Technical Specification: Remote DIY Guidance MVP (HomePro Assist)

1. Project Overview

1.1 Purpose and Objective

This document defines the Minimum Viable Product (MVP) for **HomePro Assist**, an on-demand, remote guidance service connecting professional tradespeople (Helpers) with homeowners (Customers) for home repair projects.

Core Value Proposition: Provide immediate, high-quality, visual, and verbal instruction for specific home repair issues, achieving a First-Time Fix Rate (FTFR) of over 60% within 30 minutes.

Primary MVP Objective: Validate market demand for remote, AR-enhanced guidance and confirm the operational feasibility of a < 15**-minute Helper dispatch time.**

1.2 Scope (Must-Haves)

The MVP will focus exclusively on the core workflow: **Request, Match, and Guide.**

- **IN SCOPE:** User Authentication (simple login), Request Submission (with photo upload), Automated Helper Alert/Dispatch, Live Video Session with AR Annotation, and Payment Processing.
- **OUT OF SCOPE (Future Features):** Multi-Helper chat, Session recording, Custom in-app asset library, Remote flashlight/zoom control (will be done via verbal instruction), User rating system.

2. Roles and User Flow

The entire system is designed around two roles interacting in a single session room.

2.1 Roles

Role	Access Platform	Primary Fun
Customer (Homeowner)	Mobile Web (via SMS link)	Initiate request, provide live video feed
Helper (Professional)	Desktop/Laptop Web Console	Diagnose issue, visually annotate the live vid

Table 1: System Roles

2.2 Core User Flow (The 3-Step Process)

1. **Request & Payment:** Customer logs in and fills out a form detailing the issue (description, photo/video, payment pre-authorization).
2. **Dispatch & Room Creation:** The system creates a unique, temporary digital ”Room” for the session. An automated alert is sent to an available Helper. The Helper claims the job and is automatically routed to the **Helper Console**.
3. **Guidance Session:** The Helper clicks the ”Start Session” button, which sends an SMS link to the Customer. Customer clicks the link to join. The Helper uses AR Annotation to guide the customer step-by-step.

3. Technology and Functional Requirements

The MVP architecture is a **Hybrid Web-First Approach** designed to minimize customer friction while providing the Helper with professional tools.

3.1 Recommended Technology Stack (MVP Components)

3.2 Functional Requirements (Must-Haves)

Component	Technology / Service	Requirement	Rationale
Authentication & Database	**Firebase (Auth & Firestore)**	User login/signup and persistent storage for request data, user profiles.	Fast setup, real-time data synchronization for dispatch.
Front-End (Web Interface)	**React (Single Page App - SPA)**	Web app for Customer Login and Helper Console. Must be highly responsive.	Rapid development and dynamic UI required for the Helper Console.
Backend / Serverless	**Cloud Functions (or NodeJS/Express)**	To manage the connection with the AR service API and handle payment webhooks.	Low-cost, scalable method to handle integrations.
Payment Processor	**Stripe**	Handle pre-authorized session fees.	Industry standard, robust APIs.
AR Guidance / Video	**Third-Party Remote Support Platform API (e.g., CareAR, Splashtop AR, Zoho Lens)**	**Non-Negotiable:** Must provide a stable, low-latency video feed with **real-time spatial AR annotation** (drawing locks to physical objects).	Essential core feature that cannot be reliably built from scratch in an MVP timeframe using pure WebRTC.

Table 2: Recommended MVP Technology Stack

Component	Functional Requirement
Customer Interface	**Single-Click Join:** Customer joins the video session by clicking an SMS link; must avoid mandatory app store downloads.
Request Submission	Requires mandatory fields for Problem Description (text) and at least one Photo Upload (JPEG/PNG).
Session State	Must clearly show the Helper the Customer's live video feed, the AR annotations, and a persistent text chat window.
Communication Protocol	**AR Annotation:** Helper must be able to draw, point, and use arrows that persist on the Customer's live video feed.
Communication Protocol	**Text Chat:** Allows the Helper to send safety warnings and part numbers, compensating for noisy environments.
Helper Dispatch	An automated mechanism (via Firebase trigger) must alert the pool of available Helpers immediately upon request submission.
Safety Protocol	The Helper Console must present a mandatory **Safety Checklist** at the start of the call (e.g., "Is the power off?") that the Helper must confirm.

Table 3: Core Functional Requirements