

Smart Box-Tracker App

Main Concept

An Android app which helps users organize, categorize and manage physical storage boxes. The app will allow users to create records of their boxes, track the contents within the boxes and find where specific items are stored with ease. Each entry will include a name, a thumbnail of the box and a list of items with their names and quantities.

Main Features

The app's interface is divided into two main sections, accessible through a tabbed header:

1. All Boxes Tab

- Displays all boxes as card-style entries with:
 - A thumbnail image (photo of the box).
 - The box name.
- Boxes can be sorted by most recently viewed, with the latest opened box appearing at the top.
- Long press on a box card to:
 - Edit box details (name, thumbnail, or contents).
 - Delete the box.
 - Multi-select multiple boxes for batch actions (like delete or categorize).

2. Categories Tab

- Works like an "Add Room" function where users can:
 - Create custom categories (e.g., "Bedroom Closet", "Garage", "Attic").
 - Add or remove boxes from categories using multi-selection.
- Provides quick access to all boxes in a specific category.

Search Functionality

- A search bar is located at the top of the header (above the two tabs).

- Allows users to search across all boxes and items for any keyword (case-insensitive).
- Matches will appear dynamically as users type, making it easy to locate specific boxes or items quickly.

Sensors to be Used

- **Camera Sensor**
 - Used to take thumbnail photos for each box.
 - Helps users visually identify their boxes faster.
 - Accessed via system camera intent with storage permissions handled securely.
- **Fingerprint Sensor**
 - On supported devices, users can unlock the app or sensitive sections using fingerprint authentication.
 - If unavailable, a password/PIN fallback will be offered for security.

Data Management

- All data (boxes, items, categories, photos, and timestamps) will be stored locally using the Room database.
- State management ensures that user data and app states (like sorting, selected tab, etc.) persist even after the app restarts.

Prototype UI Design

