Smart Helper Auto-Assignment System (HelperXpress)

15-Minute Guaranteed House Help Service Platform

1. Problem Statement

In urban cities, people struggle to quickly find reliable house help services such as plumbers, electricians, cleaners, and technicians. Manual searching and calling causes delays and inefficiency.

2. Objective

• Automatically assign nearest available helper
• Match helper skills with requested service
• Ensure service within 15 minutes
• Provide real-time tracking and reassignment
• Reduce waiting time and manual effort

3. Proposed Solution

A GPS-based real-time platform that detects user and helper locations, filters by skills and availability, calculates distance using Haversine formula, and automatically assigns the best-rated nearest helper.

4. System Architecture

User App → Backend Server → Database
↓
Matching Engine
↓
Helper App

5. Key Features

• GPS-based location detection
• Skill-based matching
• Real-time availability filtering
• Distance calculation (Haversine Formula)
• Auto assignment & reassignment logic
• Helper status update system

6. Technology Stack

Frontend: HTML, CSS, JavaScript
Backend: Node.js, Express.js
Database: MongoDB
APIs: Google Maps API, GPS Location API

7. Matching Algorithm

1. Filter helpers by skill
2. Filter helpers by availability
3. Calculate distance using Haversine formula
4. Sort by minimum distance & maximum rating
5. Assign best helper
6. Auto-reassign if rejected or timeout

8. Expected Outcome

Faster service delivery, reduced waiting time, better resource utilization, improved customer satisfaction, and scalable smart city solution.

9. Future Enhancements

AI-based demand prediction, heat maps, subscription plans, emergency priority booking, fraud detection system.

10. Conclusion

The Smart Helper Auto-Assignment System provides an automated, scalable, and efficient solution for on-demand house help services ensuring reliable service within 15 minutes.

Team Details

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