

Reservation Management System (RMS)

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Naman Jain -
<https://namanjain27.github.io/>

Goal

Long Term Goal

Create a conversational reservation management AI that reduces manual work, increases bookings & covers, lowers no-shows, improves guest experience and feeds ops/marketing with high-quality data. Gives platform for more vertical integration that gives customers more personalized and premium experience.

Success Criteria

- Higher confirmed reservations (conversion from inquiry -> confirmed)
- Lower no-show rate and improved table utilization
- Reduced staff time spent on calls/texts
- Profit through added services like tie ups and table booking
- fallback to humans when needed with <1% critical failures
- Positive guest NPS for reservation experience \geq baseline
- Reduction in average waiting time per customer
- Cost saving from optimal raw material management
- Overall sales due to better out-reach and strong PMF

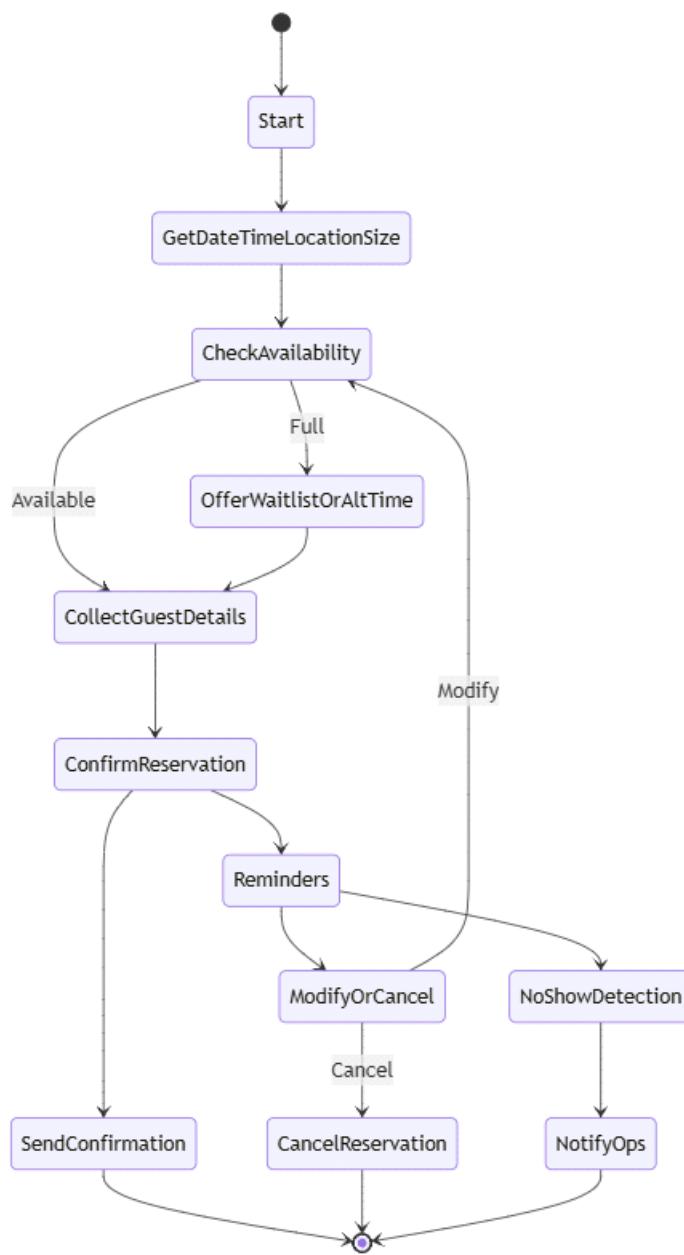
Use case

Users interact via website, mobile app, WhatsApp, SMS to check availability, book, modify, cancel reservations, join waitlists, get personalized recommendations, request special seating or dietary accommodations, and optionally pre-order. The RMS confirms instantly, sends calendar invites and reminders, updates the restaurant's table management system and POS, and hands over to a human agent when complex requests come. It remembers preferences (like favorite cuisine or seating) and supports post-visit engagement through feedback or promotions. For managers, it provides an analytics dashboard showing demand trends, no-show risk flags, and daily forecasts so managers can optimize staffing and inventory. This system enhances CX while optimizing branch resource usage.

Key Steps (end-user facing flow)

1. Greeting + channel detection (web/app/SMS/WhatsApp)
2. user chats (party size, and date, day duration, location and other filters)
3. RMS checks availability, Offer available times and recommendations; user selects.
4. Capture name, phone/email, special preferences (high chair, allergy), promo code
5. Confirm reservation or create waitlist if full
6. send confirmation (SMS/email/calendar)
7. Add to DB/CRM
8. Send reminder with easy modify/cancel link and pre-order option
9. auto check-in on arrival or staff notification
10. Post visit feedback + loyalty/promo offerings

State Transition Diagram



Bot Features

Feature	Description	Color	Notes
Multi-location reservation	Real-time seat management per branch	●	SQLite + API sync
Waitlist management	Queue + notifications	●	Priority-based
Predictive waitlist ETA & no-show scoring	High accuracy must	●	Needs data & models
Preference memory	Recognize returning customers	●	Needs CRM integration
Personalized offers and discount	Personal occasion dates, preferences based	●	Event based triggers + customer score
Multi-channel support	Web, WhatsApp, Google Chat	●	via Twilio/Dialogflow due to gateway setup and maintenance
Seamless POS pre-order + payment	requires PCI scope and POS integration + card offers	●	Via Stripe, razorpay

Voice interaction	Optional add-on		ASR integration
Analytics dashboard	Occupancy, trends, demographic taste		Help managers make strategic decisions
Feedback loop	Post-dining survey		Simple form
Marketing and recommendation	seasonal food, discount offers for combo and party		Location and age based
Car (valet) parking + book paid table	via restaurant map; invites premium customers		Real time status check
Pick-up and drop cab	Cab service MCP	-	Not available now

- Key specifications that the customer cares about -
 - easy chat with accurate detail capturing and quick booking + helps make informed choices with personalized recommendations. Ability to modify/cancel/join waitlist via one tap.
- KBs - Menu, branch details, table capacity, reservation policies, holiday schedules, Promotions, FAQ (parking, accessibility, private events).
- Tools and integrations-
 - Check availability with user requirements
 - Book, modify, cancel, join waitlist, no-show event
 - Reminder (notification engine) auto-trigger
 - Table Management / TMS or central DB
 - CRM
 - Messaging gateways (Twilio, WhatsApp Business API)
 - Calendar invite generator
 - Payment gateway + POS integration (if deposits/pre-pay)
 - Business analytics DB / BI
- Which Languages - Primary: English. Add regional languages in future phase

Scale up / Rollout Strategy

- **Phase 1** - (Pilot 2-3 locations) integrate with messaging channel(s), run live pilot; monitor core KPIs and collect customer feedback + analytics
- **Phase 2** - fix friction areas, add human-handoff scripts, better tune reminders and NLP.
- **Phase 3** - more batch locations grouped by similarity (size, peak hours).
- **Phase 4** - add predictive ETA, pre-orders, multilingual support
- Include continuous A/B tests (reminder timing, pre-order prompts), operator training, and rollback plan
- Giving discount offer on first reservation order
- Understanding the target audience to do targeted marketing
 - say family and parties -> ads on ride booking apps, OTT, news media
- Providing this as MCP and tie-up with leading chat LLMs
- Availability on Whatsapp would reduce onboarding friction

Key Challenges

- Overlapping reservations (start_time + duration) — compute conflict windows.
- If table booking, Table combining for big party sizes (far-away tables).
- Data quality: missing historical guest data for predictive models.
- Chances of hallucination -> false positive/negative response, wrong/missed tool calls; guardrails important
- Multi-channel message deliverability & template approvals (WhatsApp)
- Need to build some fall-back booking mechanism if LLM is out of service

- Training for staff adoption and operational processes

Key business problems

- onboard customers to the platform and CAC -> as we offer only our chain of restaurant + Competition from other table booking services like -> district, eazydiner
- comparing development + maintenance + operational cost with the profit made after using the system. Predictive analytics helps.
- may reduce the walk in customers and sometimes result in low seating due to less reservations. Induce over-premiumization due to reservation based model.
- Continuous subscription based payment if using any LLM API
- Training staff and managers for daily usage, analytics and service fallback
- Negotiations and tie up with third party services like for payments, delivery partners, cab service, car parking.

Opportunities beyond the basic reservation system

- Providing it as a sass via MCP for higher GEO
- Upsell and recommendations: Pre-order or suggest add-ons, timed offers to increase check size
- Loyalty & retention: Auto-enroll frequent guests; personalized promotions
- Operational efficiency: Demand forecasting for staffing & inventory using reservation signals.
- Marketing targeting: Segment guests for re-engagement and local promos
- Delivery/Private Events: Extend bot to handle catering or private-event inquiries

Success Metrics and Potential ROI

Core metrics

- Conversion rate (inquiry -> booking).
- No-show rate (reduction)
- Average covers per day/table
- Call Front-desk Staff hours saved
- Revenue lift from pre-orders & upsells
- NPS for booking flow

ROI estimation

- **Inputs:** avg check per cover = C Rs, avg covers/day per location = N, no-show reduction (absolute covers/day) = Δns , staff hourly wage = W, staff hours saved/day = H.
- **Monthly incremental revenue** = $\Delta ns \times C \times 30 + (\text{upsell lift \%} \times N \times C \times 30)$.
- **Monthly cost savings** = $H \times W \times 30$.
- **Compare to =>** development cost + subscription + integrations costs + maintenance

vertical expansion

- Other restaurant/food chain - complete suite for customer, staff, managers view
- salons, spa, gym, clinics, event venues — any appointment/seat-based business.
- Hotel room booking
- Reserved cab services

Unique competitive advantages

- Personalized marketing and outreach improving CX
- Increased ways of cash inflow through tie-ups and integrations
- Using AI and being on tech front makes customers try the product -> special status to brand
- Predictive management - waitlist ETA + no-show scoring turns reservations into forecastable demand
- multichannel delivery (WhatsApp/SMS/web/app) with single-tap modify/cancel reduces friction

