



Cutting Costs For Growing Businesses

# AI Voice Receptionist

Enterprise Case Study

CLIENT



**Reignite Health**

*"We put life in your years"*

How Yes AI transformed patient communications for a growing allied health provider with an intelligent voice receptionist handling bookings, inquiries, and patient management across multiple clinic locations.

# 01 Executive Summary

Project Overview & Key Outcomes

Reignite Health, a specialist allied health provider serving retirement village residents across Sydney and the Central Coast, partnered with Yes AI to implement a comprehensive AI voice receptionist system. The solution handles patient bookings, inquiries, and administrative tasks with human-like conversation quality while integrating seamlessly with their existing practice management software.

**80+**

FEATURES

**10**

VILLAGES

**26**

SERVICE TYPES

**2000+**

CLASSES/YEAR

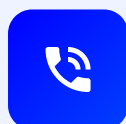
**24/7**

AVAILABILITY

## The Challenge

As Reignite Health expanded to serve multiple retirement villages across two regions, their front desk team struggled to manage increasing call volumes. Key challenges included:

- **Complex booking requirements** - Different funding types (Medicare, NDIS, Private), practitioner preferences, and service-specific rules
- **Multi-location coordination** - Patients across 10 villages needed seamless service regardless of location
- **Australian healthcare compliance** - Medicare referral validation, session tracking, and funding eligibility checks
- **Limited reception capacity** - Missed calls during busy periods led to lost appointments and frustrated patients



### The Solution

Yes AI developed a sophisticated AI voice receptionist powered by advanced conversational AI and deep integration with Reignite Health's Cliniko practice management system. Natural conversations that understand context, remember patient history, and adapt to caller needs in real-time.

## 02 About Reignite Health

The Client

**Reignite Health** is an Australian allied health provider founded in 2021 by physiotherapist Liam Potter. The company specialises in delivering exercise physiology and physiotherapy services directly to retirement village residents, with a mission to help seniors maintain independence and quality of life.

### Mission

*"We put life in your years."*

Reignite Health focuses on proactive, preventative healthcare that helps aging Australians stay active, strong, and independent for longer.

### Service Areas

- **Sydney:** Northern Beaches, North Shore, Hills District
- **Central Coast:** Multiple retirement village locations

### Company Profile

Founded	2021
Founder	Liam Potter
Team Size	18 employees
Villages Served	10 locations
Service Types	26 appointment types
Classes per Year	2,000+

### Services Offered

- Exercise Physiology Programs
- Physiotherapy & Physical Therapy
- Resistance & Strength Training
- Balance Improvement & Falls Prevention
- Group Exercise Classes
- Aqua Aerobics Programs
- Healthy Aging Support

### Why Retirement Villages?

Reignite Health identified a significant gap in healthcare delivery for retirement village residents. By bringing services directly to where seniors live, they remove transportation barriers and create a more comfortable, accessible healthcare experience. With over 50% resident utilization at some locations, their model has proven highly effective.

## 03 About Yes AI

The Solution Partner

**Yes AI** is an Australian-owned AI consulting firm headquartered in Melbourne with offices in Sydney. We specialise in building custom AI solutions that deliver measurable business outcomes for organisations across Australia.

**30%**

AVERAGE COST REDUCTION

**3x**

TYPICAL ROI

**19+**

INDUSTRIES SERVED

**3-4**

WEEKS TO LAUNCH

## Our Services

### AI Telephone Agents

Voice systems for call answering, appointment scheduling, and customer service automation.

### Custom AI Solutions

Business-specific language models and intelligent automation tailored to your workflows.

### System Integration

Connecting AI capabilities with existing enterprise platforms and databases.

## Healthcare Expertise

Yes AI has developed deep expertise in healthcare AI implementations, particularly for practices using Cliniko and similar practice management systems. Our Cliniko AI Booking System is purpose-built for the unique requirements of Australian healthcare providers.



### Purpose-Built for Healthcare

Medicare and NDIS funding compliance, referral validation and session tracking, multi-practitioner scheduling, patient privacy and data security (Australian healthcare standards), and real-time calendar synchronisation.

04

System Architecture

Technical Deep Dive

The AI voice receptionist is built on a sophisticated state machine architecture with intelligent routing capabilities. This enables natural, context-aware conversations that adapt in real-time based on patient information, funding status, and business rules.

Core Architecture Metrics

Metric	Value	Description
Conversation Nodes	109	Distinct conversation states and decision points
Function Nodes	24	Silent backend operations (lookups, API calls)
Edge Connections	474	Possible transitions between conversation states
Webhook Integrations	20	Real-time connections to backend systems
State Variables	35+	Context data tracked throughout each call
Conversation Paths	50+	Distinct end-to-end call scenarios

Average Node Complexity

4.3 edges/node

Node Type Distribution

Node Type	Count	Purpose
Conversation	62	Speak to caller, collect responses
Function	24	Silent webhook calls
Logic Split	18	Variable-based routing
End	5	Call termination points

What This Means

With 474 edge connections across 109 nodes, the system averages 4.3 possible transitions per state. This complexity enables human-like conversation flexibility while maintaining deterministic, auditable behavior.

# Architecture Highlights

The voice agent incorporates 20 advanced architectural patterns that enable natural, intelligent conversations:

<p>ROUTING</p> <p><b>Equation-Based Routing</b> - Complex boolean expressions determine flow based on multiple variables</p>	<p>PERFORMANCE</p> <p><b>Silent Pre-Processing</b> - Backend lookups execute before speaking for personalized greetings</p>
<p>ARCHITECTURE</p> <p><b>Multi-Modal State Machine</b> - Four node types enable linear and complex branching flows</p>	<p>RELIABILITY</p> <p><b>Graceful Degradation</b> - Fallback paths maintain conversation even when backends fail</p>
<p>CONTEXT</p> <p><b>Context Accumulation</b> - Variables persist across entire call for complete handoff context</p>	<p>PERSONALIZATION</p> <p><b>Dynamic Prompt Injection</b> - Runtime variable substitution for personalized responses</p>
<p>PERFORMANCE</p> <p><b>Parallel Tool Execution</b> - Multiple webhooks execute simultaneously for faster responses</p>	<p>UX</p> <p><b>Conditional Speech Patterns</b> - Different phrasings based on patient type and context</p>
<p>RELIABILITY</p> <p><b>Error State Recovery</b> - Automatic retry logic and graceful error messaging</p>	<p>HANDOFF</p> <p><b>Call Handoff Protocol</b> - Structured context packaging for human transfer scenarios</p>
<p>UX</p> <p><b>Barge-In Detection</b> - Allows callers to interrupt and redirect conversation mid-speech</p>	<p>INTELLIGENCE</p> <p><b>Confidence-Based Branching</b> - Routes differently based on speech recognition confidence</p>
<p>DATA COLLECTION</p> <p><b>Slot Filling Logic</b> - Progressively collects required information across multiple turns</p>	<p>CLARIFICATION</p> <p><b>Disambiguation Flows</b> - Handles ambiguous responses with targeted clarification</p>
<p>PERSONALIZATION</p> <p><b>Time-Aware Greetings</b> - Adjusts salutations based on time of day</p>	<p>CONTEXT</p> <p><b>Caller History Integration</b> - References previous calls and appointments</p>
<p>VERIFICATION</p> <p><b>Multi-Turn Confirmation</b> - Complex bookings require staged confirmation checkpoints</p>	<p>NLU</p> <p><b>Natural Number Handling</b> - Understands spoken dates, times, phone numbers</p>
<p>INTELLIGENCE</p> <p><b>Sentiment-Aware Responses</b> - Adjusts tone based on detected frustration or urgency</p>	<p>ESCALATION</p> <p><b>Fallback Escalation Ladder</b> - Progressive escalation from retry to clarify to transfer</p>

# 05 System Capabilities

## 80 Integrated Features

The AI voice receptionist includes 80 distinct capabilities spanning patient identification, appointment booking, funding management, and communication. Here are the core feature sets:

## Patient Identification & Verification

Feature	Description
Caller ID Lookup	Silent pre-greeting phone lookup for personalized experience
Patient Search by Name	Fuzzy matching with confidence scoring
DOB Verification	Secondary verification for uncertain matches
Multi-Village Patient Matching	Disambiguates same-name patients across locations
New Patient Detection	Routes first-time callers to registration
Phone Number Normalization	Handles Australian mobile/landline formats
Confidence Score Thresholds	Configurable match certainty requirements
Multiple Match Handling	Presents options when several patients match

## Appointment Booking

Feature	Description
Multi-Step Booking Flow	Funding check -> availability -> slot selection -> confirmation
Real-Time Availability Search	Live calendar queries with slot aggregation
Practitioner Preference Capture	Records and respects preferred provider
Service Type Triage	Routes to appropriate service category
Duplicate Booking Prevention	Checks existing appointments before creating
Booking Rules Engine	Enforces lead times, practitioner requirements
Timezone Handling	Sydney/Melbourne conversion with DST awareness
Practitioner Availability Windows	Respects individual schedules
Slot Duration Matching	Ensures service fits available time
Appointment Confirmation Readback	Natural language confirmation before finalizing

## Funding & Eligibility

Deep integration with Australian healthcare funding requirements:

Feature	Description
Funding Eligibility Checks	Validates HCP/NDIS/Private funding status
Funding Type Detection	Auto-determines from patient records
Referral Validation	Checks Medicare referral existence
Referral Expiry Tracking	Monitors validity and remaining sessions
Medicare Compliance	Ensures bookings meet funding requirements
NDIS Plan Verification	Validates NDIS funding status
Session Count Tracking	Monitors remaining funded sessions
Private Fee Quotes	Provides pricing for self-funded patients
Bulk Billing Eligibility	Checks concession card status
EP Assessment Flow	Tracks exercise physiology requirements

## Appointment Management

Feature	Description
List Upcoming Appointments	Retrieves and reads scheduled visits
Appointment Rescheduling	Atomic cancel + rebook flow
Appointment Cancellation	With reason tracking and confirmation
Cancellation Reason Capture	Analytics on why patients cancel
Recurring Conflict Detection	Prevents double-booking recurring slots
Appointment History Awareness	References past visits in conversation
Same-Day Booking Handling	Special flow for urgent requests
Reschedule Availability Check	Context-aware slot queries



### 26 Appointment Types Supported

From individual physiotherapy sessions to group exercise classes, aqua aerobics, and specialized EP assessments - every service type has custom booking rules and funding requirements handled automatically.



System Intelligence

Feature	Description
Intent Classification	NLU-driven detection of caller intent
Smart Error Handling	Graceful degradation when backends fail
Patient Context Persistence	Maintains state across tool calls
Conversation Memory	References earlier in same call
Adaptive Prompting	Adjusts based on patient responses
Silence Detection	Handles pauses appropriately
Interruption Handling	Manages caller interruptions
Clarification Requests	Asks for unclear input
Confirmation Loops	Verifies critical information
Call Analytics Logging	Tracks outcomes for reporting

Communication & Transfers

Communication Features	Transfer & Escalation
SMS Notifications	Human Transfer with Context
Email Call Summaries	Transfer Warm Handoff
Conversation Summarization	FAQ Capture & Routing
Patient Notes Updates	Callback Scheduling
HCP Details Capture	Follow-up List Management
Booking Confirmation Messages	Voicemail Detection
Reminder Scheduling	After-Hours Messaging
Staff Alert Routing	Call Priority Classification
Instructor Email Notifications	

Serving 10 Villages Across Sydney & Central Coast

877 Patients

# 06 Supporting Systems

## Enterprise-Grade Infrastructure

Beyond the core voice agent, the solution includes comprehensive supporting systems for telephony management, API monitoring, and server health - ensuring reliable, enterprise-grade operation.

## Telco Management System (20 Features)

Multi-provider phone number management across carrier platforms:

- Unified Number Dashboard
- Real-Time Number Status
- Agent-to-Number Mapping
- Number Provisioning
- Number Porting Management
- Multi-Provider API Integration
- Cost Tracking by Number
- Number Search & Filter
- Bulk Number Operations
- Number Health Monitoring
- Call Volume Analytics
- Failover Configuration
- Number Tagging System
- Geographic Distribution View
- Provider Balance Monitoring
- Number Release Workflow
- Inbound Route Management
- Emergency Number Registry
- Number Audit Trail
- Multi-Tenant Support

## API Monitoring System (20 Features)

Automated monitoring of external API documentation for breaking changes:

- Documentation Change Detection
- AI-Powered Impact Analysis
- Multi-Provider Monitoring
- Automatic GitHub Issue Creation
- Priority Classification
- Affected System Mapping
- Diff Visualization
- Scheduled Monitoring Runs
- Alert Email Notifications
- Historical Change Archive
- Semantic Version Tracking
- Endpoint Deprecation Alerts
- Rate Limit Monitoring
- Response Schema Validation
- Authentication Change Detection
- Webhook Payload Monitoring
- SDK Compatibility Checks
- Changelog Parsing
- Regression Test Triggers
- Dependency Graph Updates

## Server Monitoring System (20 Features)

Health monitoring across AWS EC2 and secondary infrastructure:

- Dual-Server Health Checks
- Disk Usage Alerts
- Memory Utilization Tracking
- Docker Container Status
- Service Uptime Monitoring
- Automated Health Reports
- SSH Tunnel Health
- Database Connection Pool
- SSL Certificate Expiry
- Cross-Server Sync Status
- CPU Load Monitoring
- Network Latency Checks
- Log File Size Alerts
- Backup Verification
- Process Count Monitoring
- Port Availability Checks
- DNS Resolution Monitoring
- Cron Job Verification
- Error Rate Trending
- Automated Recovery Scripts

# 07 Infrastructure & Technology

## Production Environment

### Infrastructure Components

Component	Details
Voice AI	Conversation flow engine with equation-based routing
Automation	53 active workflows for backend operations
Primary Database	PostgreSQL on AWS EC2 (51 tables, cached lookups)
Practice Management	Cliniko integration (real-time sync)
Secondary Server	VPS for monitoring and sync
Backup Storage	Automated daily backups with retention policy
Server Snapshots	Point-in-time EC2 instance recovery
CloudWatch	Metrics, Alarms, Logs, and Events monitoring
CI/CD Pipeline	Automated testing and deployment
Secrets Management	Encrypted credential storage



#### Enterprise-Grade Security & Encryption

All patient data is protected with AES-256 encryption at rest and TLS 1.3 encryption in transit. The system complies with Australian healthcare data standards, with OAuth 2.0 authentication for all API integrations, encrypted credential storage using AWS Secrets Manager, and comprehensive audit logging for compliance reporting. Database connections are secured via SSL certificates, and all backups are encrypted with customer-managed keys.

### Technology Stack

#### Voice & Conversation

- Conversational AI Platform
- Real-time Speech-to-Text
- Natural Voice Synthesis
- WebSocket Streaming

#### Automation & Integration

- Self-hosted Workflow Automation
- Webhook Architecture
- Event-Driven Processing
- OAuth 2.0 Authentication

#### External Services

- Cliniko API Integration
- Primary Telephony Provider
- VoIP Call Routing
- SMS Provider
- Gmail API

#### Development & Monitoring

- Python 3.11, Node.js
- Git & GitHub
- Custom Health Checks
- Call Analytics Dashboard

# 08 Codebase Statistics

Development Investment

The Reignite Health AI voice receptionist represents a significant development investment, with over 58,000 lines of production code and comprehensive testing infrastructure.

## Production Codebase

Component	Files	Lines	Dev Files	Dev Lines
Voice Agent (v11.204)	1	7,078	859	500,127
Automation Workflows	53	19,895	113	18,760
Automation Scripts	29	6,431	15	2,100
Deployment Scripts	17	7,563	8	1,200
Telco Management System	14	8,451	5	800
Server Sync & Health	6	2,234	3	450
API Monitoring	3	925	2	300
Custom Tooling	29	5,720	5	400
<b>Total</b>	<b>152</b>	<b>~58,300</b>	<b>1,010</b>	<b>~524,000</b>

### Development Investment Highlights

**58K+**

PRODUCTION LINES

**524K+**

DEVELOPMENT LINES

**51**

DATABASE TABLES

**v11.204**

CURRENT VERSION

# 09 Conclusion

A Partnership for Growth

The AI voice receptionist implementation for Reignite Health demonstrates how purpose-built AI solutions can transform healthcare operations while maintaining the personal touch that patients expect.

## Key Achievements

### Operational Excellence

- 24/7 patient call handling
- Zero missed calls during business hours
- Seamless 10-village coordination
- Real-time calendar synchronization

### Compliance & Quality

- Full Medicare/NDIS compliance
- Accurate referral tracking
- Complete call documentation
- Human escalation when needed

## What Made This Project Successful

1. **Deep Domain Expertise** - Yes AI's understanding of Australian healthcare requirements enabled compliance-first design
2. **Iterative Development** - Over 200 versions refined through real-world call testing and feedback
3. **Comprehensive Integration** - Seamless connection with Cliniko eliminated manual data entry
4. **Graceful Fallbacks** - Every conversation path includes human escalation options
5. **Continuous Monitoring** - API monitoring and server health systems ensure reliability

|| "The system handles the complexity of our multi-location practice with different funding types and patient needs. It's like having a knowledgeable receptionist who never takes a break and always knows every patient's history."

- Reignite Health Team

Ready to Transform Your Practice?

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