Final Project Report

Topic: Healthcare Chatbot

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Overview

Project Background and Motivation

- Chatbots are potential tools for reducing workload and providing 24/7 operational capabilities.
- This project aims to apply chatbots to automate customer service at clinics, enhance user experience, and optimize operational efficiency.

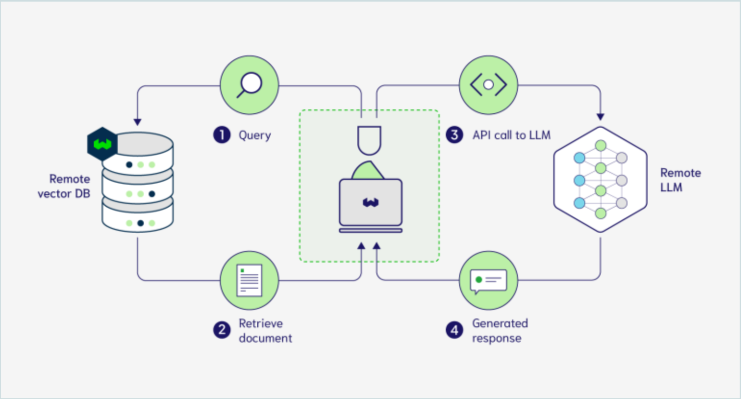
Chatbots in Healthcare

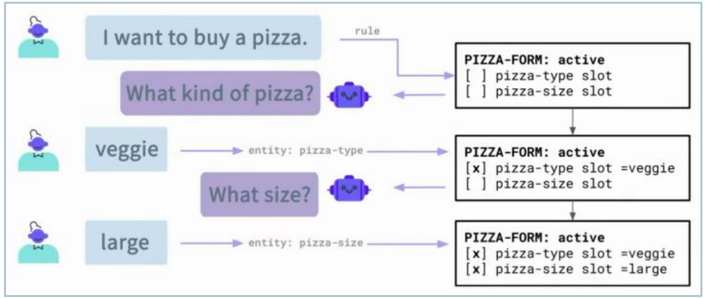
- Quickly provide information about appointment schedules, services, and doctors.
- Reduce workload for customer support staff.
- Support data management and send reminders to patients via automated notifications.

02
Project Requirements

Detailed Problem Description

- Develop a chatbot capable of automatic responses based on available documents.
- Manage conversation content easily with flexible customization.





I want to buy a pizza.

What kind of pizza?

veggie

What size?

large

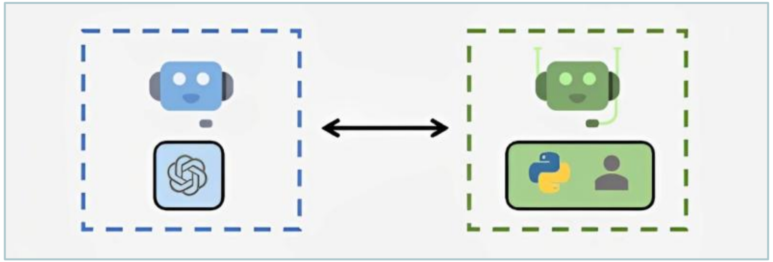
```
PIZZA-FORM: active
[ ] pizza-type slot
[ ] pizza-size slot
```

```
PIZZA-FORM: active
[x] pizza-type slot =veggie
[ ] pizza-size slot
```

```
PIZZA-FORM: active
[x] pizza-type slot =veggie
[x] pizza-size slot =large
```

Detailed Problem Description

- Integrate AI models to improve accuracy in answering questions.
- Support appointment scheduling and SMS notifications.
- Store and manage relevant data in a database.



Final Objectives

- Improve customer experience through fast and accurate responses.
- Reduce operational costs by automating support processes.
- Effectively integrate AI technologies into the healthcare sector.

03

Technology Analysis and Selection

Overview of Frameworks and Platforms

- **Langflow:** A framework supporting visual design, suitable for simple chatbots.
- **Vector Shift:** A powerful no-code platform, easy to deploy and integrate with APIs.
- **Rasa Open Source:** A coding-intensive framework but robust for multi-channel chatbots and complex context management.

Reason for Choosing Rasa Open Source

- Effectively meets project requirements in context management, AI integration, and scalability.
- Supports deploying complex chatbots and multi-channel integration.
- Easy to integrate with other APIs.

04

System Architecture and Product

Context and Application

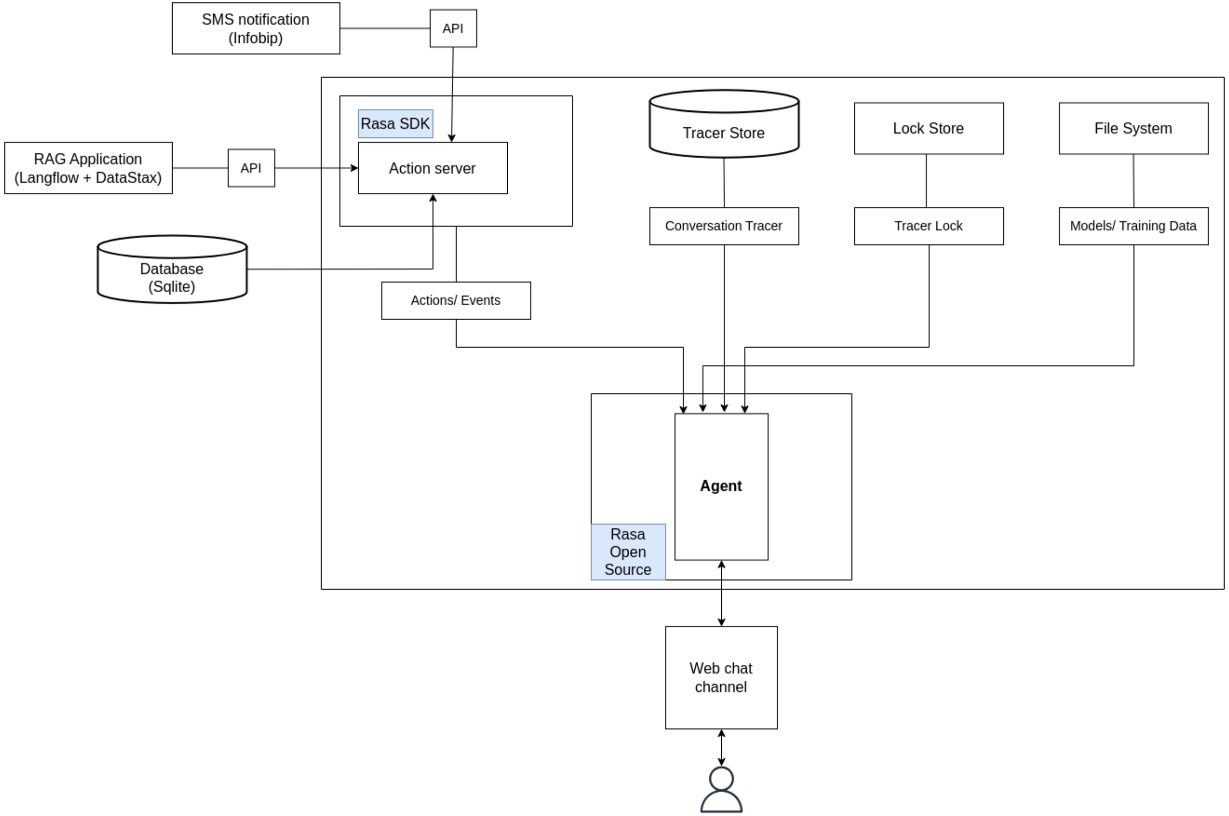
- The product is an automated appointment booking solution designed for clinics. It streamlines scheduling, reduces staff workload, and improves patient experience through chatbot technology.

Overall Architecture Description

The system is designed to optimize customer interactions, appointment management, and AI integration. It consists of the following key components:

- **Rasa Open Source Agent**: Handles customer requests based on pre-trained data.
- **RAG Application:** Processes inquiries using clinic documents.
- **Database:** Stores and retrieves appointment-related information.
- **SMS Notification:** Sends updates about appointment statuses to patients.

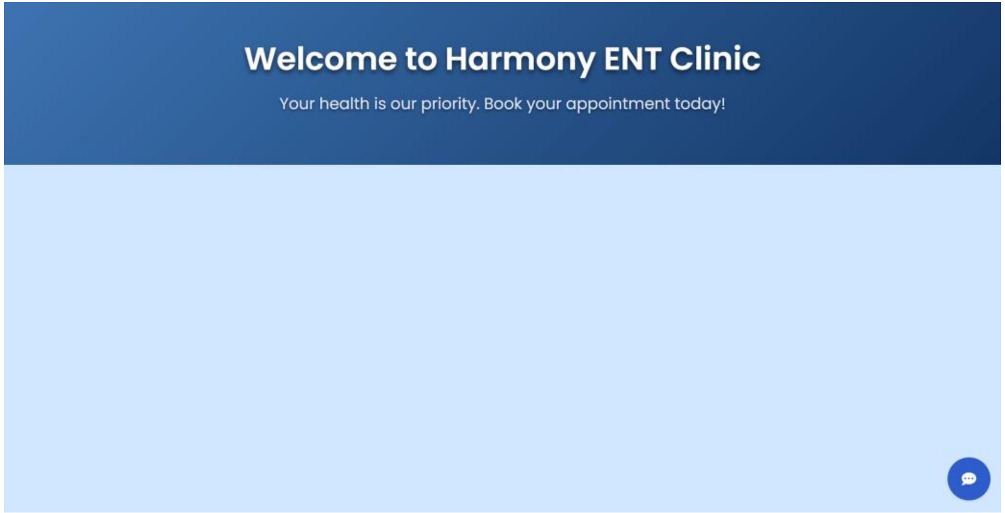
Overall Architecture Description



Chatbot architecture

Key Features

- Interface: A simple, user-friendly website that displays clinic information and supports appointment scheduling.



Welcome to Harmony ENT Clinic

Your health is our priority. Book your appointment today!

Key Features

- Answer customer questions about clinic services, working hours, and doctors.
- Schedule/ Search/ Cancel appointments and send SMS notifications.
- Store appointment information in the database for easy management.

05

Product Demo and Future Development

Demo Highlights

- Demonstration of key features:
  - Booking an appointment.
  - Searching for appointment details.
  - Deleting an appointment.
  - Answer questions about the clinic.
  - Basic conversation.

Demo Highlights

- Video showcasing the chatbot’s functionality: link.

Future Development Directions

- Enhance the scheduling system to detect and resolve conflicts, such as overlapping appointment times or bookings outside working hours.
- Enhance the ability to recommend specialists for specific medical conditions.

Thanks for your listening!