Pallet Capturing and Recognition

In this project, we will develop a React Native mobile application capable of capturing a photo and using AI with TensorflowJS to extract details of the pallet in the image captured. Then we will send that information to the server using the provided API.

Development Phases -

1. Data gathering and preparation
    - Estimated Time: 1 Week
    - In this phase, the images provided will be manually marked - the pallets, stickers and barcodes will be manually marked thus creating the dataset required. Also in this phase, the training, validation and test datasets will be divided.

2. Training AI Model
    - Estimated Time: 2-4 Weeks
    - In this phase,
        i. Object Detection Model will be trained for pallet detection.
        ii. The Object Detection Model will be extended to include the alignment phase.
        iii. Another Object Detection Model will be created for sticker detection and extract the sticker into an image.
        iv. Optical Character Recognition and Barcode reading will be used to read the content of the sticker and get the necessary details.
        v. A pipeline will be created that will do all these steps efficiently in a single go without doing each one manually.

3. Building Mobile App UI and setting up AI packages
    - Estimated Time: 1 Week
    - In this phase, we will create a React Native mobile app and set up camera libraries. Then we would set up all the AI packages including but not limited to TensorflowJS, OpenCV, Tesseract JS and others.

4. Integrating the trained model into the mobile app
    - Estimated Time: 2-3 Weeks
    - In this phase, we will add the trained models in step 2 to the React Native app along with the pipeline so that the image captured/read from the camera will be processed easily and efficiently. After that, the data will be sent to the server via the API that should be provided.

5. Testing and Bug Fixes
    - In this phase, the testing will be conducted on the client end and any bugs encountered will be rectified.

Total estimated time - 2-3 months

Requirements -

The following things will be required to successfully make this masterpiece -

1. Images of pallets with stickers, make sure the images are good quality because we need to perform character recognition also. I would need around 100+ images of pallets with mostly different patterns and colours for better training.
2. Information on what the different things on the label mean and what should we have to send.
3. The API where the data should be sent.
4. A testing environment where the testing of the mobile app could be done such that it looks similar to the actual production environment.