Health Hub team

CareConnect

Creating a smart assistant chatbot educating teens with diabetes type I about their disease and how to deal with it

Build your AI Startup Hackathon Episode 2

lab lab ai

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CONTENT

Problem Definition

Teens with type 1 diabetes struggle to achieve adequate self-management

Problem Definition

Self-management is key to avoid:

- Limited Knowledge and Understanding of Condition and Treatment
- Unmanaged Effects of illness on Daily Life
- Difficulty Adhering to Treatment Plan
- Inadequate Collaboration with Healthcare Professionals

Our Solution:

Keep your disease under control and stay healthy

Optimize your healthcare and how you feel

Business

Statistics

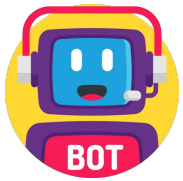
- From 2001 to 2017, the number of people under age 20 living with type 1 **diabetes increased by 45%** *

- **73% of teens** aged **12 to 17** years old report using **social networking** websites, with the majority using such services **daily**

*https://www.cdc.gov/media/releases/2021/p0824-youth-diabetes.html#:~:text=Diagnosed%20cases%20of%20type%201,2%20diabetes%20grew%20by%2095%25.

Business

Value Creation



Chatbot (CareBot) that learned on **specific documents**. These documents contain the information for the patient and are related to everything about the disease and after-care. This document is **provided by the doctor.** CareBot will use **adapted vocabulary** for children and adolescents.

tailored aftercare

During aftercare, the doctor can provide specific **documents for each client** according to their specific situation. Documents can be **updated** based on the different stages during aftercare.

follow-up

Follow-up can be done much **closer** and **personal**. During times when the doctor is not available, the patient can still get info via CareBot that is relevant. The patient can also easily contact the doctor if need be.
The patient doesn't have to wait for the next meeting but can get answers much **more frequent** via CareBot.

understandable

CareBot is trained to provide answers that are **understandable** for the patient. It has the time to explain everything more in detail, even with examples

Business

Value Delivery & Capture

- Our value delivery would be through **hospitals**. Hospitals benefit from using our solution because it will help them **provide better aftercare** to patients. We can set up the entire system for patients and doctors to make sure there is a smooth exchange of information.

- We can **connect with doctors** to explain them how we provide care during the times they are not there. This **doesn't replace** the doctor but it helps and improves the entire experience. Doctors will have access to the **conversations and analysis** from CareBot.

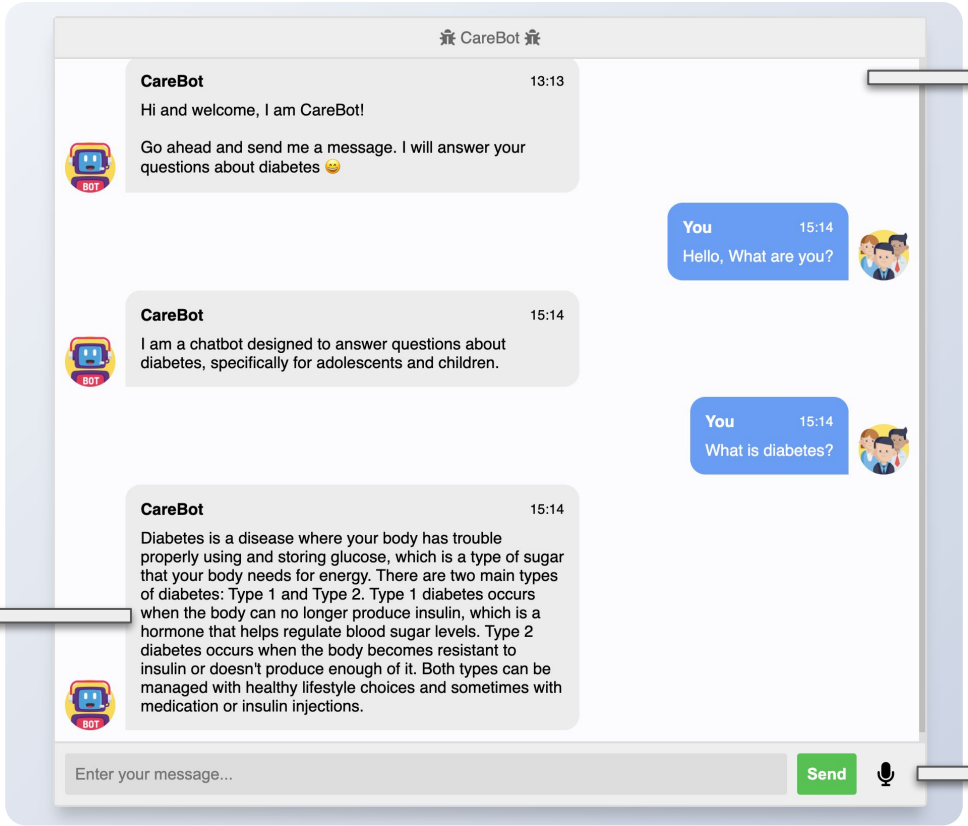
- Our Value Capture would be through a r**ecurring monthly revenue.** The hospital can buy a subscription to use our product. We also provide help **after sales** to make sure the hospitals, doctors and patients can have all the benefits of the product.

- The amount of the monthly fee will depend on the **amount of patients.**

- The final goal would be to be an important part of the healthcare system and thus potentially be a cost that would be **reimbursed** by the country.

Product

Interface



User-friendly interface

The interface is straightforward and easy to use.

Direct & Concise responses

The text is tailored for the target audience and is available 24/7.

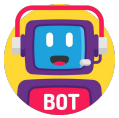
Communication

Both voice and written texts are allowed to give multiple options to the patient

Product

Exchange

Patient



CareBot

Doctor

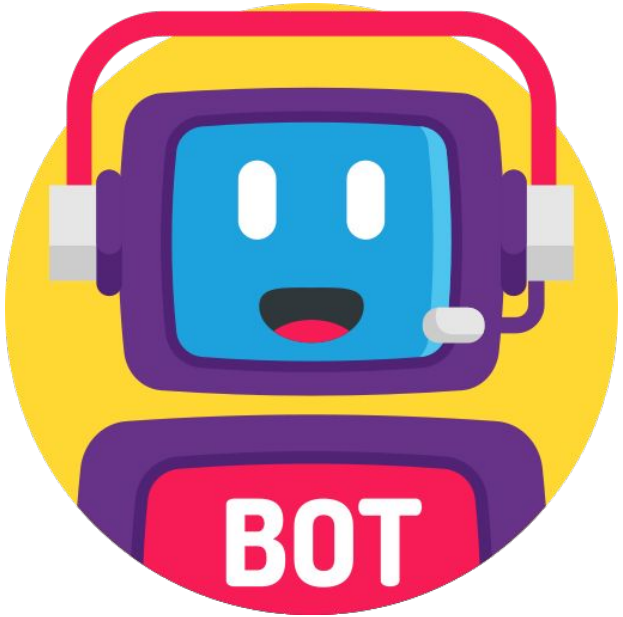
CareBot is available **24/7** so the patient has all the time to ask his questions. The patient can ask for more explanation to **fully understand what is best** for him

Doctors provide **professional documentation** that is tailor-made for the patient.

CareBot can provide **feedback** to the doctor of its conversations and **analysis** of the patients behaviour.

Product

demo



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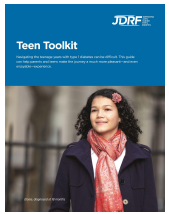
Tech

Understanding the document



Document on diabetes

OpenAI

Extraction of all the text in the document

Divide that text into **chunks** so each chunk can be retrieved by CareBot and used as context to the conversation.

Calculate **embeddings** for each chunk of text so calculation of similarity is possible

Embeddings

Qdrant

Store the embeddings using **Qdrant**.

Storage

Tech

Understanding the conversation

1 **Transcribe** voice to text

The patient can talk to CareBot who will transform voice command into text

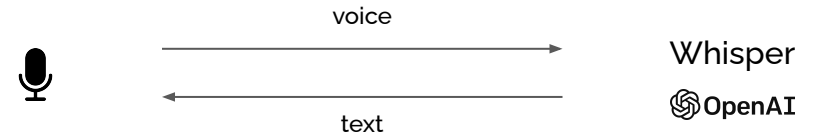
2 **Similarity** text and document

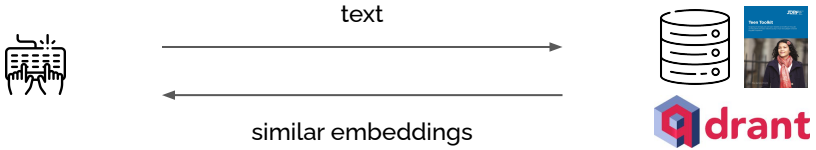
Similarity calculations between the question of the patient and the chunks of document allow to extract relevant parts of the entire document.

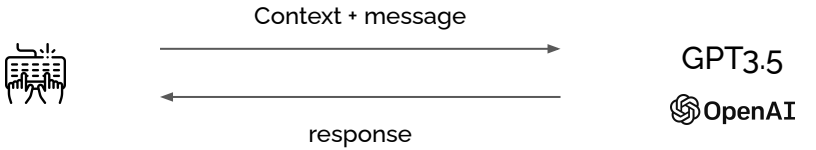
3 Sent **context and message** to GPT3.5

The most interesting chunks are used as context to the question that has been asked by the patient.

4 **Deployment**







Google Cloud

Future Work

Improvement

- Evaluate performance using **customer feedback**, analytics, and user testing.
- Include **other chronic conditions** (e.g. asthma or hypertension) and expand age groups.
- Include **tailored feedback from the Doctor.**
- Perform **analysis** from user's conversation history to generate a report to the Doctor.
- Using the AI to be able to adapt for patient specifics given by **patients conversational history** and Doctor recommendations.
- Ensure **privacy** of all communications.

Partnership

- **Partner** with healthcare providers, hospitals, clinics, or diabetes associations to offer this chatbot as part of their education and support programs.
- Perform a **research** in partnership with a healthcare provider to see the impact, contributions and flaws of the proposed model for further improvement.

Integrations

- Integrate with **electronic health records** to provide doctors with better insights into their patient's condition and treatment.
- Add features that **track blood glucose levels,** suggest healthy meal options, or provide reminders for medication.
- Adapt the model for conversational language of the user to be more user-friendly.

THANK YOU