

IPCA Social Store: Mobile Application

LICENCIATURA EM ENGENHARIA SISTEMAS INFORMÁTICOS

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► BACKGROUND

IPCA's Social Action Services (SAS-IPCA) support students in vulnerable situations through the **Social Store**, promoting solidarity, sustainability, and the circular economy.

The management of donations, inventory, and aid allocation is often carried out manually or with dispersed information, leading to difficulties in **stock control, delays, and reduced traceability**.

This project proposes a digital solution to centralize processes, improve efficiency, and support decision-making.

The solution includes:

- An **Android app** for beneficiaries and staff (internal management and requests);
- An **informational website** to promote campaigns and encourage community participation.

► OBJECTIVES

General Objective and Specific Objectives:

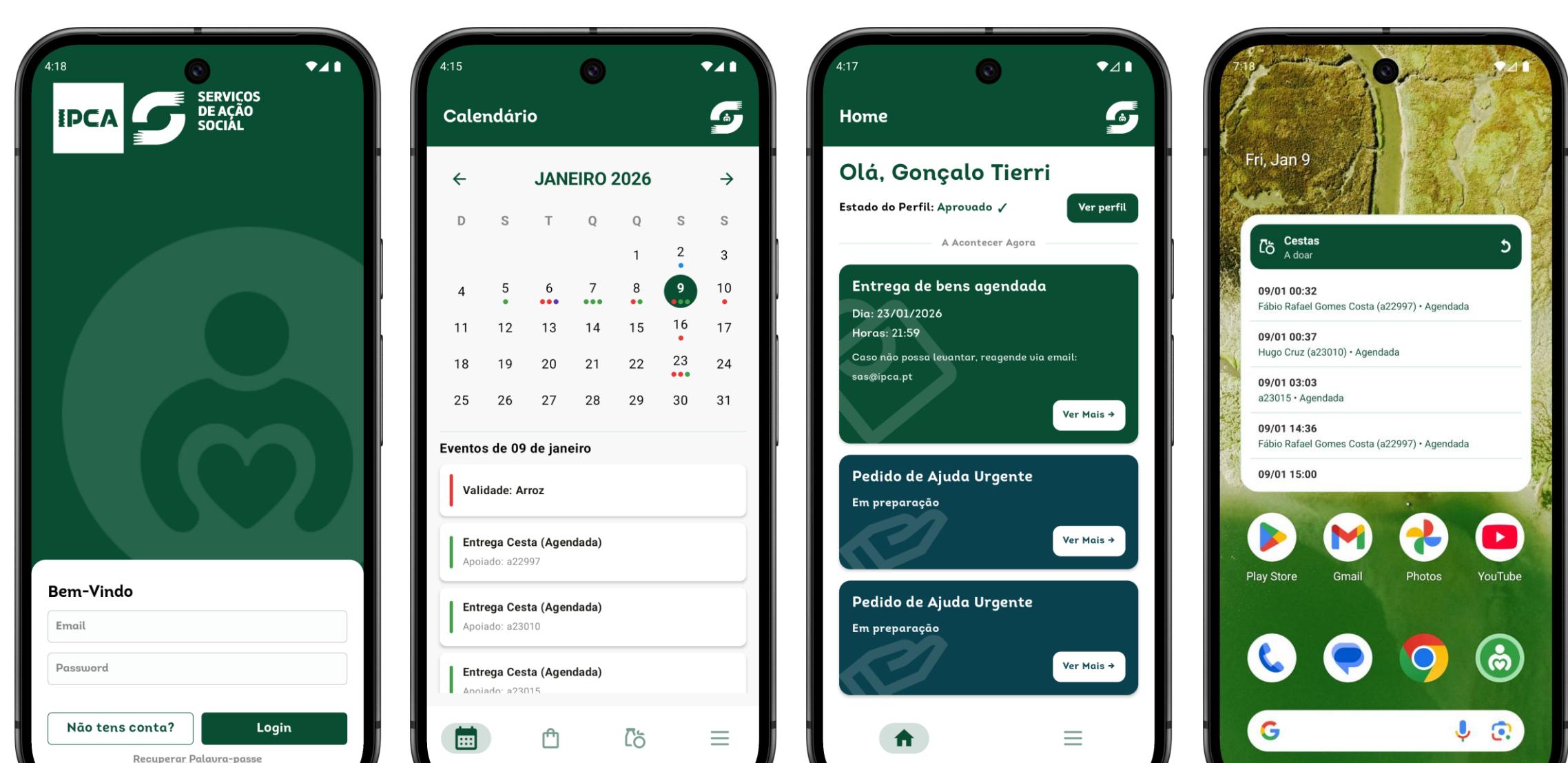
1. Beneficiary management;
2. Inventory/stock management;
3. Campaign management;
4. Aid package (basket) management;
5. Document submission and validation;
6. Urgent requests and fast communication between beneficiaries and SAS.

Expected Benefits:

- Authentication and role-based profiles (Beneficiary / Staff Member / Administrator);
- Real-time synchronization with Firestore;
- Automatic notifications;
- Data export (PDF/CSV).

► TECHNOLOGIES

- **Mobile App:** Android Kotlin + Jetpack Compose (Material 3) + Navigation Compose + Lifecycle ViewModel (Compose);
- **Firebase (Android SDK):** Authentication, Cloud Firestore, Cloud Storage, Cloud Messaging (FCM) (via Firebase BOM);
- **Barcode/QR:** Play Services Code Scanner / ML Kit Code Scanner + ZXing (core);
- **Backend automation:** Firebase Cloud Functions (Node.js 22 + TypeScript) using firebase-functions + firebase-admin;
- **Website:** React + Vite + Firebase JS SDK;
- **Web UI libs:** Chart.js (via react-chartjs-2) + Leaflet/OpenStreetMap (via react-leaflet);
- **Deployment:** Firebase Hosting (web).



Login:
Authentication screen for secure access.

Collaborator home:
Collaborator dashboard for daily operations.

Beneficiary home:
Beneficiary dashboard with key updates.

Widget: Home-screen widget with upcoming schedules.

► CONCLUSIONS

The solution centralizes Social Store management, improving operational efficiency, traceability, and overall control. Automation and push notifications enable a faster response to urgent requests and critical events, such as expiry-date alerts. In addition, the Android app enhances accessibility through home screen **widgets** (e.g., scheduled baskets/deliveries), providing essential information at a glance. Future work includes broader user testing, more comprehensive reports and indicators, and strengthened permissions and security.

