LUMINOUS

LANGUAGE AUGMENTATION FOR HUMANVERSE

EUROXR

Location: Valencia, Spain
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Dates: 3rd-6th November 2026

dfki ai

Pilot 1-Extended Use Case

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101135724



XR Cognitive Demonstrator

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1. Ambition & Overview
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From a spoken request to situated assistance

USER INTENT

> **“I want to have coffee.”**

A request alone is not enough. The assistant must understand what is visible, what is missing, and which steps are feasible.

01 PERCEIVE

Recognize the request and objects in view.

02 REASON

Generate and check a grounded action plan.

03 ASSIST

Present steps through interactive XR guidance.

THE DIFFERENCE: ***Assistance is constrained by the user’s actual environment.***

System Architecture Overview

TECHNICAL PIPELINE

01 App Starts

User starts XR app

02 Wake Word

Wake word activates voice input

03 ASR

ASR converts speech to text

04 Instruction Generation

Instruction Generation Framework creates grounded task plan

05 XR Guidance

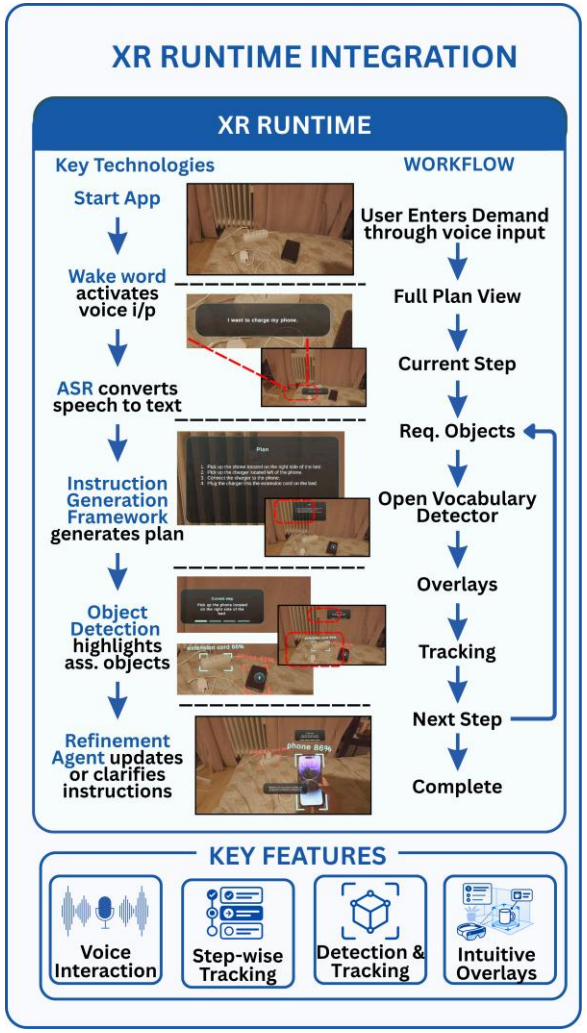
XR interface shows plan + object overlays (Object Detection)

06 Task Performance & Refinement

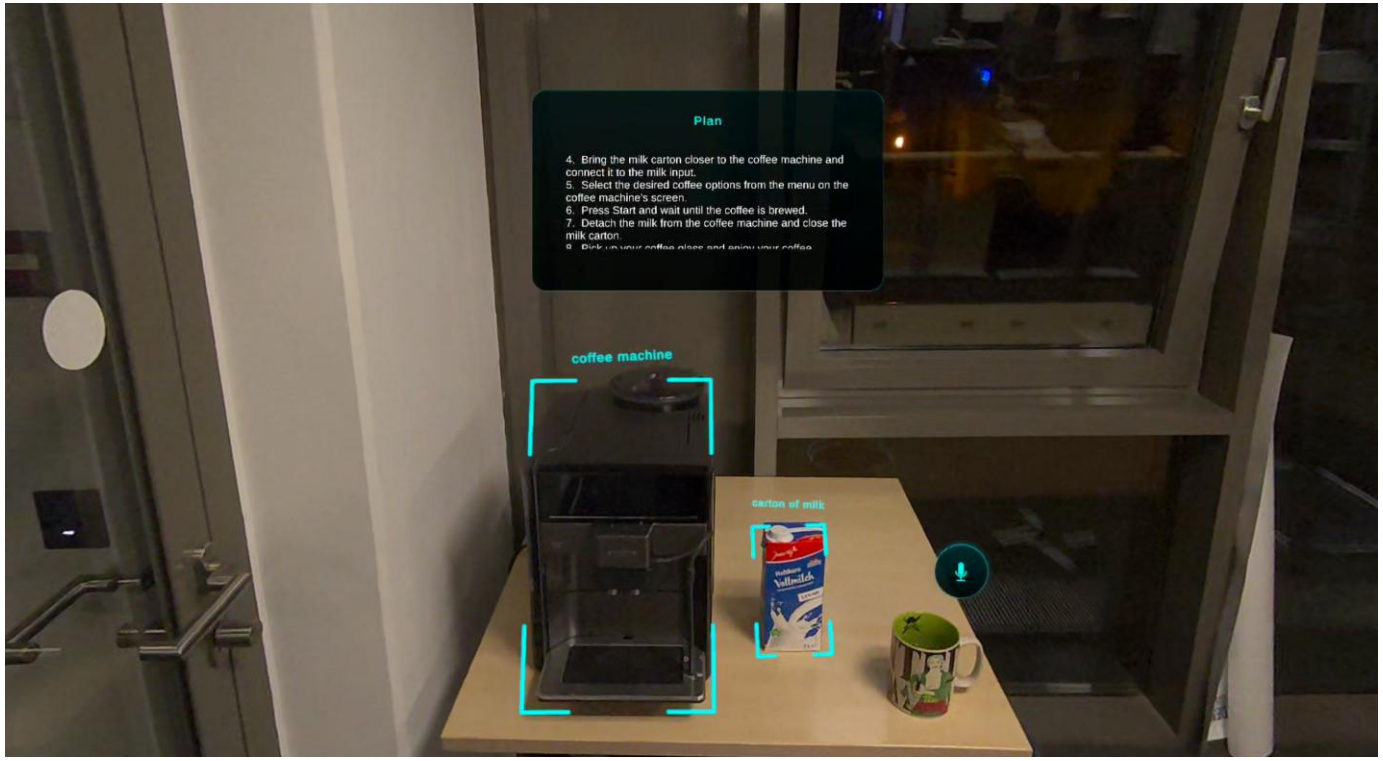
User navigates/refines using voice

07 Dynamic Feedback

Refinement Agent updates or clarifies instructions



What the user experiences in XR



XR INTERACTION

01 Voice interaction

Ask for help in natural language.

02 Spatial overlays

Highlight task-relevant objects.

03 Step-wise progress

Show the current action and next step.

04 Dynamic feedback

Track objects and refine guidance.

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Video

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Thank You

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