Product Requirements Document (PRD)

Product Name: MeasureMate

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## 1. Purpose

The purpose of this application is to provide users with an intuitive, camera-based tool to measure the length of physical objects by tapping the start and end points on the screen. The app leverages mobile device sensors (camera, AR capabilities, gyroscope, etc.) to perform accurate spatial measurements.

## 2. Scope

The app allows users to:

- Open the mobile camera
- Mark a starting point and an ending point on a real-world object
- Get an approximate length (in inches/cm)
- Save and share measurements

This is a consumer-facing app intended for iOS and Android.

## 3. Features

### 3.1 Core Features

- Camera-based Measurement: Use phone camera to display the real world and mark start/end points
- Point Selection: User taps on the screen to mark two points
- Real-time Length Calculation: App calculates distance using AR APIs (ARKit / ARCore)
- Units: Toggle between inches and centimeters
- Save Measurements: Store snapshots and measurements locally
- Share: Share measurement image and value via email/social apps

### 3.2 Optional/Nice-to-Have

- Voice Feedback: App reads out the measured distance

- Angle Measurement: Measure angles between two lines (future scope)
- Export: Export measurements to CSV or PDF
- History: View past measurements with timestamps

4. User Stories

- As a user, I want to open the app and immediately start measuring.
- As a user, I want to mark the start and end points on an object using the camera.
- As a user, I want the app to calculate and show the length instantly.
- As a user, I want to save or share my measurements.

5. Technical Requirements

Platform

- iOS (ARKit)
- Android (ARCore)

Dependencies

- AR SDKs (ARKit/ARCore)
- Access to device camera and sensors
- Real-time image processing & plane detection

Accuracy

- Within ±1.5% for distances under 3 meters
- Requires calibration and flat surface detection

6. UI/UX Requirements

- Home Screen: Live camera feed with "Start Point" and "End Point" tap buttons
- Overlay: Display measurement in real-time as user taps
- Unit Selector: Toggle switch (cm/inch)
- Capture Button: Save image + length
- History Page: List of past measurements
- Settings Page: Unit selection, permissions, help

7. Non-Functional Requirements

- Performance: Must respond within 1s of user tap
- Security: Data saved locally; no upload without consent
- Privacy: Request camera permission, no background recording
- Availability: 99% uptime if any backend used
- Usability: Target user: general consumers, must be intuitive

8. Assumptions & Constraints

- User must have an AR-capable device
- Bright lighting improves accuracy
- Measurements are approximations, not for legal/industrial use

9. Risks

- Inaccuracy on non-flat or poorly lit surfaces
- Varying camera quality across devices
- Battery drain from continuous AR usage

10. Success Metrics

- App accuracy within ±1.5% over 1m range
- 90%+ user satisfaction (feedback survey)
- <5% crash rate
- 10k+ installs within 3 months of launch