Project Synopsis/Project Concept Document
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Project Title	Computer Vision Application for Real-time Multimodal Product Detection
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Description

This project focuses on the development of a mobile application designed to interface with advanced AI. The app has already been developed, fulfilling the two key functionalities: still image recognition and real-time video analysis. The current version of the app is hosted on an AWS server, and is only an Android based app. Hence, the primary objective is to make this app widely accessible through a user-friendly mobile platform.

The advanced Computer Vision (CV) algorithm, which utilizes deep neural networks to accurately identify products from both static images and live video feeds and has been currently developed by Perceptive Analytics for multimodal product detection.
Users will be able to capture a photograph or real time video directly through the app, which will then communicate with cloud-based computing server to process the data using the algorithms. After the processing is done, it will be displayed on the mobile application, ensuring users receive low latency and real-time results.

The scope of development includes:

- Establishing a robust and secure connection to cloud services
- Optimizing the user interface for ease of use
- Ensuring a seamless responsive experience.
- Enhancing the current User Interface
- Easy sharing of application and it's data

Profile of Users

Following a thorough discussion with the client, we have received clarification on the current utilization of the application. According to the information provided, the app's intended use, at least for the present moment, is not geared towards a mass audience, and is intended as a restricted app. The audience will be prospective clients of Perceptive Analytics, and will only fall under the following categories and their possible requirements:

1. Retail Stores (like Ratnadeep, Vijetha etc.): Will act as an inventory management system which can help us to keep track of count of items that are currently available in a particular aisle, and exact amount of restocking required for the same.
2. Delivery System Companies (like Bigbasket, Dunzo etc.): Will be used as a verification system for the quantity of products delivered by the delivery partner.
3. E-Commerce Websites (like Walmart, with both online and offline presence etc.): Will be used as a means for Digital Cataloguing on their websites.

Note that the examples mentioned here does not imply that they will be the actual end-users, but as an example. These end-users may be based in India or USA.

Usage Model and Diagrams

The functionalities that we are planning to implement in the existing app version are made from the perspective of making the user experience for all the stakeholders equally interactive and convenient. The user interface will interact with the end-users in the following order with the following functionalities:

1. The user opens the app, and enters their details in the **login page**, where user authentication will happen from the details stored in the database of the app.
2. Once logged in, they can see the **dashboard page** where the user can select whatever option(s) they wish to use. Some of the options include scanning a real-time image/video for product detection, uploading an image/video for analysis, view histories of scanned and unscanned orders, create a copy of an order, share the details of an order etc.
3. The user can search for a particular set of orders using **a filter button** which will help in displaying optimal search results. The display of the order can be color coded to distinguish scanned vs unscanned products, products with sufficient vs insufficient quantity, and many more.
4. If the user wants to alter the settings of the order, they can go to the **settings page** to adjust the specs of an order to their convenience.
5. If the user wants to update their details, they can visit the **profile page** which will display the current logged in user details and have an option to edit them based on their requirements.

We also intended to remove dependence on third party servers for quick opening of app on complete shutdown. We also focus on instant deployment of the app on respective app-stores and finding an optimum way of sharing the app on different devices.

Note: The above-mentioned features are only part of ideation and will vary over regular iterations with client.