

LinkedIn AI Assistant - System Diagrams

High-Level System Architecture



Complete Data Flow: Recording to LinkedIn Action



sequenceDiagram

participant User as User (PWA)

participant QR as QR Scanner

participant Recorder as Audio Recorder

participant Storage as Supabase Storage

participant Edge as Edge Function

participant AI as OpenAI API

participant DB as Database

participant RT as Realtime

participant Ext as Chrome Extension

participant LI as LinkedIn DOM

User->>QR: Scan LinkedIn QR code

QR->>DB: Create contact record

DB-->>QR: Contact created

User->>Recorder: Start recording

Note over Recorder: Records conversation audio

User->>Recorder: Stop recording

Recorder->>Storage: Upload audio file

Storage-->>Recorder: Upload complete

Recorder->>DB: Create conversation record

DB->>Edge: Trigger process-audio function

Edge->>Storage: Download audio file

Storage-->>Edge: Audio file

Edge->>AI: Transcribe audio (Whisper)

AI-->>Edge: Transcription text

Edge->>AI: Analyze conversation (GPT-4)

AI-->>Edge: Analysis (summary, topics, etc)

Edge->>DB: Update conversation + contact

DB->>RT: Notify changes

RT->>Ext: Push update

Ext->>AI: Generate connection message

AI-->>Ext: Personalized message

Ext->>LI: Click Connect button

Ext->>LI: Insert message text

Ext->>LI: Click Send button

Auto-Pilot Message Response Flow

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sequenceDiagram

participant LI as LinkedIn Page

participant CS as Content Script

participant BG as Background Worker

participant DB as Supabase DB

participant Edge as Edge Function

participant AI as OpenAI API

Note over LI: Contact sends message

LI->>CS: DOM mutation detected

CS->>CS: Extract sender & message

CS->>BG: New message event

BG->>DB: Check auto-pilot status

DB-->>BG: Contact info + auto_pilot=true

BG->>Edge: Call generate-response

Edge->>DB: Fetch conversation context

DB-->>Edge: Conversation summary

Edge->>DB: Fetch message history

DB-->>Edge: Last 10 messages

Edge->>AI: Generate response with context

AI-->>Edge: AI-generated message

Edge->>DB: Log AI action

Edge->>DB: Save messages

Edge-->>BG: Return AI message

BG-->>CS: Send message to LinkedIn

CS->>LI: Insert text in message box

CS->>LI: Trigger input event

CS->>LI: Click send button

Note over LI: Message sent automatically

Database Entity Relationship Diagram

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erDiagram

users ||--o{ contacts : "has"

users ||--o{ conversations : "records"

users ||--o{ ai_actions : "performs"

users ||--o{ linkedin_messages : "exchanges"

contacts ||--o{ conversations : "involved_in"

contacts ||--o{ ai_actions : "receives"

contacts ||--o{ linkedin_messages : "exchanges"

```
users {
    uuid id PK
    string email
    timestamp created_at
}
```

```
contacts {
    uuid id PK
    uuid user_id FK
    string name
    string linkedin_url
    jsonb linkedin_profile_data
    string relationship_type
    text custom_instructions
    boolean auto_pilot_enabled
    string status
    timestamp created_at
    timestamp updated_at
}
```

```
conversations {
    uuid id PK
    uuid user_id FK
    uuid contact_id FK
    string audio_url
    text transcription
    text summary
    text[] key_topics
    jsonb ai_analysis
    integer duration_seconds
    timestamp recorded_at
    boolean processed
}
```

```
ai_actions {
    uuid id PK
```

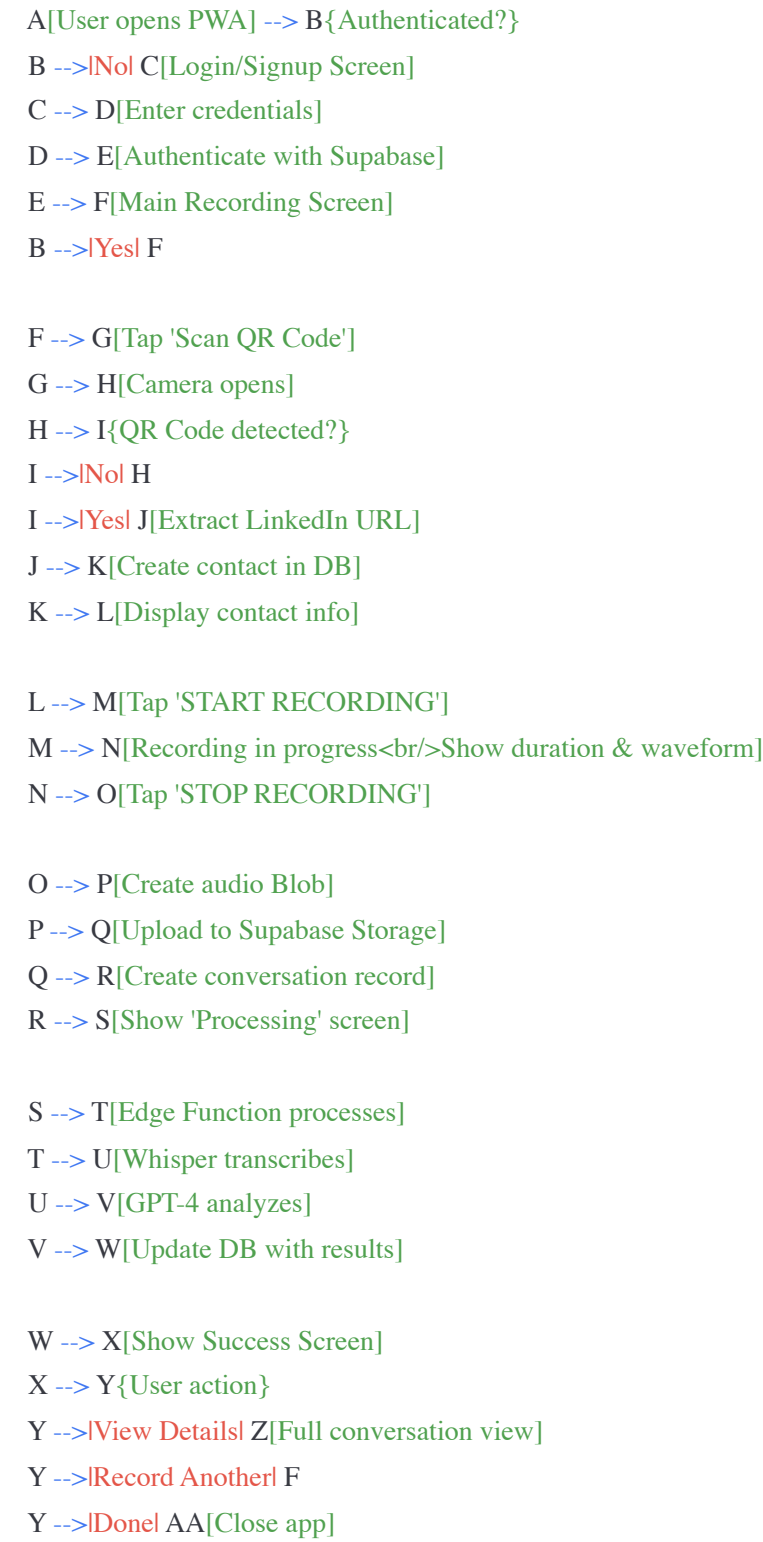
```
  uuid user_id FK
  uuid contact_id FK
  string action_type
  text action_content
  boolean success
  jsonb metadata
  timestamp created_at
}
```

```
linkedin_messages {
  uuid id PK
  uuid user_id FK
  uuid contact_id FK
  string sender
  text message_text
  boolean ai_generated
  timestamp sent_at
}
```

User Flow: Record Conversation

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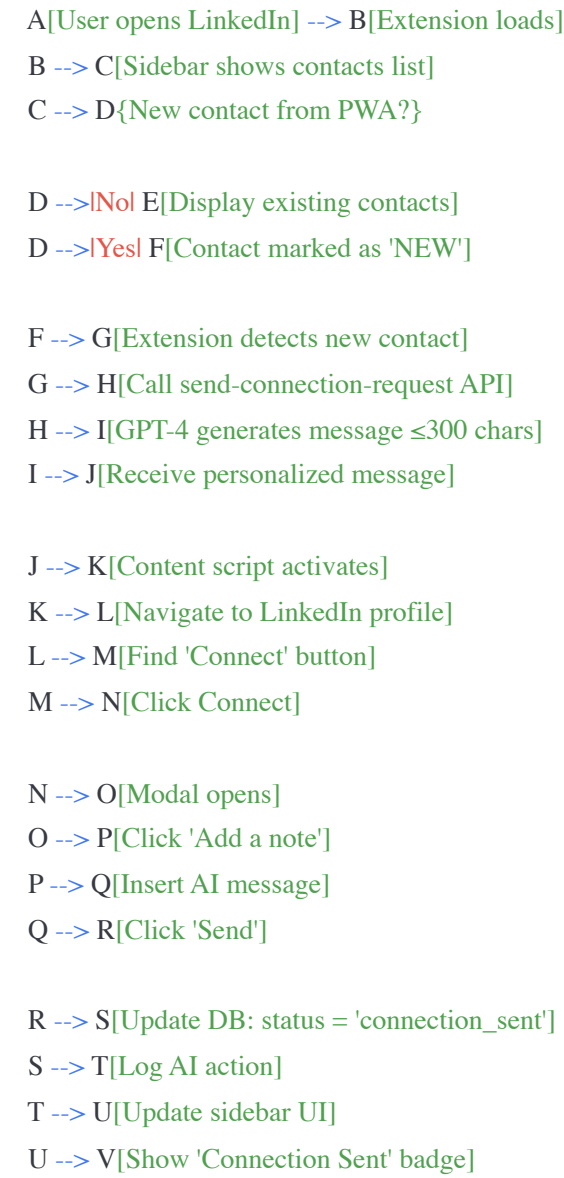
flowchart TD



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User Flow: Auto Connection Request

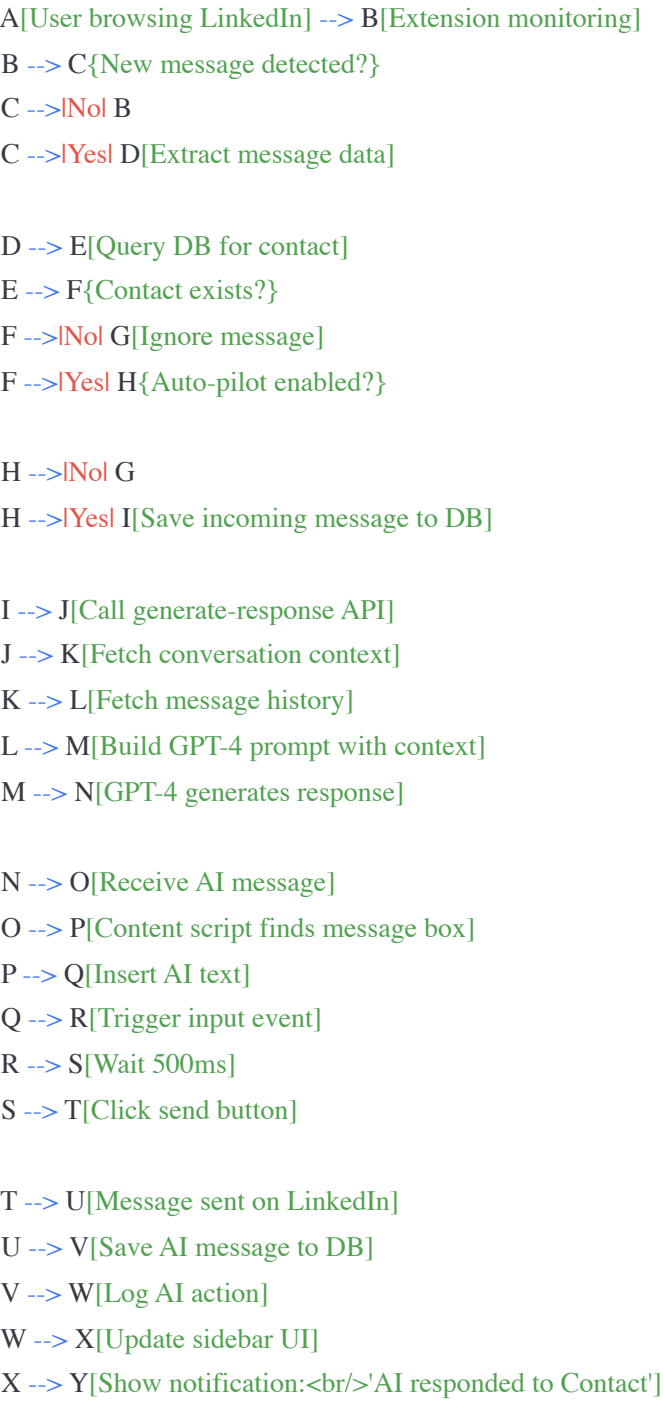
flowchart TD



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User Flow: Auto-Pilot Response

flowchart TD



Component Architecture: PWA

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graph TD

A[App.tsx
Root Component] --> B[Router]

B --> C[LoginScreen]

B --> D[RecordingScreen]

B --> E[SuccessScreen]

D --> F[QRScanner
Component]

D --> G[ContactDisplay
Component]

D --> H[RecordButton
Component]

D --> I[AudioWaveform
Component]

D --> J[ProcessingScreen
Component]

D --> K[useAudioRecorder
Hook]

D --> L[useQRScanner
Hook]

D --> M[useAuth
Hook]

K --> N[Supabase Client]

L --> N

M --> N

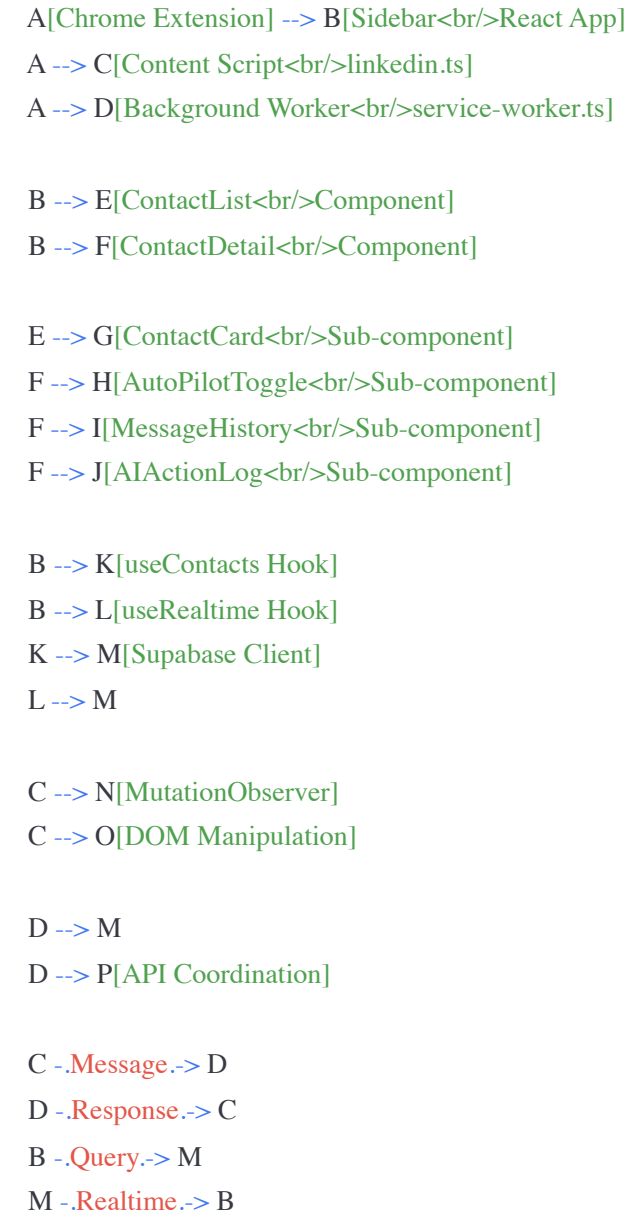
C --> M

E --> N

Component Architecture: Chrome Extension

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graph TD



LinkedIn DOM Manipulation Flow

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flowchart LR

A[MutationObserver] --> B{Change detected?}
B -->|Yes| C[Check if new message]
B -->|No| A

C --> D{Is incoming message?}
D -->|No| A
D -->|Yes| E[Extract message data]

E --> F[Get sender LinkedIn URL]
E --> G[Get message text]
E --> H[Get timestamp]

F --> I[Send to background script]
G --> I
H --> I

I --> J[Check auto-pilot status]
J --> K{Auto-pilot ON?}
K -->|No| L[Do nothing]
K -->|Yes| M[Generate AI response]

M --> N[Find message input box]
N --> O[Clear existing content]
O --> P[Insert AI text]
P --> Q[Trigger input event]
Q --> R[Wait 500ms]
R --> S[Find send button]
S --> T[Click send]
T --> U[Message sent!]

Data Sync Between PWA and Extension

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sequenceDiagram

- participant PWA as PWA Mobile App
- participant DB as Supabase Database
- participant RT as Realtime Channel
- participant Ext as Chrome Extension

Note over PWA: User records conversation

PWA->>DB: Create conversation record

PWA->>DB: Upload audio file

Note over DB: Edge Function processes

DB->>DB: Update conversation.processed = true

DB->>DB: Update contact with summary

DB->>RT: Broadcast changes

RT->>Ext: Push notification

Note over Ext: Extension receives update

Ext->>DB: Fetch latest contact data

DB-->>Ext: Return contact + conversation

Note over Ext: UI updates automatically

Ext->>Ext: Show new contact in list

Ext->>Ext: Mark as 'NEW'

Note over Ext: Auto-actions may trigger

Edge Function Processing Pipeline

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flowchart TD

A[Audio file uploaded] --> B[Trigger process-audio function]

B --> C[Download audio from Storage]

C --> D[Send to Whisper API]

D --> E[Receive transcription]

E --> F[Build GPT-4 prompt]

F --> G[Include transcription]

F --> H[Request: summary, topics, sentiment]

G --> I[Call GPT-4 API]

H --> I

I --> J[Receive AI analysis]

J --> K[Parse JSON response]

K --> L[Update conversation table]

K --> M[Update contact table]

L --> N[Set processed = true]

M --> O[Set suggested relationship]

N --> P[Trigger Realtime notification]

O --> P

P --> Q[Chrome Extension receives update]