

Project Synopsis - Release R2

- **Project Number:** 2 (Team Number)
- **Project Title:** Finease
- **Document:** DASS Project Synopsis Document - Release 2
- **Creation Date:** 20/04/2025
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Description:

Finease Release 2 expands upon the initial concept by delivering a multi-platform solution (Web, Mobile App, WhatsApp Chatbot) designed to significantly reduce the complexities of financial compliance and document management for businesses and individuals. This release focuses on automating the processing of key financial documents including **GST Invoices, ITR forms, and EPF challans**.

Key features include:

- **Multi-channel Document Upload:** Users can submit documents via the web portal, a dedicated mobile application, or the WhatsApp chatbot.
- **Automated Processing:** Uploaded documents (PDFs, images) undergo OCR extraction (pytesseract) and rule-based classification to identify document type (GST, ITR, PF) and extract key information like dates.
- **Specific Filing Support:** Dedicated modules for handling and storing data related to GST, ITR, and EPF filings. Includes **EPF ECR file generation**.
- **Financial Tools:** Functionality for creating **Invoices** and **E-Way Bills**.
- **Enhanced User Management:** Secure user registration, login, and **OTP-based password reset**. Role differentiation between 'individual' and 'business' users.
- **Centralized Dashboard:** A web-based dashboard providing users with an overview of their uploaded documents, key financial statistics (document counts, invoice totals, tax totals), and monthly data visualizations.
- **WhatsApp Chatbot Enhancements:** Authenticated interaction allowing users to upload documents directly linked to their account, receive classification results, and potentially interact with AI features (via Gemini integration) for analysis or queries.
- **Notifications:** System alerts for upcoming due dates (e.g., GST, E-way bill validity).

By integrating OCR, automated workflows, and multi-platform accessibility, Finease R2 aims to streamline financial operations, improve data accuracy, and enhance compliance efficiency for its users.

Profile of Users:

The target users remain largely the same, but their interaction with the system is now enhanced by the R2 features:

- **1. Business Owners & Accountants:**
 - *Familiarity Level:* Basic-to-Advanced
 - *Role:* Utilize the web portal and mobile app for uploading documents, generating Invoices/E-way bills, managing EPF batches (including ECR generation), viewing dashboard analytics, and overseeing GST/ITR/EPF data. Use the WhatsApp bot for quick uploads and status checks.
- **2. Individual Users / Employees:**
 - *Familiarity Level:* Basic
 - *Role:* Primarily use the mobile app or WhatsApp chatbot to submit documents (e.g., Form 16 for ITR). Use the web portal for viewing their stored documents or managing their profile (including password reset).
- **3. Tax Professionals:**
 - *Familiarity Level:* Advanced
 - *Role:* Leverage the web platform to manage multiple client accounts (if supported), utilize the dashboard for client overviews, streamline data collection via various upload channels, and use generated reports/ECR files for final submissions.

Usage Model and System Description:

The FinEase System (R2) offers a cohesive experience across three interfaces:

1. **Web Portal:** The primary interface for comprehensive financial management. Users log in to access the dashboard, upload documents, utilize specific modules for GST, ITR, EPF (including batch management and ECR generation), create Invoices and E-way bills, view reports and statistics, and manage their profile.
2. **Mobile Application (React Native):** Provides on-the-go access for users to log in, upload documents using the device camera or storage, view stored documents, and potentially receive notifications. Requires necessary device permissions (Camera, Storage, Notifications).
3. **WhatsApp Chatbot:** Offers a convenient channel for authenticated users to quickly upload documents, receive instant classification feedback, and potentially perform simple queries or actions.

Potential Users and Their Interactions (R2 Examples):

1. **Business Owner needing to file EPF:**
 - *Web Interaction:* Logs in, navigates to the EPF module, creates a new batch for the wage month, adds/updates employee details (UAN, wages), verifies calculated contributions, generates the ECR text file, and downloads it for submission on the official portal. Views past batches on the dashboard.
 - *WhatsApp Interaction:* Uploads an employee's PF slip for record-keeping.
2. **Accountant managing GST for a client:**

- *Web Interaction:* Logs in (potentially switching client contexts), uploads multiple GST invoices received from the client, reviews extracted data stored in the GST module, checks the dashboard for upcoming GST return due dates.
- *WhatsApp Interaction:* Quickly uploads a single urgent invoice received from the client via WhatsApp.

3. Individual needing to check ITR documents:

- *Mobile App Interaction:* Logs in, uploads Form 16 using the phone camera, later views the classified document in their document list.
- *Web Interaction:* Logs in, uses the password reset feature if credentials are forgotten, views all previously uploaded ITR-related documents.

How the System Works (R2 Flow):

1. Users register and log in via the Web Portal, Mobile App, or authenticate via the WhatsApp Chatbot (login:email:password command). JWT tokens manage sessions.
2. Documents are uploaded through any interface. Backend receives the file.
3. The classifyController triggers the Python classify.py script.
4. The script performs OCR on the document (PDF/image), extracts text, classifies it (GST/ITR/PF/Unknown) based on keywords, and extracts relevant dates.
5. Classification results (and potentially extracted data via other specific processors) are returned to the backend.
6. Data (metadata, classification, extracted fields, file link/data) is stored in relevant MongoDB collections (e.g., FileUploads, GstTaxInvoice, ITR, EPF, [Invoice](#), EwayBill).
7. Users can view their documents, dashboard statistics, generate reports (like ECR), and create new entities (Invoices, E-way bills) via the Web Portal or Mobile App.
8. The WhatsApp bot facilitates upload and provides feedback, interacting with the backend API for authentication, storage, and retrieval.
9. The backend notificationController checks for upcoming due dates and can trigger alerts (mechanism for delivery TBD - potentially via web/mobile push or email).

User Interface Diagram:

The conceptual diagram provided for R1 remains relevant for the overall flow.

