Universidad de las Américas Puebla

Deliverables & Risk Mitigation Plan

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Mobile App Development - LIS4012

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Work Packages

Deliverable	Description	Due Date
Requirements Specification	Define functional and non- functional requirements	February 12
UI/UX Design	Create wireframes, prototypes, UI components	February 12
Backend Development	API development, database setup	March 21
Frontend Development	Mobile app UI and features implementation	March 21
Testing C QA	Unit, integration, and user testing	March 28
Deployment	Submission to Google Play	-
Post-Launch Support	Bug fixes, updates, monitoring	-

Requirements & Planning

- Define the project scope clearly: Camera scan + AI-based ripeness detection.
- Define the dataset and model early. Use pre-trained models (e.g., TensorFlow Lite or PyTorch Mobile) for fruit ripeness detection to save time.
- Document requirements in a tool like Notion for easy collaboration.

UI/UX Design

- Create wireframes
- Develop UI prototypes
- Keep the UI simple and intuitive. Focus on a single-screen design where the camera view is the main focus.
- Use Lottie for animations (e.g., loading indicators) to enhance user experience.

Backend & Database Development

- Develop APIs
- Implement security
- No User Data Storage: Since the app does not require user authentication or data storage, the backend can be minimal.
- On-Device AI Model: Use TensorFlow Lite or PyTorch Mobile for fruit ripeness detection. This allows the AI model to run directly on the user’s device, eliminating the need for a backend server.
- No Database: Since no user data is stored, there is no need for a database like Firestore or MongoDB. If users want to save scan results locally, AsyncStorage could be used for that matter or expo-filesystem.

Frontend Development

- Develop UI components
- Integrate APIs
- Implement business logic
- Use expo-camera or react-native-camera for camera integration. These libraries are well-documented and easy to implement.
- Implement the logic to:
  - Capture the image.
  - Send it to the AI model (on-device or via API).
  - Display the ripeness result.

Testing & QA

- Use Jest and React Native Testing Library for unit testing.
- Use Detox for end-to-end testing to simulate user interactions.
- Conduct beta testing using TestFlight (iOS) and Google Play Beta Testing (Android).

Deployment

- Play Store submission
- Security review
- Production release

Maintenance & Updates

- Monitor analytics
- Fix any issues
- Amplify the range of fruit and foods that can be analyzed.

Risk Mitigation Plan

Risk	Impact	Mitigation Strategy
App Store Rejection	High	Ensure compliance with Play Store/App Store guidelines, especially for camera usage and data privacy.
Camera Permission Issues	High	Clearly explain camera usage in the app description and request permissions properly.
Compatibility Issues	Medium	Test on multiple devices, use emulators, and conduct real device testing.
Battery Drain Issues	Medium	Optimize camera and image processing to minimize battery usage.

Functional Requirements

- The app must allow users to scan fruits using the device's camera.
- The app must analyze the scanned image to determine the ripeness or spoilage level of the fruit.
- The app must display the results of the scan (e.g., ripeness percentage or spoilage warning).
- The app must provide a simple and intuitive user interface for scanning and viewing results.
- The app must allow users to save or share scan results (optional).

Non-Functional Requirements

- The app must process and display scan results within 3 seconds on a 4G network.
- The app must work on Android 10+ and iOS 14+.
- The app must handle up to 10,000 concurrent users (if cloud-based processing is used).
- The app must use minimal device storage and battery resources.
- The app must ensure user privacy by not storing scanned images or data without consent.
- The app must be accessible and easy to use for all age groups.