ConvoAI Project

Work Breakdown Structure (WBS)
6-Week MVP Development Project

Executive Summary

This Work Breakdown Structure outlines all tasks required to complete the ConvoAI MVP within a 6-week timeline. The project is divided into 3 major sprints with realistic scope for a 3-person team balancing other commitments.

The structure is designed for approximately 12-15 hours per person per sprint (36-45 hours total per sprint, 108-135 hours total project). Each task is assigned to a specific role with estimated durations and dependencies clearly identified.

Sprint 1: Foundation & Infrastructure (Weeks 1-2)

1.1 Project Planning

#	Task	Owner	Duration
1.1.1	Conduct team kickoff meeting	All Team	1.5 hours
1.1.2	Define roles and responsibilities	All Team	1 hour
1.1.3	Create project schedule and milestones	Full-Stack	3 hours
1.1.4	Set up Trello board with task tracking	Full-Stack	1.5 hours

1.2 Development Environment Setup

#	Task	Owner	Duration
1.2.1	Set up GitHub repository with branching strategy	Backend	2 hours
1.2.2	Configure Git workflow (feature branches, PRs)	Backend	1.5 hours
1.2.3	Set up local development environments (Node.js, PostgreSQL)	All Team	3 hours
1.2.4	Create .env.example templates for environment variables	Backend	1 hour

1.3 Technology Stack Setup

#	Task	Owner	Duration
1.3.1	Initialize React application with Vite	Frontend	2 hours
1.3.2	Set up basic CSS and styling	Frontend	2 hours
1.3.3	Initialize Node.js/Express backend project	Backend	2 hours
1.3.4	Set up PostgreSQL database locally	Backend	2.5 hours
1.3.5	Configure Prisma ORM and create initial schema	Backend	4 hours

1.4 Basic UI Structure

#	Task	Owner	Duration
1.4.1	Set up React Router with basic routes	Frontend	2 hours
1.4.2	Create basic layout components	Frontend	3 hours
1.4.3	Build landing page	Frontend	2 hours

Sprint 2: Core Features Development (Weeks 3-4)

2.1 Database Schema Design

#	Task	Owner	Duration
2.1.1	Design users table schema	Backend	2 hours
2.1.2	Create and run database migrations	Backend	2 hours
2.1.3	Create restaurant scenario content	Full-Stack	2 hours

2.2 Authentication System - Backend

#	Task	Owner	Duration
2.2.1	Implement user registration endpoint with bcrypt	Backend	4 hours
2.2.2	Implement login endpoint with JWT token generation	Backend	3 hours
2.2.3	Create JWT verification middleware	Backend	3 hours
2.2.4	Test authentication endpoints	Backend	2 hours

2.3 Authentication System - Frontend

#	Task	Owner	Duration
2.3.1	Create registration page with form	Frontend	4 hours
2.3.2	Create login page with form	Frontend	3 hours
2.3.3	Implement client-side authentication state management	Frontend	4 hours
2.3.4	Add protected route functionality	Frontend	2 hours
2.3.5	Test authentication flow end-to-end	All Team	2 hours

2.4 AI Integration

#	Task	Owner	Duration
2.4.1	Create Hugging Face account and get free API token	Backend	30 min
2.4.2	Test Mistral-7B model for Spanish conversation quality	Backend	2 hours
2.4.3	Create AI service wrapper for API calls	Backend	4 hours
2.4.4	Design system prompt template for restaurant scenario	Backend	3 hours

2.4.5	Create conversation endpoint (send/receive messages)	Backend	4 hours
2.4.6	Test basic AI conversation flow	Backend	2 hours

Sprint 3: Chat Interface & Deployment (Weeks 5-6)

3.1 Chat Interface

#	Task	Owner	Duration
3.1.1	Design chat UI layout	Frontend	3 hours
3.1.2	Build message bubble components	Frontend	3 hours
3.1.3	Create chat input component with send functionality	Frontend	3 hours
3.1.4	Implement auto-scroll and loading states	Frontend	2 hours
3.1.5	Connect chat UI to backend API	Frontend	4 hours
3.1.6	Style chat interface with CSS	Frontend	3 hours

3.2 Testing & QA

#	Task	Owner	Duration
3.2.1	Test all user flows end-to-end	All Team	2 hours
3.2.2	Test on Chrome, Firefox, Safari	Frontend	2 hours
3.2.3	Test responsive design on mobile devices	Frontend	2 hours
3.2.4	Fix critical bugs (P0/P1)	All Team	5 hours

3.3 Deployment

#	Task	Owner	Duration
3.3.1	Set up Vercel for frontend deployment	Full-Stack	2.5 hours
3.3.2	Set up Railway/Render for backend + PostgreSQL	Backend	3 hours
3.3.3	Configure production environment variables	Backend	1.5 hours
3.3.4	Run database migrations in production	Backend	1 hour
3.3.5	Deploy and test production environment	All Team	3 hours

3.4 Documentation & Presentation

#	Task	Owner	Duration
3.4.1	Write README with setup instructions	Full-Stack	2 hours
3.4.2	Create user guide documentation	Full-Stack	1.5 hours
3.4.3	Prepare demo presentation slides	All Team	3 hours
3.4.4	Test with 10-15 external	All Team	2 hours

	users for feedback		

Project Summary

Total Sprints	3
Total Duration	6 weeks
Team Size	3 developers
Estimated Time	108-135 hours total (36-45 hours per person)
Hours Per Week	~6-7.5 hours per person

Key Milestones

#	Milestone	Owner	Timeline
M1	Development Environment Setup Complete	All Team	Week 2
M2	Authentication & AI Integration Ready	All Team	Week 4
M3	Full Application Deployed	All Team	Week 6

Time Breakdown by Sprint

Sprint	Total Hours	Hours Per Person
Sprint 1	36-40 hours	12-13 hours
Sprint 2	38-45 hours	13-15 hours
Sprint 3	34-40 hours	11-13 hours
TOTAL	108-125 hours	36-42 hours

ConvoAI Project Team

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