

Task 1 – AI-Powered Inbound Call Booking Assistant

Date [🔗](#)

Jul 3, 2025

Participants [🔗](#)

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[Task 1 documentation link](#) [🔗](#)

Project Overview [🔗](#)

Workflow Name: AI-Powered Inbound Call Booking Assistant

Goal: Automatically handle inbound calls, transcribe audio to text, extract booking intents using LLM, create booking in Google Calendar, and log data in Airtable CRM.

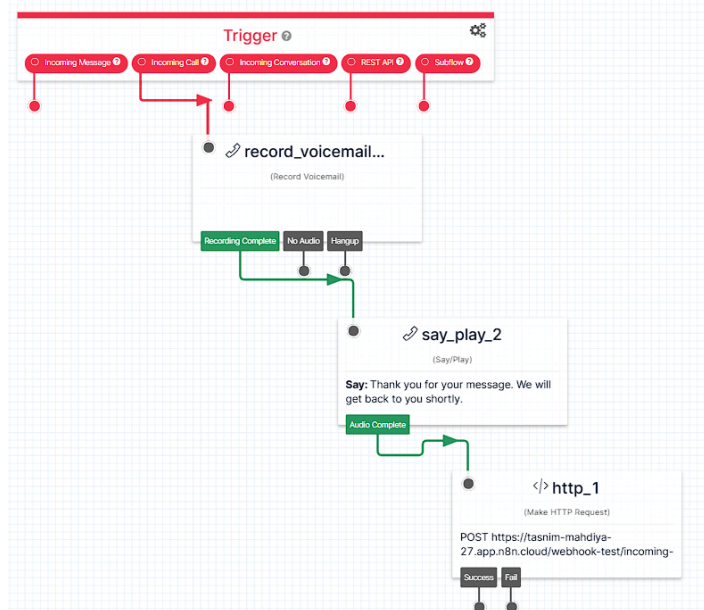
Expected Flow:

Inbound Call → Speech-to-Text (Deepgram) → LLM (DeepSeek) → Booking System (Google Calendar) → CRM System (Airtable)

System Architecture [🔗](#)

```
1 flowchart TD
2   A[Twilio Inbound Call] --> B[Webhook Trigger (n8n)]
3   B --> C[Deepgram Speech-to-Text]
4   C --> D[LLM - DeepSeek AI (Intent Extraction)]
5   D --> E[Code Node - Data Cleanup & Fixes]
6   E --> F[Google Calendar - Create Booking]
7   E --> G[Airtable - Log Entry]
8
```

Twilio studio flow [🔗](#)



Complete Twilio studio flow

The screenshot shows the 'Config' tab for the 'Record Voicemail' widget. The 'WIDGET NAME' is set to 'record_voicemail_1'. Under 'STOP RECORDING AFTER', the value '5' is entered in the 'SECONDS OF SILENCE' field. The 'STOP RECORDING ON KEYPRESS' field is empty. Under 'MAX RECORDING LENGTH', the value '45' is entered. At the bottom, there is a 'Save' button and icons for cloning and deleting the widget.

Call record length and silence

← Make HTTP Request ⓘ Hide

<< Config Transitions

The URL you would like to make a request to.

• Content type

Form URL Encoded ▼

The content type of the request body.

Request body

RecordingUrl=
 {{widgets.record_voicemail_1.RecordingUrl}}
 Caller={{trigger.call.From}}

Save

HTTP request body function

Key Node Descriptions [🔗](#)

1. Twilio Webhook (Production) [🔗](#)

- **Type:** HTTP POST
- **Configuration:** Twilio Console > Phone Number > Voice > Webhook > Custom URL (Production URL from n8n)

2. Deepgram Node [🔗](#)

- **Input:** Audio stream from inbound call
- **Output:** English/Malay transcript via `results.channels[0].alternatives[0].transcript`
- **Multilingual Enabled:** Yes

3. LLM Generator Node (DeepSeek) [🔗](#)

Prompt JSON:

```

1 {
2   "model": "deepseek-chat",
3   "messages": [
4     {
5       "role": "system",
6       "content": "You are a helpful booking assistant who understands both Malay and English..."
7     },
8     {
9       "role": "user",
10      "content": "{{ $json.results.channels[0].alternatives[0].transcript }}"
11    }
12  ],
13  "temperature": 0.2
14 }

```

4. Code Node: Date Correction + ISO Time Formatting [🔗](#)

```

1  const raw = $json.choices[0].message.content;
2  const clean = raw.replace(/```json\n?/, '').replace(/```/, '').trim();
3  const parsed = JSON.parse(clean);
4
5  if (parsed.date === "tomorrow") {
6    const tomorrow = new Date();
7    tomorrow.setDate(tomorrow.getDate() + 1);
8    parsed.date = tomorrow.toISOString().split('T')[0];
9  } else {
10   const fixed = new Date(parsed.date);
11   fixed.setFullYear(2025);
12   parsed.date = fixed.toISOString().split('T')[0];
13 }
14
15 const localDateTime = new Date(`${parsed.date}T${parsed.time || '10:00'}:00+08:00`);
16 parsed.formattedDate = localDateTime.toISOString();
17
18 return {
19   json: parsed
20 };
21

```

5. Google Calendar Node [🔗](#)

- **Start:** `{{ $json.formattedDate }}`
- **End:** `{{ new Date(new Date($json.formattedDate).getTime() + 60*60*1000).toISOString() }}`
- **Description:** Dynamic content based on AI parsing
- **Time Zone:** UTC+8 (Malaysia)

⚠️ Note on Time Behavior:

Although the AI extracts and formats the booking time correctly in Malaysia Standard Time (UTC+8), Google Calendar may display it with timezone offset adjustments in the backend (e.g., shifting to UTC time). This does **not** affect the actual booked time shown on the calendar front-end, which remains accurate for Malaysian users. The logic ensures correct day and hour despite backend timezone conversions.

6. Airtable CRM [🔗](#)

- Logs:
 - Customer (Phone)
 - Date & Time (Booking)
 - Branch (Optional)
 - AI Summary

♦ Limitations [🔗](#)

Type	Description
------	-------------

❌ Voice AI Reply	AI does not speak back to the caller due to response complexity
🕒 Limited Call Time	Call ends after ~1 minute due to Deepgram audio limits
? No Response-to-Webhook	Not implemented for Twilio verbal reply
❌ Incorrect Year from LLM	Code node corrects 2024 to 2025
🕒 UTC Offset Visible	Google Calendar UTC+8 shows +1 day in backend

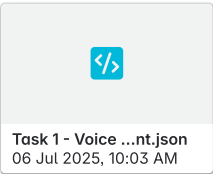
🌟 Highlights [🔗](#)

- Humanlike conversation from transcript using DeepSeek
- Multilingual: Malay + English auto-detection
- Accurate calendar booking via time zone correction
- Airtable integration for complete CRM visibility

📖 Future Improvements [🔗](#)

- Add **Text-to-Speech** response to users
- Implement **Webhook response** to speak via Twilio
- Enable **Session History Logs** with richer detail
- Allow **Dynamic conversation** with booking clarification steps

📌 n8n Workflow: [🔗](#)



Output Example [🔗](#)

📌 Google Calendar Booking [🔗](#)

```
1 Booking intent from AI assistant.
2 Date: 2025-07-06
3 Time: 15:00
4 Branch: `kuala Lumpur
```

A screenshot of an Airtable record for a booking. The table has columns: A Caller, formattedDate, A Branch, Transcript, and A Intent. The record shows a caller with ID 13 and phone number +601169378360, booking for 7/6/2025 at 3:00pm in Kuala Lumpur. The transcript is "hey i want to make a booki..." and the intent is "booking".

AI Bookings					
Bookings					
A Caller	formattedDate	A Branch	Transcript	A Intent	
13 +601169378360	7/6/2025 3:00pm +08	Kuala Lumpur	hey i want to make a booki...	booking	

Airtable record of the booking

AI Booking: Dialysis Session

July 6, 2025, 11:00pm – July 7, 2025, 12:00am

Take meeting notes

Start a new document to capture notes

Booking intent from AI assistant.

Date: 2025-07-06

Time: 15:00

Branch: Kuala Lumpur

10 minutes before

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AI Booking: Dialysis Ses
11pm – 12am

Google Calendar booking event