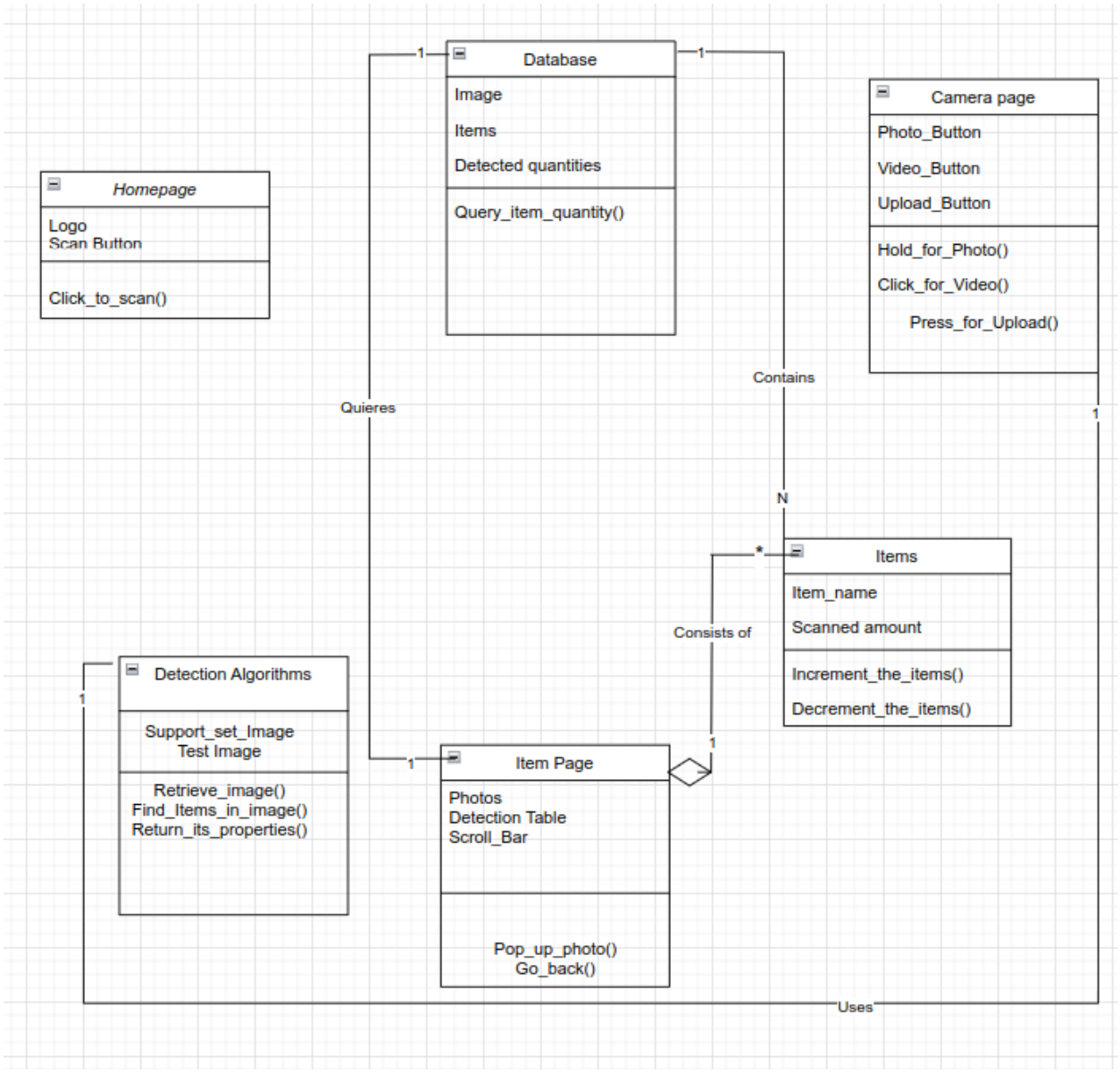
Product Design

Team 33
Computer Vision App
Aanvik Bhatnagar
Badarla Rohan Naidu
Chetan Mahipal
Rohan Rathee
Rohan Shridhar

Design Model

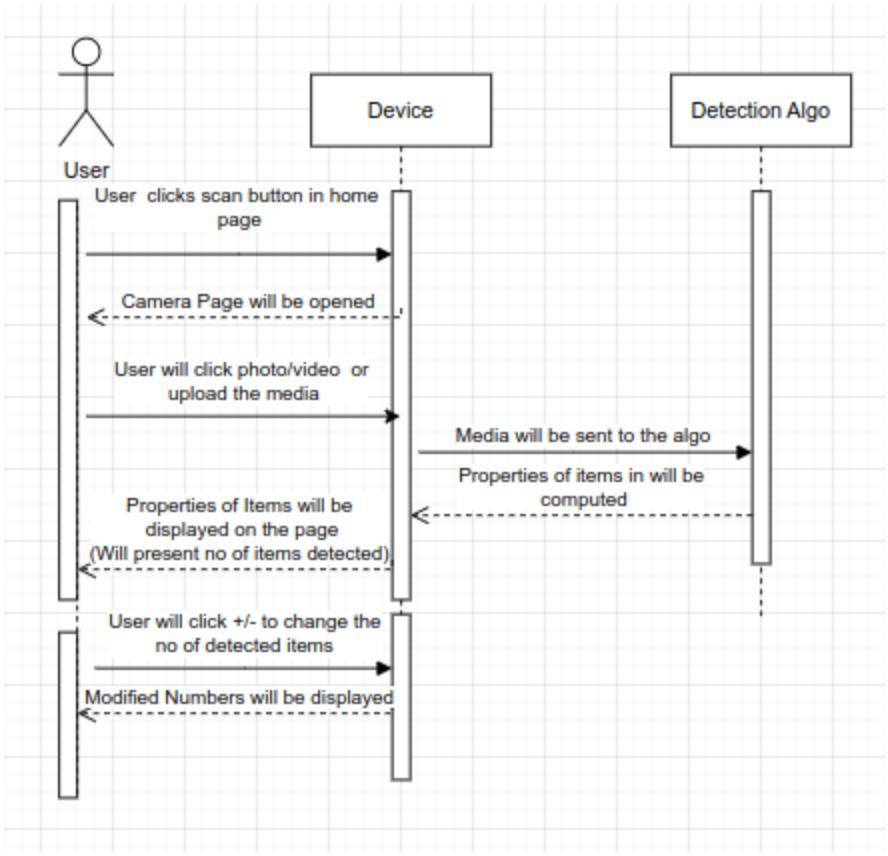


Link: https://drive.google.com/file/d/1uPkriWSVlPMsaJ-lFV5Rvp5WLBkMKKuR/view?usp=sharing

Home Page	Class state ● The logo of the company – Perceptive Analytics ● A scan button at the bottom of the page Class behavior ● On clicking the scan button, the camera page opens up
Camera Page	Class state ● A button at the bottom of the page, which takes a photo on long press ● A button at the bottom of the page, which takes a video on clicking ● An upload button at the bottom right of the page Class behavior ● On long pressing the button at the bottom, a photo is taken. ● On clicking the button once, the video recording starts, and on clicking it again, the video recording stops. ● On clicking the upload button, the device gallery opens, and the user can select any image or video from the gallery, which will be uploaded and later processed.
Items Page	Class state ● This class maintains the image and the items table, which consists of the items' names and scanned quantities. Class behavior ● Popping up a full screen view of the image, when clicked. This image shows the results of the detection algorithm, as grids around the detected objects. ● Going back to the camera page on clicking of the back button.

Items	Class state ● This class is identified by the name of the item. ● The scanned amount of the item is also an attribute of this class. Class behavior ● On clicking the '+' button on the right of the item quantity, the quantity is increased by 1. ● On clicking the '-' button on the left of the item quantity, the quantity is decreased by 1.
Detection Algorithm	Class state ● Support set images are associated with the detection algorithm. ● The test (or scanned) image is processed by the detection algorithm. Class behavior ● The scanned image is retrieved by the algorithm for processing. ● The algorithm runs to identify different items in the image. ● The result of the detection is returned as properties of the identified items.
Database	Class state ● Images of items are stored in the database. ● The item names are stored in the database. ● The detected quantities of items are stored in the database. Class behavior ● The item's quantity is queried from the database, which is returned and stored (on scanning).

Sequence Diagram



Link: https://drive.google.com/file/d/1ufDztQKPjtZxIcUX8HyTx2r3akDg7Zt3/view?usp=sharing

Design Rationale

Camera Page

The first proposed design of the camera page has two options, both for video and image. It could be switched by just clicking on the desired option. But after deliberation with the client, we switched the design with a long press click for image capture and to record video press the capture button once (to start recording) and to finish recording press the capture button again. According to the client this was more user-friendly.

Home Page

The first proposed design contained a list of orders, with options for the creation of new orders and editing orders. But the purpose of the app was for giving demos to our client's client, so we switched to just the homepage with a scan button which was more intuitive and fulfilling requirement.

For the next design we changed the scan button and its size to reduce emptiness of the background and the design of the scan button was decided based on the client's intuition and essence of the feature.

Items Page

As the use-case was just for the demo purpose, we thought to implement and show the list of detected items only, with an ability of changing the quantity of the detected item for correcting additional scans (due to algorithm). We agreed to have a picture with scanned items for better usability and to get the user information about the location of scanned items. We thought to store the images and implement an option for adding images, but the client suggested making it a single database entry every time for better differentiation between different scans.

The back button is placed at the bottom of the page because most people tend to operate the app with their thumb only and it can be accessed easily.

Overall UI

The overall color palette was chosen keeping the logo of the company and using complement colors for enhancement of the design. The circular design captures the logo in a beautiful manner.

Database

This was introduced to save the scans before the app goes offline, so that whenever the app is used again it shows the previous scans also.

Items List
We decided to use scrolling in the item’s list because displaying 7-9 items and then changing pages takes time. Scrolling would be fast and efficient.