



SCENE ANNOTATION

USING AUGMETED REALITY AND AI

A real-time AR application that combines depth-based point cloud capture with asynchronous server-side semantic segmentation to annotate 3D scenes on mobile. The system segments the AR point cloud in 3D and guides the user through structured scanning to produce accurate, spatially-anchored labeled 3D point clouds.

APPLICATION PIPELINE

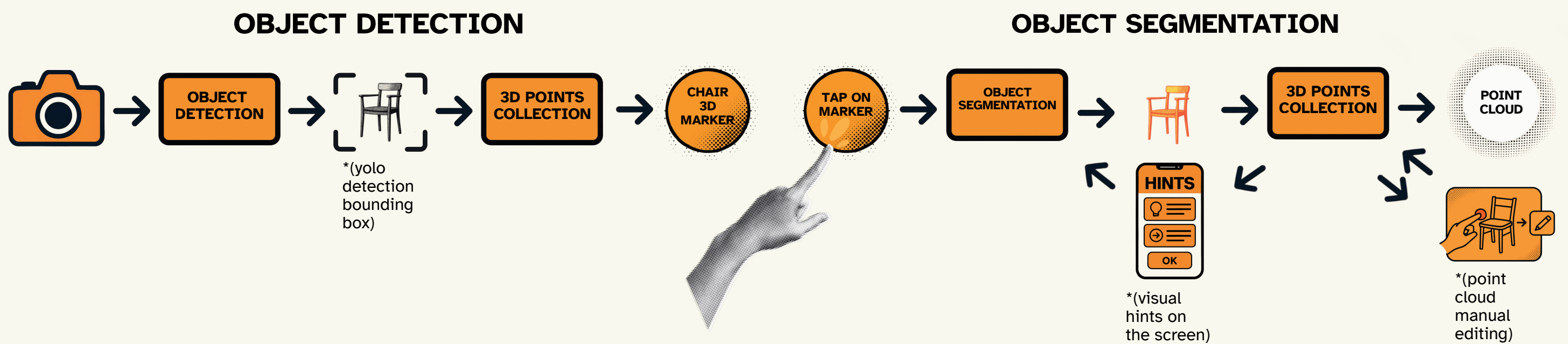


Figure 1. Object detection pipeline.

Figure 2. Object segmentation pipeline.

SEGMENTATION PROCESS

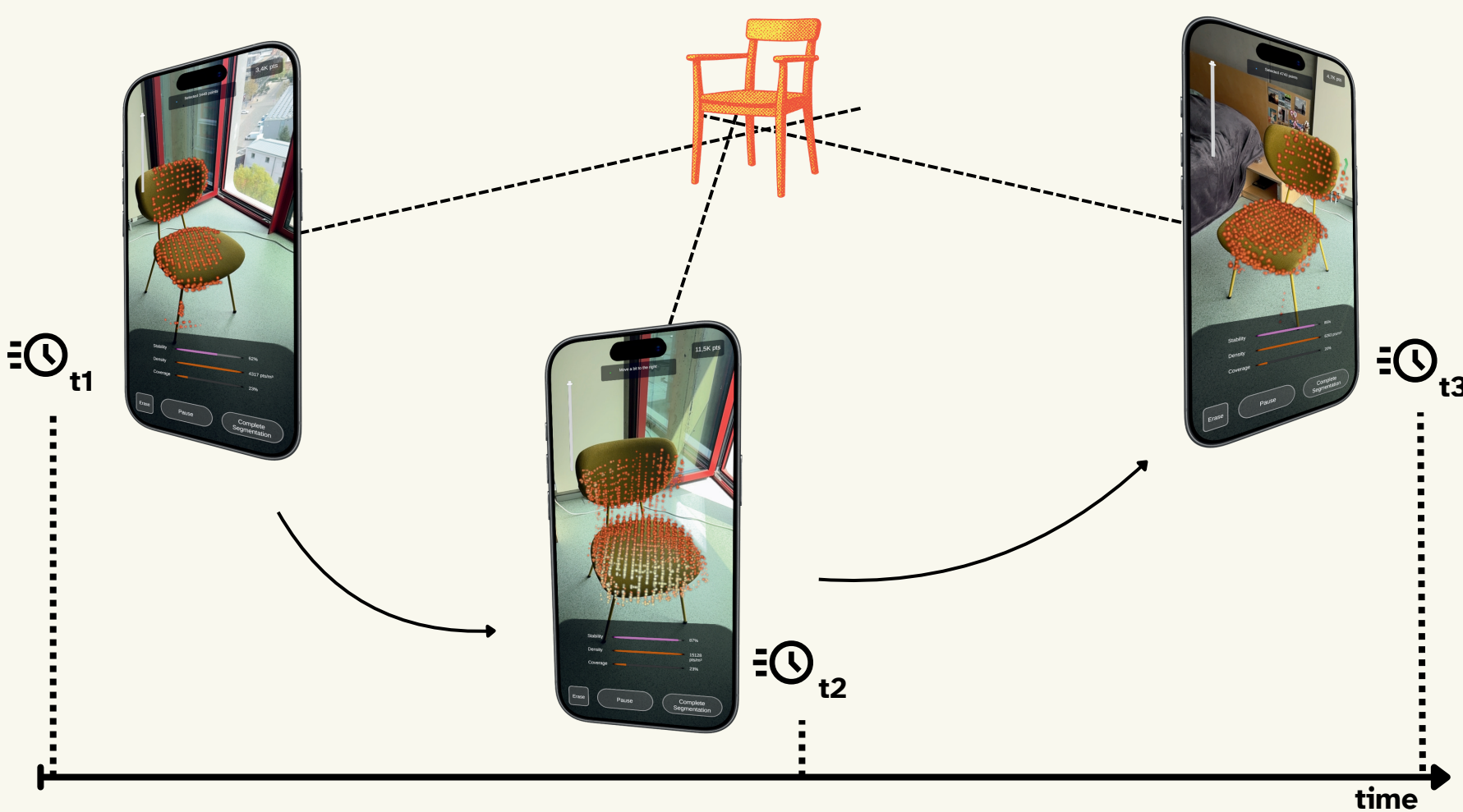


Figure 3. Object segmentation process.

KEY FEATURES

- 01 SCAN ANYTHING, INSTANTLY**
just point your phone at an object, tap to confirm, and the app builds a 3D model automatically
- 02 NO SPECIAL EQUIPMENT NEEDED**
works on any iPhone using the built-in camera, no depth sensors or external hardware required
- 03 INSTANT VISUAL FEEDBACK**
see your scan progress in real time as the 3D point cloud builds up around the object while you walk around it

Figure 8. Key features.

OUTPUTS

SET OF OBJECT PHOTOS



OBJECT'S POINT CLOUD



BACKPACK

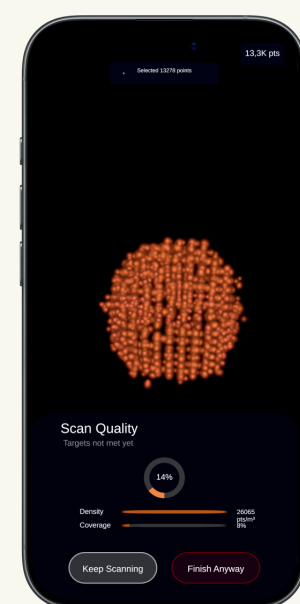


BOTTLE



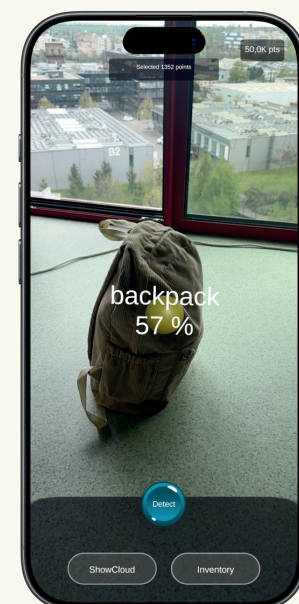
Figure 4. Application outputs.

SCREENSHOTS



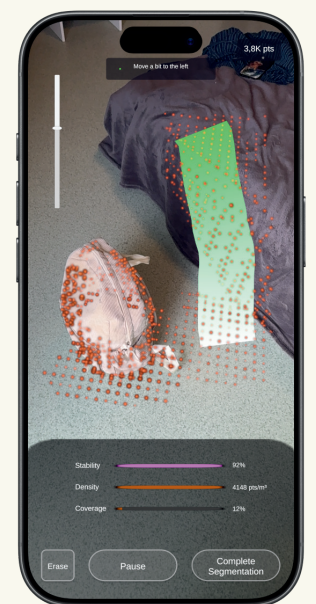
Pre-completion feedback screen indicating low segmentation quality

Figure 5. Pre-completion feedback.



The marker highlights objects detected by the ML model.

Figure 6. Detection 3D marker.



Manual adjustment by built-in brush during the segmentation session

Figure 7. Manual brush