

Payment System Documentation (Production)

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1. High-Level Ecosystem Overview

```
graph TD
    subgraph "External World"
        Passenger((Passenger))
        Bank((Bank/UPI))
    end

    subgraph "Drivers Klub Platform"
        API[API Gateway]
        subgraph "Modules"
            Rental[Rental Service]
            Payout[Payout Service]
            Collection[Collection System]
            Orders[InstaCollect Orders]
            Wallet[Driver Wallet]
        end
        DB[(Database)]
    end

    subgraph "Payment Gateway (Easebuzz)"
        PG[PG (Pay In)]
        IC[InstaCollect (QR)]
        PayoutAPI[Payout (Pay Out)]
    end

    %% Passenger Flow
    Passenger -->|Pay via QR| IC
    IC -->|Webhook| API
    API -->|Record| Collection

    %% Driver Flow (Rental)
    Driver((Rental Driver)) -->|Pay Security Deposit| API
    Driver -->|Pay Rental Fee| API
```

```

API -->|Init Payment| PG
PG -->|Webhook Success| API
API -->|Update| Wallet
API -->|Activate| Rental

%% Driver Flow (Payout)
PayoutAPI -->|Transfer Funds| Driver2((Payout Driver))

%% Admin Flow
Admin((Admin)) -->|Reconcile| API
API -->|Update| Collection
Admin -->|Trigger Payout| API
API -->|Request Transfer| PayoutAPI

%% Database Sync
Rental --> DB
Payout --> DB
Collection --> DB
Wallet --> DB

```

2. Detailed Workflows

A. Rental Model Flow (Driver Pays Platform)

This flow handles how drivers pay for vehicle rentals and security deposits.

```

sequenceDiagram
    participant Driver
    participant App
    participant API
    participant DB as Database
    participant PG as Easebuzz PG

    %% Deposit
    Note over Driver, PG: Security Deposit Process
    Driver->>App: Initiate Deposit (₹10,000)
    App->>API: POST /payment/deposit
    API->>PG: Initiate Payment Amount
    PG-->>API: Payment Link
    API-->>App: Return Payment URL
    App->>Driver: Opens Webview/Browser
    Driver->>PG: Completes Payment (UPI/Card)
    PG->>API: Webhook (Status: SUCCESS)
    API->>DB: Update Transaction & Balance

    %% Rental Purchase
    Note over Driver, PG: Rental Plan Purchase
    Driver->>App: Buy Weekly Plan (₹3,000)
    App->>API: POST /payment/rental
    API->>DB: Check Deposit Balance
    alt Sufficient Balance

```

```

    API->>DB: Deduct from Deposit (Optional Config)
    API->>DB: Create DriverRental Record
    API-->>App: Success
else Insufficient Balance
    API->>PG: Initiate Difference Payment
    PG-->>API: Payment Link
    Driver->>PG: Pay Difference
    PG->>API: Webhook Success
    API->>DB: Activate Rental Plan
end

```

B. Payout Model Flow (Platform Pays Driver)

This flow explains how daily collections are turned into driver earnings.

```

sequenceDiagram
    participant Passenger
    participant QR as Virtual QR
    participant IC as Easebuzz InstaCollect
    participant API
    participant DB as Database
    participant Admin
    participant Payout as Easebuzz Payout

    %% Collection Phase
    Note over Passenger, DB: Collection Phase (Real-time)
    Passenger->>QR: Scans Vehicle QR
    Passenger->>IC: Pays Trip Fare (₹500)
    IC->>API: Webhook (Credit Notification)
    API->>DB: Find Vehicle & Driver
    API->>DB: Create/Update DailyCollection

    %% Reconciliation Phase
    Note over API, Admin: End-of-Day Reconciliation
    Admin->>API: GET /payment/reconciliations/pending
    API-->>Admin: List [Driver A: QR=₹500, Cash=?]
    Admin->>Admin: Verify Cash Reported
    Admin->>API: POST /collection/{id}/reconcile
    API->>DB: Mark Reconciled
    API->>API: Mark Reconciled
    API->>API: Record Collection (Gross Earnings)
    Note right of API: Payout Amount is determined Manually (CSV Upload)

    %% Payout Phase
    Note over API, Payout: Payout Phase
    Admin->>API: POST /collection/{id}/payout
    API->>Payout: Create Payout Request (IMPS)
    Payout-->>API: Payout Initiated (TxnID)
    Payout->>Bank: Transfer Types
    Payout->>API: Webhook (Success)
    API->>DB: Mark Collection PAID
    Note right of API: Deductions are derived: (Earnings + Inc - Pen) - Payout Amount

```

C. Bulk Payout Process

Handling mass payments via CSV upload.

```
graph TD
    Admin[Admin User] -->|Upload CSV| API[POST /bulk-payout]
    API -->|Parse| Parser[CSV Parser]
    Parser -->|List of Rows| Processor[Batch Processor]

    subgraph "Per Row Processing"
        Processor -->|Find Driver| Lookup{By Phone/Acc?}
        Lookup -->|Found| CreateTxn[Create Transaction]
        Lookup -->|Not Found| LogError[Log Error]

        CreateTxn -->|Has Penalty?| AddPenalty[Create Penalty]
        CreateTxn -->|Has Incentive?| AddIncentive[Create Incentive]

        AddPenalty --> Result
        AddIncentive --> Result
        CreateTxn --> Result
    end

    end

    Result -->|Compile Stats| Response
    Response -->|JSON Summary| Admin
```

D. InstaCollect Orders (Ad-Hoc)

Flow for generating dynamic QR codes for one-off or recurring ad-hoc payments.

```
sequenceDiagram
    participant Customer
    participant Admin
    participant API
    participant DB
    participant Easebuzz

    Admin->>API: Create Order (₹5000)
    API->>Easebuzz: Create Virtual Account (Type: ORDER)
    Easebuzz-->>API: VA Details + QR
    API->>DB: Save PaymentOrder (PENDING)
    API-->>Admin: Return QR Code

    Customer->>Easebuzz: Partial Pay ₹2000 via UPI
    Easebuzz->>API: Webhook (Credit)
    API->>DB: Record Transaction
    API->>DB: Update Order (collected: 2000, status: PARTIAL)

    Customer->>Easebuzz: Pay remaining ₹3000
    Easebuzz->>API: Webhook (Credit)
    API->>DB: Record Transaction
    API->>DB: Update Order (collected: 5000, status: COMPLETED)
```

3. Overview

The Drivers Klub Payment System allows for comprehensive financial management of the fleet. It supports two primary driver models: **Rental** and **Payout**. All external money movement is handled via the **Easebuzz** payment gateway.

Core Features

- **Rental Management:** Automated collection of rental fees from drivers.
- **Payout Management:** Manual calculation and automated disbursement of driver earnings via Bulk Payouts.
- **Virtual QR Collection:** Unique QR codes for every vehicle to track passenger payments directly.
- **Security Deposits:** Management of driver security deposits.
- **Penalties & Incentives:** Flexible system to add bonuses or deduct fines.

4. Driver Models

(See previous versions for theoretical details. This section emphasizes API Implementation)

1. **Rental Model:** Driver pays fixed rent.
2. **Payout Model:** Driver payouts are managed manually via bulk CSV upload.

5. Database Schema Overview

- **Transaction:** Central ledger for all financial events.
- **DailyCollection:** Daily earnings per driver (Cash/QR).
- **DriverRental:** Active rental plan subscriptions.
- **VirtualQR:** Maps Vehicle -> Easebuzz Virtual Account.
- **PaymentOrder:** Ad-hoc orders for dynamic QR payments (supports partial payments).

6. API Reference and Usage Guide

All API requests typically require the `Authorization` header with a valid JWT. `Authorization: Bearer <token>`

A. Driver Endpoints

Base URL: `/api/payment` **User Role:** `DRIVER`

1. Get Balance & Rental Status

Retrieves the driver's current deposit balance and details of any active rental plan.

- **Endpoint:** `GET /balance`
- **Usage:** call this on the Wallet Screen to show current status.
- **Response:**

```
{
  "success": true,
  "data": {
    "depositBalance": 10000,
    "paymentModel": "RENTAL",
    "hasActiveRental": true,
    "rental": {
      "planName": "Weekly Gold",
      "startDate": "2025-01-01T00:00:00.000Z",
      "expiryDate": "2025-01-07T23:59:59.999Z",
      "daysRemaining": 2,
      "isExpired": false
    }
  },
  "message": "Balance retrieved successfully"
}
```

2. Get Transaction History

Retrieves a paginated list of financial transactions.

- **Endpoint:** GET /transactions
- **Query Params:**
 - page : number (default 1)
 - limit : number (default 20)
 - type : Filter by DEPOSIT , RENTAL , PAYOUT , etc.
 - startDate : ISO Date string
 - endDate : ISO Date string
- **Response:**

```
{
  "success": true,
  "data": {
    "transactions": [
      {
        "id": "uuid...",
        "type": "RENTAL",
        "amount": 5000,
        "status": "SUCCESS",
        "createdAt": "2025-01-05..."
      }
    ],
    "pagination": { "page": 1, "limit": 20, "total": 50 }
  }
}
```

3. Initiate Security Deposit

Generates a payment link for the driver to add money to their deposit wallet.

- **Endpoint:** `POST /deposit`

- **Request Body:**

```
{
  "amount": 5000
}
```

- **Response:**

```
{
  "success": true,
  "data": {
    "transactionId": "uuid...",
    "paymentUrl": "https://testpay.easebuzz.in/pay/...",
    "txnId": "EB-123456"
  },
  "message": "Deposit payment initiated"
}
```

- **Usage:** Redirect the user to `paymentUrl` . Upon success at the gateway, the system updates the transaction to `SUCCESS` via webhook.

4. Get Available Rental Plans

List all rental plans available for the driver's fleet.

- **Endpoint:** `GET /rental/plans`

- **Response:**

```
{
  "success": true,
  "data": [
    {
      "id": "uuid-plan-1",
      "name": "Weekly Starter",
      "rentalAmount": 3000,
      "depositAmount": 5000,
      "validityDays": 7,
      "isActive": true
    }
  ],
  "message": "Rental plans retrieved successfully"
}
```

5. Initiate Rental Payment

Allows a driver to purchase or renew a rental plan.

- **Endpoint:** `POST /rental`

- **Request Body:**

```
{
  "rentalPlanId": "uuid-of-plan"
}
```

- **Response:** similar to Deposit, returns `paymentUrl` .
- **Note:** Requires sufficient `depositBalance` (if configured to check) or valid payment method.

6. Get Daily Collections

For drivers on the **Payout Model**, this shows their daily earnings.

- **Endpoint:** `GET /collections`
- **Query Params:** `startDate` , `endDate` .
- **Response:**

```
{
  "success": true,
  "data": {
    "collections": [
      {
        "date": "2025-01-04...",
        "totalCollection": 4500,
        "date": "2025-01-04...",
        "totalCollection": 4500,
        "netPayout": 0, // Calculated/Paid manually via Bulk CSV
        "isPaid": false
      }
    ],
    "summary": {
      "totalCollections": 4500, // Gross Earnings
      "totalPayout": 3000,      // Actually Paid
      "deductions": 1500,      // Commission/Platform Fee (Calculated
Difference)
      "balance": 0             // No pending dues
    }
  }
}
```

B. Admin Endpoints

Base URL: `/api/payment/admin` **User Roles:** `SUPER_ADMIN` , `OPERATIONS`

1. Create Rental Plan

Defines a new plan that drivers can subscribe to.

- **Endpoint:** `POST /rental-plans`
- **Request Body:**

```
{
  "fleetId": "uuid-fleet",
  "name": "Weekly Starter",
  "rentalAmount": 3000,
  "depositAmount": 10000,
  "validityDays": 7
}
```

2. Create Penalty

Manually assign a penalty to a driver.

- **Endpoint:** `POST /penalty`
- **Request Body:**

```
{
  "driverId": "uuid-driver",
  "type": "MONETARY", // or WARNING, SUSPENSION
  "amount": 500,
  "reason": "Vehicle Damage",
  "category": "FLEET_RULE"
}
```

3. Create Incentive

Award a bonus to a driver.

- **Endpoint:** `POST /incentive`
- **Request Body:**

```
{
  "driverId": "uuid-driver",
  "amount": 200,
  "reason": "Perfect Week Bonus",
  "category": "PERFORMANCE"
}
```

4. Reconcile Daily Collection

Admins review daily collections and finalize them (Approving correctness of Cash vs QR).

- **Endpoint:** `POST /collection/:id/reconcile`

- **Request Body:**

```
{
  "expectedRevenue": 5000, // Optional override/check
  "reconciliationNotes": "Verified with driver logs"
}
```

5. Process Payout

Trigger manual payout for a reconciled collection (if not automated).

- **Endpoint:** `POST /collection/:id/payout`

- **Response:**

```
{
  "success": true,
  "txnId": "EB-PAYOUT-123",
  "status": "SUCCESS"
}
```

6. Bulk Payout Upload (New)

Upload a CSV to process multiple payouts/penalties at once.

- **Endpoint:** `POST /bulk-payout`

- **Header:** `Content-Type: multipart/form-data`

- **Body:** Form-data with key `file` containing the CSV.

- **CSV Format:**

```
phone,accountNumber,amount,penalty,incentive,payoutCycle
9876543210,,5000,0,200,Week 1 Jan
```

- **Response:** Summary of success/failed rows.

7. Generate Virtual QR

Create a Virtual QR for a specific vehicle.

- **Endpoint:** `POST /vehicle/:id/qr`

- **Response:**

```
{
  "success": true,
  "data": {
    "virtualAccountNumber": "VA12345",
  }
}
```

```
    "qrCodeBase64": "data:image/png;base64,..."
  }
}
```

8. InstaCollect Order (Create)

Create a dynamic QR order for ad-hoc payments.

- **Endpoint:** `POST /orders`
- **Request Body:**

```
{
  "customerName": "John Doe",
  "customerPhone": "9876543210",
  "description": "Advance Payment",
  "amount": 5000
}
```

- **Response:** Returns `qrCodeBase64` and `virtualAccountNumber`.

9. InstaCollect Order (Get)

Track status and partial payments.

- **Endpoint:** `GET /orders/:id`
- **Response:**

```
{
  "id": "uuid",
  "totalAmount": 5000,
  "collectedAmount": 2000,
  "remainingAmount": 3000,
  "status": "PARTIAL",
  "transactions": [ ... ]
}
```

7. Integration Notes

- **Webhooks:** Ensure the public URL for the backend is configured in the Easebuzz dashboard.
- **Environment Variables:**
 - `EASEBUZZ_MERCHANT_KEY`
 - `EASEBUZZ_SALT_KEY`
 - `EASEBUZZ_ENV` (test/production)
- **Virtual Accounts (Test Mode):**
 - In `test` environment, the system uses a **Mock Implementation** because the Easebuzz Wire API is IP-restricted.
 - The API will return dummy Virtual Account credentials (`VA_...` , `TEST...`) for local testing.

- In `production` , it connects to `https://wire.easebuzz.in` .

8. Testing & Test Credentials

Use the following test cards for simulating payment flows in the `test` environment.

Card Type	Card Number	Expiry	CVV
MasterCard	5553 0422 4198 4105	07/2028	123
Visa	4012 8888 8888 1881	07/2028	123