.
- Create routes; optionally mark as draft/published (even if stored as a simple boolean).

- **Admin (subset of contributors with extra flag):**

- Same as contributor.
- Can see extra stats, service alerts management (even if stubbed for now).

4. Scope for MVP

In-Scope

- Responsive web app (desktop first, mobile friendly).

- Main pages:
 1. Homepage
 2. Route Page
 3. Stop Page
 4. Terminal Page
 5. New Route Page
 6. Dashboard
 7. Profile Page
 8. Explainer/About Page
 9. Login (basic sign-in/sign-out)
- Basic search/filter on homepage (search routes/stops by text).
- Save / Share buttons (UI only; “Save” can be local or user-bound; “Share” triggers share dialog / copy link).
- KML/CSV upload for route paths on New Route page, with preview.
- Simple data model (see section 7).

Out-of-Scope for MVP

- Real-time bus tracking.
- Full OTP-style trip planning (“from A to B, best route”).
- Payments / digital ticketing.
- Full moderation workflow (e.g., multi-step approvals).

5. Information Architecture & Navigation

Global Navigation

- **Top bar (for all pages):**
 - Left: logo/wordmark “DARoutes”
 - Right:
 - “Explainer” link
 - “Login” / “Profile” icon (depending on auth state)
 - Hamburger menu on mobile with links:
 - Home
 - Explainer
 - Dashboard (if logged in)
 - Profile
 - Logout

Key Pages & Routes (URL examples)

- `/` – Homepage
- `/explainer` – Explainer/About
- `/login` – Login
- `/routes/:routeId` – Route page
- `/stops/:stopId` – Stop page
- `/terminals/:terminalId` – Terminal page
- `/dashboard` – Dashboard (contributors/admin)
- `/profile` – Profile

- </routes/new> – New Route page
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6. Detailed Page Requirements

6.1 Homepage (/)

Purpose: Entry point to discover routes quickly.

Sections:

1. Header

- DARoutes wordmark (top left)
- Links: Explainer, Login, Hamburgers on mobile.

2. Search Bar

- Placeholder: “Search routes, stops, or terminals...”
- Text search across route name/number and stop names (simple substring match is fine for MVP).

3. Filters

- Pills/buttons:
 - “All Routes”
 - “By Fare”
 - “By Terminal”
- MVP: non-functional or minimal sorting (e.g. sort by name, by fare).

4. Routes Grid

- Card for each route:

- Route title: T/Nyuki – Gerezani
- Subtitle: via Bagamoyo Road, Muhimbili Road
- Color chips: primary & secondary colors representing route.
- **Map Preview Area (placeholder):**
 - Gray rectangle; in future can show polyline over mini map.
- Footer row:
 - Route number
 - Operating hours
 - Typical fare
- Clicking a route card → Route Page.

5. Footer

- Text: “DARoutes © YEAR — Mapping Dar es Salaam’s Public Transport Network”
- Data last updated text (configurable).

6.2 Route Page (/routes/:routeId)

Purpose: Show detailed info for a specific bus route.

Key Components:

1. Header Section

- Route Title: 14 – T/Nyuki – Gerezani
- Via roads summary.
- Color tags.

2. Map + Route Overview

- Large map preview card (can be SVG placeholder that simulates route).
- Shows line from start to end with intermediate stops.

3. Quick Facts Bar

- Route number
- Typical fare (base fare)
- Operating hours
- Approx. distance (optional placeholder)

4. Stages & Stops Card

- Vertical list of stops (stage concept).
- Each stop:
 - Name, small icon.
 - Visual indication of **past / current / upcoming**:
 - For demo: assume we're somewhere between stop X and Y and show:
 - Past stops: muted color
 - Current segment: bolder with dotted line
 - Upcoming: normal color
- Clicking a stop:
 - Opens a drawer or side panel with minimal info.
 - "View full stop page" button → </stops/:stopId>.

5. Fare & Operators Card

- Summary of:
 - Base fare.
 - Notes on peak vs off-peak (for MVP can be static text).
 - Operators list (names, badges).

6. Ticket Visual Card (Optional but in spec)

- Digital sample ticket styled via HTML/CSS.
- Optionally small gallery of real ticket photos.

7. Save / Share Buttons

- Save: Adds to user's "Saved routes" list (if logged in; otherwise can show "Login to save").
- Share: Opens native share dialog or copies URL to clipboard.

6.3 Stop Page (/stops/:stopId)

Purpose: Deep-dive into a specific bus stop.

Components (already wireframed and Terminal should mirror this style):

1. Header

- Stop name and local nickname.
- Coordinates.
- Save / Share buttons.

2. Map Preview

- Small map-like card centered on stop with simplified street lines.

3. Busy Hours Card

- A small chart or bar blocks for time-of-day vs busyness (0–5 scale).
- For MVP: static demo data.

4. Routes Serving This Stop

- Chips or mini cards listing route numbers and names.
- Clicking → Route Page.

5. Live Arrivals (placeholder)

- ETA list (static demo).
- “Last updated at ...” text.

6. Photos

- Small gallery of uploaded photos.

7. Accessibility

- Checklist: curb ramp, lighting, seating, etc.

8. Service Alerts & Report Issue

- Short card with any active alerts.
- Link “Report an issue” (can open mailto or simple form placeholder).

6.4 Terminal Page (`/terminals/:terminalId`)

Purpose: Stop Page but “bigger” — for large hubs.

Components:

- Everything the Stop Page has, in a terminal scale:
 - Overview card (location, coordinates, routes, daily passengers, supervisor, contact).

- Map card (can use stylized diagram, like the radial/arm drawing you showed).
 - Busy hours.
 - Accessibility.
 - Photos.
 - Service alerts (often more important here).
 - Connected Routes section: grid of route cards (each linking to Route Page).
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6.5 New Route Page (</routes/new>)

Purpose: Main tool for contributors to create a new route.

Sections:

1. Header

- Title: “New Route”
- Buttons:
 - “Preview Route Page” toggles between form and preview mode.
 - “Save Route” saves (backend or local mock).

2. Form mode (default)

- **Route Info Card**
 - Route Number
 - Route Name
 - Via Roads (textarea)
 - Default Fare (string; no currency logic needed for MVP)
- **Stops & Stages Card**

- Dynamic list of rows:
 - Stop Name
 - Latitude
 - Longitude
 - Remove row button
- “Add Stop” button adds a new empty row.
- Order of rows = order along route.
- **Upload Route Path Card**
 - File input allowing `.kml` or `.csv`.
 - Basic parsing:
 - CSV: detect headers like `lat, lon` or `latitude, longitude`
 - KML: parse `<coordinates>` blocks to get `lon, lat`.
 - Show:
 - Number of points loaded.
 - Simple SVG polyline preview.
 - Clear button.
 - Error message if parsing fails.
- **Tips Card**
 - Text tips for data quality.

3. Preview mode

- Shows a simulated **Route Page** using entered data:
 - Route title

- Via text
 - Default fare
 - List of stops
 - Map path preview (using uploaded routePath if available).
 - This is read-only and used only to visually confirm.
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6.6 Dashboard (/dashboard)

Purpose: Central view for contributors/admins.

Sections:

- **Header**
 - Title “Dashboard”
 - Search field (for routes/stops/operators)
 - Buttons:
 - Refresh (simulated)
 - New Route
 - Settings
- **Metrics Row**
 - Routes count
 - Stops count
 - Operators count
 - Active alerts
 - Views (7d)

- **Usage Chart**
 - Simple area chart placeholder (no real analytics needed yet).
 - **Top Routes**
 - List or grid with basic stats (views, trend %).
 - **Recent Activity**
 - Log of recent edits/creations (from audit_log table).
 - **Quick Actions**
 - Links to “New Route”, “New Stop”, “Operators”, “Alerts”.
 - **Service Alerts and System Health**
 - Panels summarizing alerts and high-level system checks (static text ok for now).
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6.7 Profile Page (/profile)

Purpose: Show contributor’s identity and impact.

Sections:

- User info:
 - Avatar, name, role, email, phone, join date, last active.
- Settings:
 - Account preferences
 - Privacy & security
- Contributions Overview:
 - Routes added, stops added, edits reviewed, rating (static placeholder).
- Recent Contributions:

- List of last few actions (leveraging audit_log).
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6.8 Explainer Page (/explainer)

Purpose: Explain what DARoutes is, why it exists, and how to get involved.

Sections:

- Hero title and subtitle.
 - Buttons: Get Involved, View Routes.
 - Vision + How It Works (two cards).
 - “How You Can Take Part” (Contribute, Verify, Engage).
 - Impact metrics (routes, stops, contributors, districts).
 - Contact & collaboration (Email Us button).
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6.9 Login (/login)

Purpose: Minimal authentication.

- Simple email/password (or even mocked login for MVP).
 - After login → redirect to Dashboard.
 - Include link back to home & explainer.
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7. Data Model (High Level)

Suggested relational schema (names are indicative):

7.1 users

- `id` (PK)
- `name`
- `email`
- `phone`
- `role` (commuter, contributor, admin)
- `created_at`
- `last_login_at`

7.2 routes

- `id` (PK)
- `number` (e.g. "14")
- `name` (e.g. "T/Nyuki – Gerezani")
- `via` (text)
- `default_fare`
- `start_stop_id` (FK → stops)
- `end_stop_id` (FK → stops)
- `status` (draft/published)
- `created_by` (FK → users)
- `created_at, updated_at`

7.3 stops

- `id` (PK)
- `name`
- `slug` or `code`
- `lat`
- `lon`
- `description`
- `is_terminal` (boolean)
- `created_at`, `updated_at`

7.4 `route_stops` (join + ordering)

- `id` (PK)
- `route_id` (FK)
- `stop_id` (FK)
- `sequence` (int; order along route)
- `stage_name` (optional)

7.5 `terminals`

- Either:
 - reuse `stops` with `is_terminal = true` **OR**
 - separate table referencing `stop_id`
- Example fields (if separate):

- `id`
- `stop_id`
- `daily_passengers`
- `supervisor_name`
- `contact_phone`
- `facilities` (json or text)

7.6 fares

- `id`
- `route_id`
- `base_fare`
- `currency`
- `notes` (peak/off-peak, stages, etc.)

7.7 operators

- `id`
- `name`
- `contact`
- `notes`

7.8 route_operators

- `id`
- `route_id`
- `operator_id`

7.9 attachments

- `id`
- `entity_type` (`route`, `stop`, `terminal`)
- `entity_id`
- `type` (`photo`, `ticket_sample`, etc.)
- `url` or storage reference
- `caption`

7.10 audit_log

- `id`
- `user_id`
- `entity_type`
- `entity_id`
- `action` (`create`, `update`, `delete`)
- `summary` (short text)
- `created_at`

(You can simplify if needed for the initial build.)

8. UI & Design System

Color Palette

- **Primary (Teal 600): #009688**
Calm, modern, trustworthy – public transport + civic feel.
- **Primary Variant (Teal 700): #00796B**
Hover states, darker accents.
- **Accent (Cyan 400): #5CE1E6**
Fresh, techy, gives DARoutes a digital identity.
- **Background: #F9FAFB**
Clean base.
- **Surface (Cards): #FFFFFF**
- **Text Primary: #1F2937**
- **Text Secondary: #6B7280**
- **Error: #D32F2F**
- **Success: #00C49A**

Typography

- Sans-serif, geometric/modern (e.g. Inter, Source Sans, etc.).
- Hierarchy:
 - H1: 24–32px bold
 - H2: 20–24px semibold
 - Body: 14–16px regular

Layout

- Cards with soft shadows and rounded corners.
- Generous whitespace; avoid clutter.
- Responsive grid (1 col mobile → 2/3 cols on desktop).

Iconography

- Simple line icons for:
 - Bus, Map Pin, Clock, Credit Card, User, Alert.
 - Icons used consistently across pages.
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9. Non-Functional Requirements (MVP)

- Should render well on:
 - Desktop (primary design target)
 - Mobile phones (minimum 360px width).
 - Loads initial homepage quickly (< 3s on average connection).
 - Minimal dependencies; no heavy map engines required for MVP (SVG placeholders acceptable).
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10. Analytics / Logging (Optional for MVP)

- Log basic events:
 - Route page viewed

- Stop/terminal page viewed
 - New route created
 - Store in a simple **events** table or use existing analytics.
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11. Open Questions / Future Enhancements

- How will we integrate **real map tiles** (OpenStreetMap, MapLibre, etc.) later?
- Do we want full **trip planner** capabilities later?
- Will we expose **public APIs** for route/stop data?