

HARDWARE USED



- Natural Voice Interaction
- Emotionally Expressive Avatars
- Mental Wellness Conversations

- Real-Time Fall Detection
- Runs Smoothly on Raspberry Pi 5

PROBLEM STATEMENT

Millions face mental health challenges and emotional stress, often without immediate or affordable support. This gap is even wider for individuals with disabilities, who may struggle with communication or access to traditional care systems. There is a need for an inclusive, intelligent, and always-available solution that offers empathetic support through natural interaction.



HARDWARE USED

- Raspberry Pi 5 – Powerful edge computing platform
- MPU6050 Sensor – Accelerometer & gyroscope module for fall detection
- Microphone Module – Real-time voice input
- Speaker – Voice output from VOKA
- Display (optional) – To render Metahuman avatar locally or via streaming

SOLUTION OVERVIEW

VOKA is an AI-powered assistant designed for mental well-being and physical safety. It uses natural voice conversations, realistic Metahuman avatars, and edge computing to deliver empathetic, real-time interaction. Integrated with a Fall Detection System, VOKA also ensures safety for the elderly and individuals with disabilities—alerting caregivers in emergencies.



TECH BUCKET

- Artificial Intelligence – NLP, voice recognition, and emotional context understanding
- Metahuman Technology – Realistic avatars for human-like communication
- Convai Integration – Smart dialogue and personality management
- Fall Detection – Sensor-based real-time emergency detection
- Edge Computing – Local processing for low-latency interaction
- Unreal Engine + Blender – Avatar modeling and animation



TARGET USERS

- Individuals facing mental health challenges
- People with disabilities
- Elderly individuals living independently
- Caregivers and family members



CONTACT INFORMATION

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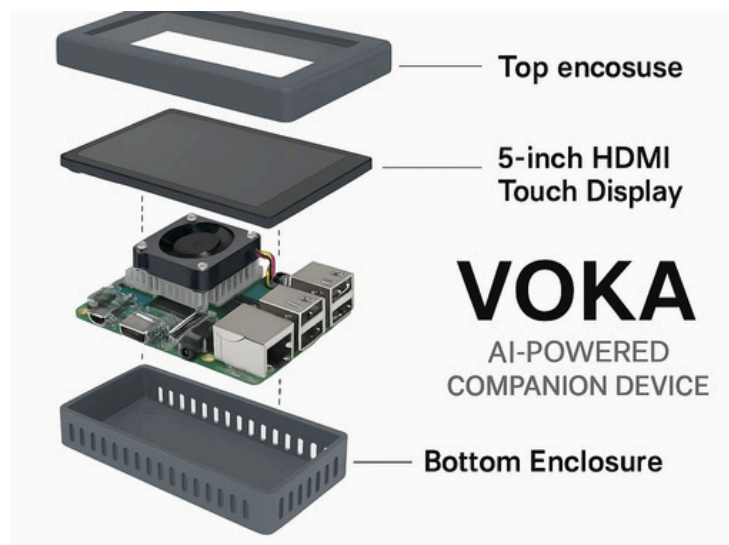
OVERVIEW

VOKA is a multi-functional AI-powered companion device designed to support the elderly and differently-abled individuals. It provides cognitive engagement, safety alerts, and emotional support—all packed inside a sleek, portable hardware unit.

VOKA is available as a standalone device and can also be accessed via phone or laptop.

COMPONENT BREAKDOWN

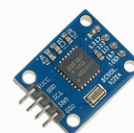
- Top Enclosure: 3D-printed shell with screen cutout for visibility and protection
- 5-inch HDMI Touch Display: 800×480 pixels resolution with XPTT046 touch controller for interactive UI
- Raspberry Pi-5 (with Fan & Heatsink): Acts as the central brain of VOKA, powering AI, speech synthesis, facial and app integration
- Bottom Enclosure: 3D-printed base with heat ventilation and mounting support



FALL DETECTION ADD-ON



ESP8266
NodeMCU
Wi-Fi-enabled



MPU6050
Sensor
Accelerometer /
Gyroscope

WHY VOKA STANDS OUT

VOKA stands out as an AI-powered companion that blends emotional intelligence with real-time safety. It detects mood through facial cues, provides lifelike interaction via a Metahuman avatar, and alerts caregivers instantly in case of falls. Available as a device, app, and web platform, it supports the elderly and differently-abled with empathy and care. VOKA isn't just a gadget—it's a life-enhancing presence built for real-world impact.

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