FTV: Feel The Virtual

B. Tech Project Presentation
COCSC22

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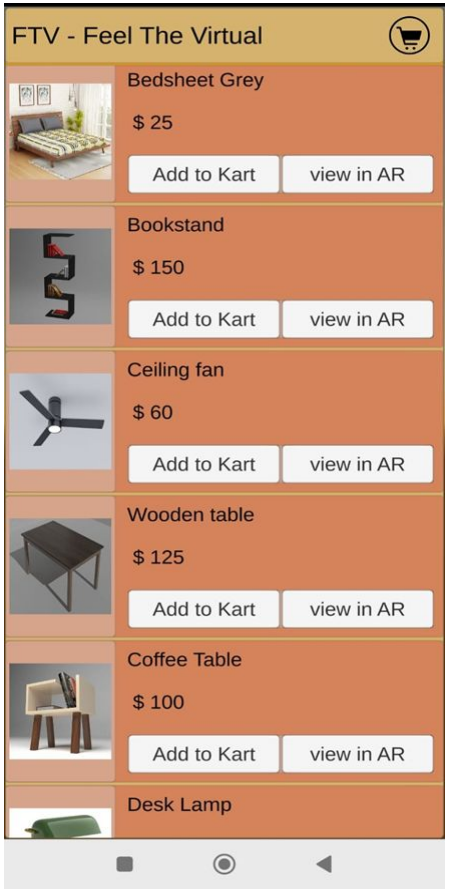
Overview

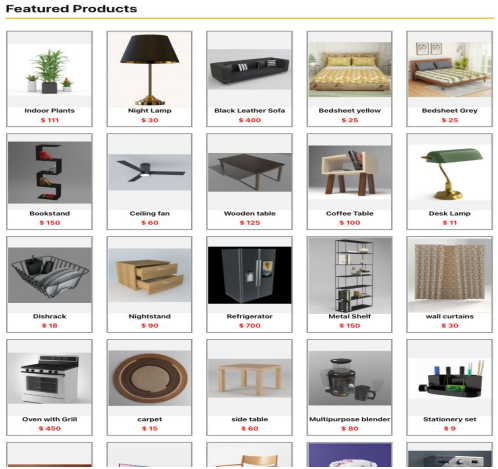
- PROBLEMS IN ONLINE SHOPPING
  - Incomplete product experience
  - Unable to assess the feel and dimensions

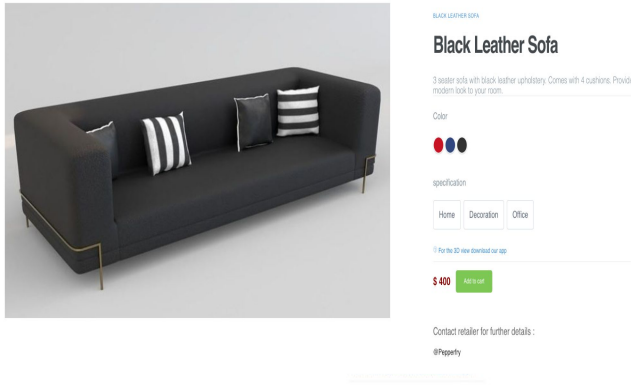
- OUR SOLUTION
  - Use AR to make product interactive
  - product visualization experience



ANDROID APPLICATION

- Preprocessing of the model before uploading
- Fetching product data and caching models
- Preprocessing models to support user interactions
- Placement of model in AR
- Interactions in AR screen





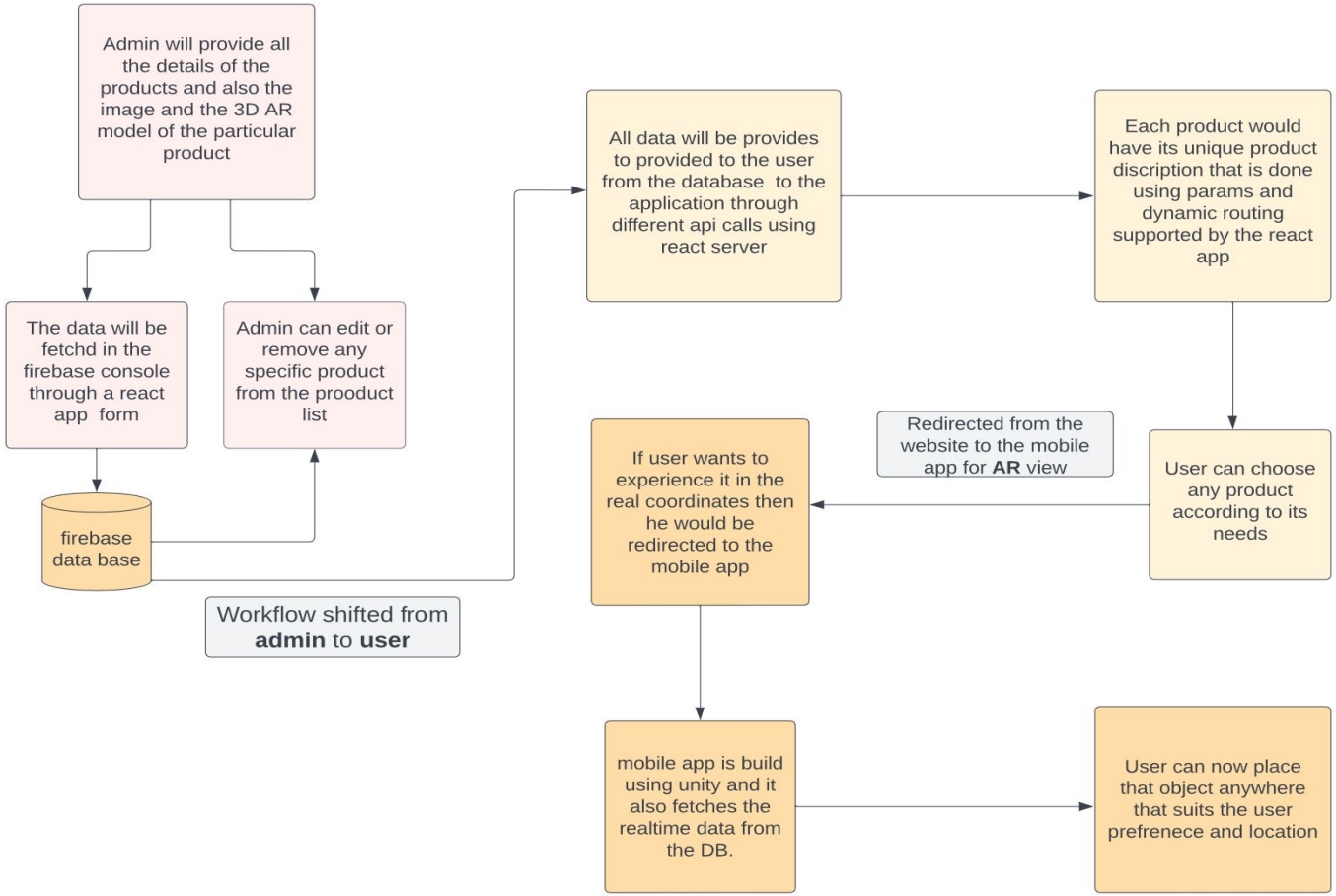
Interface for User and Admin

User Interface

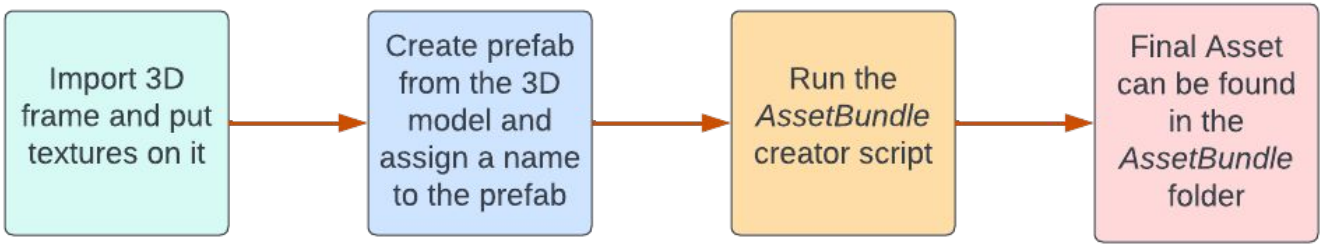
- Product List Page
- Home Page
- User Authentication
- Dynamic Routing to display specific product

Admin Interface

- Product List Page with delete control
- Authentication
- Passkey Feature
- Add Product



Flow diagram for the working of the ecommerce platform



CREATING 3D ASSETS

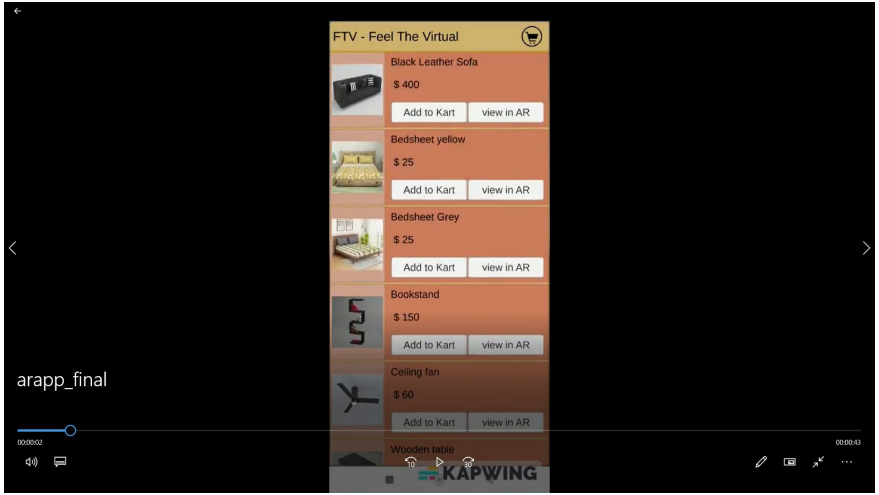
WEB-BASED AR

- ➔ For administrator to check models before uploading to website
- ➔ Made using WebXR, Three.js
- ➔ reticle (blue target) points to detected location on plane

RESULT

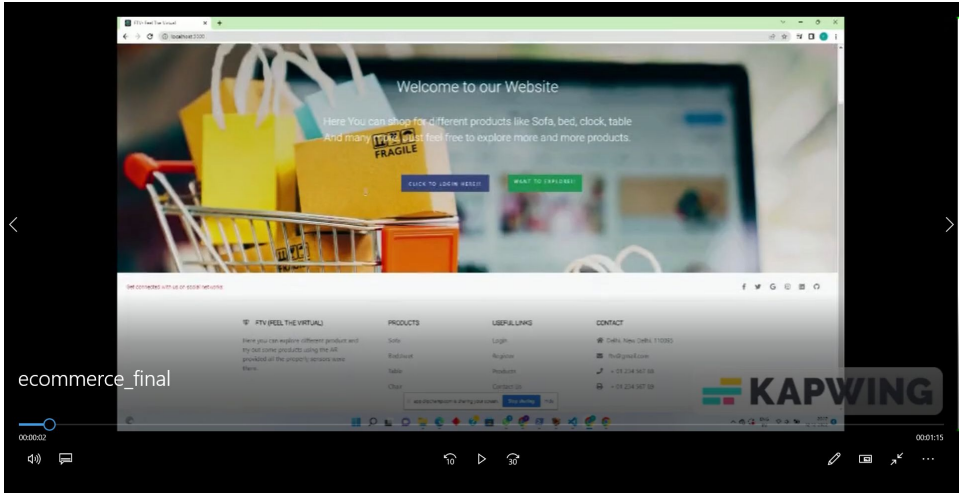
- Markerless AR is better in performance as compared to Marker-based AR.
- AR works better in well-lit spaces.
- Difficult to detect vertical planes as compared to horizontal planes.

Android Application



GOOGLE DRIVE LINK
Android Application

Ecommerce Platform



GOOGLE DRIVE LINK
Ecommerce Platform

CHALLENGES

1. Challenges with Vuforia

- **Challenge:** marker based AR, external capabilities and poor performance
- **Solution:** AR foundation, uses capabilities of device and markerless AR

1. Need for Dynamic app

- **Challenge:** local models make app massive and reduce dynamic nature.
- **Solution:** dynamic loading and assetbundle pipeline.

CHALLENGES

3. Storing the assets

- **Challenge:** Storing and retrieving images, 3D model in mongoDB
- **Solution:** Firebase allows to store all kinds of files, relatively easier to fetch data and file with realtime DB.

4. Update the state

- **Challenge:** Needed an engine that dynamically render the page with change in DB state.
- **Solution:** Simple views for each state in the application, React will efficiently update and render the components when data changes .Firebase CRUD operation were comparatively much feasible and easier.

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