



## Android XR SDK Developer Preview 3 - API Changes

Google announced **Android XR SDK Developer Preview 3** on December 8, 2025, expanding platform support beyond headsets to include AI glasses and wired XR glasses. Here is a comprehensive, categorized breakdown of the API changes:

### New Libraries for AI Glasses Development

Two purpose-built libraries have been introduced specifically for AI glasses:<sup>[1]</sup>

**Jetpack Projected** bridges mobile devices and AI glasses, providing access to the glasses' hardware including sensors, speakers, and displays. It introduces the concept of a **projected context**—a device-aware Context that allows apps to interact with connected glasses hardware rather than the phone's hardware. Device-aware APIs like `CameraManager`, `SensorManager`, `AudioManager`, and `AudioRecord` now behave differently depending on context, accessing glasses hardware when called from a projected context.<sup>[2]</sup>

**Jetpack Compose Glimmer** is a new UI toolkit for building augmented experiences optimized for display AI glasses. It features glasses-specific theming with a simplified design language for optimal visibility, wearable-specific visual behavior (replacing ripple effects with optimized outlines), and pre-built composable components like cards, lists, `TitleChip`, and standard Material components all adapted for glasses environments.<sup>[3]</sup> <sup>[1]</sup>

### Jetpack SceneCore Enhancements

For immersive headsets and wired XR glasses, SceneCore has gained significant capabilities:<sup>[1]</sup>

**Dynamic glTF model loading via URIs** allows runtime loading of 3D models without pre-bundling. **Improved materials support** enables creation of new PBR (physically-based rendering) materials at runtime. The **SurfaceEntity component** now features full **Widevine Digital Rights Management (DRM) support** for protected video content, plus **new shape options for video rendering**—spheres and hemispheres for 360-degree and 180-degree video playback respectively.

### Jetpack Compose for XR Enhancements

Compose for XR receives multiple spatial UI improvements:<sup>[1]</sup>

**UserSubspace component** implements follow behavior, automatically keeping content in the user's view regardless of head movement. **Spatial animations** provide smooth transitions like sliding and fading with support for **soft headlocking**, a stabilization technique that keeps content relatively fixed while allowing natural head movement.

Developers can now **specify layout sizes as fractions of the user's comfortable field of view** rather than absolute pixels, enabling adaptive layouts that work across devices with different display capabilities.<sup>[4]</sup>

## Material Design for XR Components

Material 3 components now automatically adapt spatially through component-specific overrides:<sup>[1]</sup>

**Dialogs elevate spatially** to appear in 3D space rather than flat overlays. **Navigation bars transform into Orbiters**, spatial UI elements that orbit the user's view. A **new SpaceToggleButton component** facilitates transitions between Home Space and Full Space modes. These adaptations work through the `EnableXrComponentOverrides` wrapper for existing Material 3 implementations.

## ARCore for Jetpack XR Perception Capabilities

ARCore expands significantly across all XR device types:<sup>[1]</sup>

**Face tracking with 68 blendshape values** (up from previous iterations) enables detailed facial gesture recognition and expression tracking. **Eye tracking** capabilities power virtual avatar control and gaze-based interactions. **Depth maps** provide detailed environment understanding for realistic object occlusion and physics interactions.

For AI glasses specifically, **motion tracking** and **geospatial capabilities** have been added:<sup>[5] [1]</sup>

**Geospatial API enhancements** include:

- **Visual Positioning System (VPS)** for precise location-aware navigation and direction-based content placement
- **Location-specific actions and content triggers** that activate based on geographic coordinates
- **Device pose to geospatial pose conversion** for converting local device coordinates to global geographic coordinates
- **Geospatial pose to device pose conversion** for placing real-world coordinates into the user's visual space<sup>[5]</sup>

## Field of View Detection and Adaptive Layouts

New **field of view detection APIs** allow apps to query device display capabilities and adapt UI accordingly. Developers can test different FoV configurations directly in the **XR emulator within Android Studio**, enabling responsive designs across devices with varying visual real estate.<sup>[6]</sup>

## Enhanced Emulator Support

Two new emulator capabilities launched:

**AI Glasses emulator** simulates glasses-specific interactions including touchpad input and voice commands. **XR Glasses emulator** provides accurate visualization matching real device specifications for Field of View, resolution (DPI), and other hardware characteristics—essential for Project Aura (XREAL wired glasses) development.<sup>[1]</sup>

## Unity Perception Capabilities

The Android XR SDK for Unity gained expanded tracking and environmental understanding:<sup>[1]</sup>

- **QR and ArUco code detection** for marker-based interactions
- **Planar image tracking** for image-based anchoring
- **Body tracking** (experimental) for full-body presence
- **Scene meshing** enabling digital objects to physically interact with the real environment—objects can bounce off walls, climb couches, and perform realistic physics-based interactions

## Hardware-Specific Sensor Access for AI Glasses

Through projected contexts, apps gain standardized access to glasses hardware:<sup>[2]</sup>

- `CameraManager` accesses the glasses camera for computer vision tasks
- `SensorManager` retrieves gyroscope, accelerometer, and other inertial measurement data
- `AudioManager` controls audio streams, volume levels, and output routing
- `AudioRecord` captures audio from the glasses microphone for voice interfaces

The API intelligently handles different AI glasses types—some with displays for visual UI, others screen-free for voice-first interaction—through capability detection in the projected activity lifecycle.

## Development Environment Updates

Developers require **Android Studio Canary (Otter 3, Canary 4 or later)** and **emulator version 36.4.3 Canary or later** to access the full Developer Preview 3 feature set.<sup>[1]</sup>

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