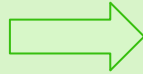


**SYNTROPIC BOT**

# WHAT IS SYNTROPIC AGROFORESTRY?

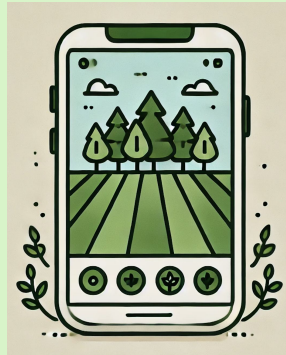


# WHAT IS SYNTROPIC AGROFORESTRY?

- Farming method that **mimics natural ecosystems**
  - **Synergistic** relationships between plants
  - **Self-sustaining** agricultural systems
  - Soil **regeneration**, enhanced fertility
  - Increases **biodiversity**, water retention
- Without any input of fertilizers, pesticides, or fungicides. —

# CHALLENGES

- Limited **Awareness** and **Understanding**
- Lack of **Technical Knowledge** and **Training**
- Learning materials are **diverse, disperse** and mainly in **Portuguese**
- Requires time and a long term commitment

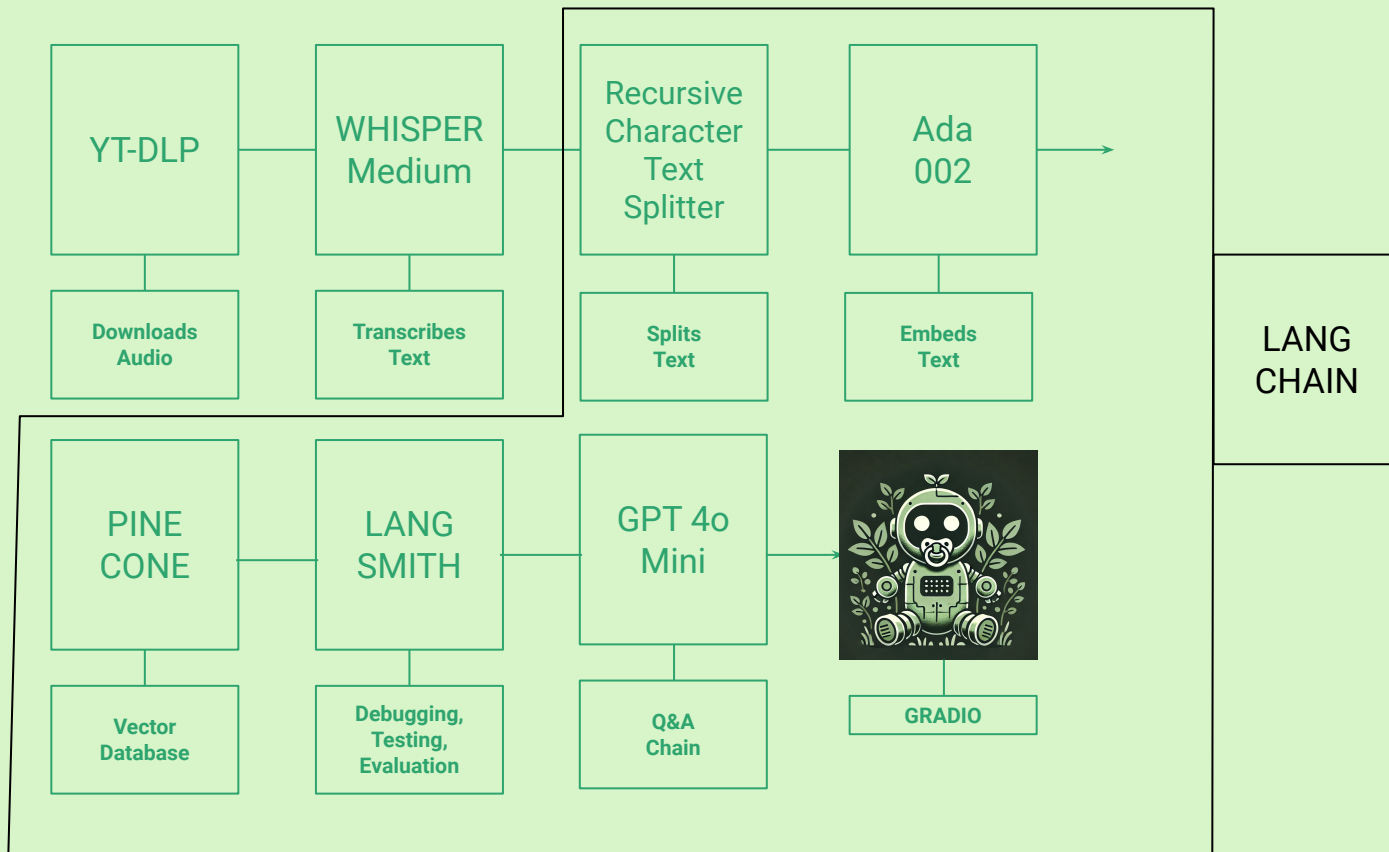


# SYNTROPIC BOT

- **Compiles** diverse videos about Syntropic Agroforestry from YouTube
- **Answers** your questions based on those videos



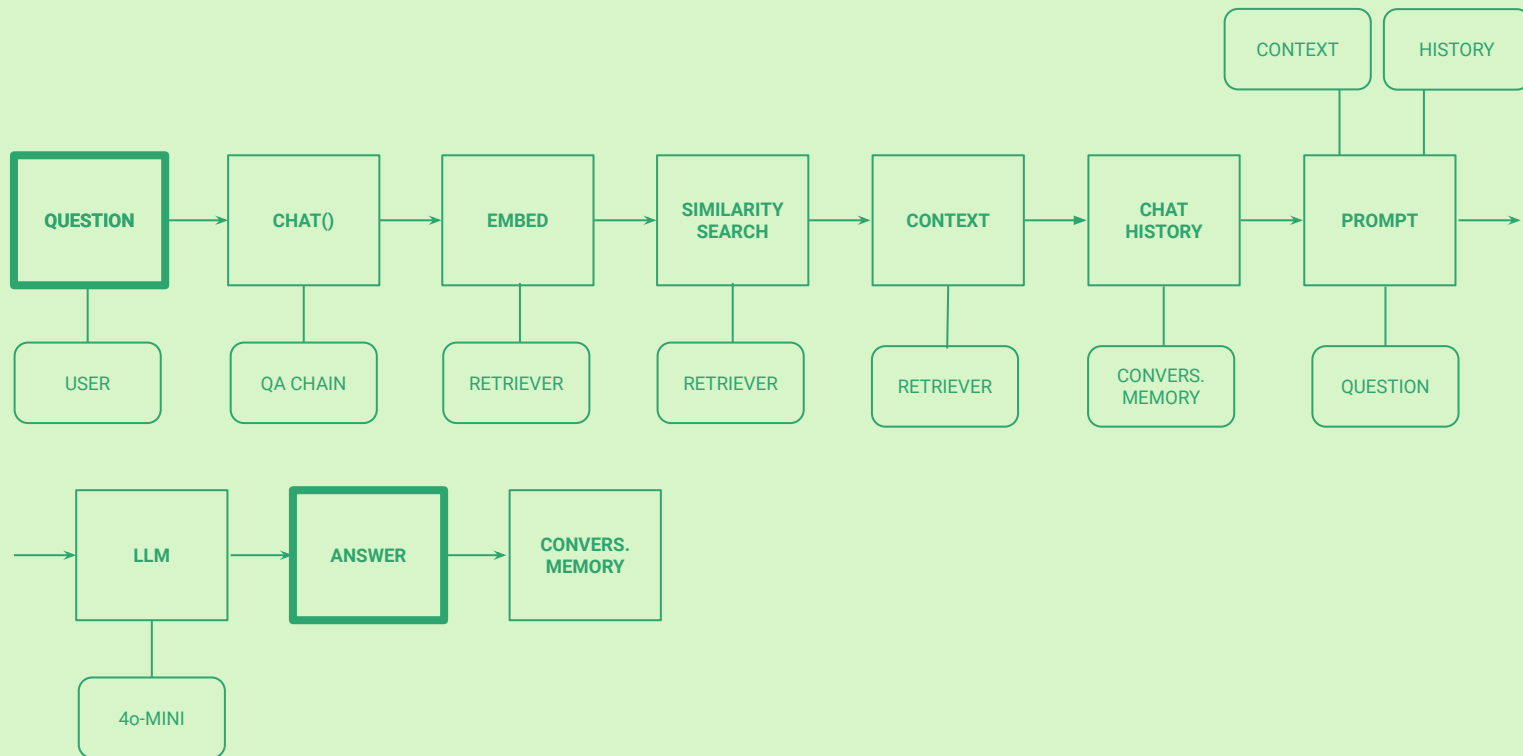
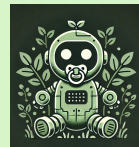
# ARCHITECTURE



# DATASET

- Handpicked videos from **YouTube**
- Downloaded the full list (**only audio**)
- Videos in **Portuguese, Spanish and English**
- **No preprocessing:**
  - Talks and conversations
  - Good transcriptions
  - Gpt-4o-mini handles misspellings

# Q&A





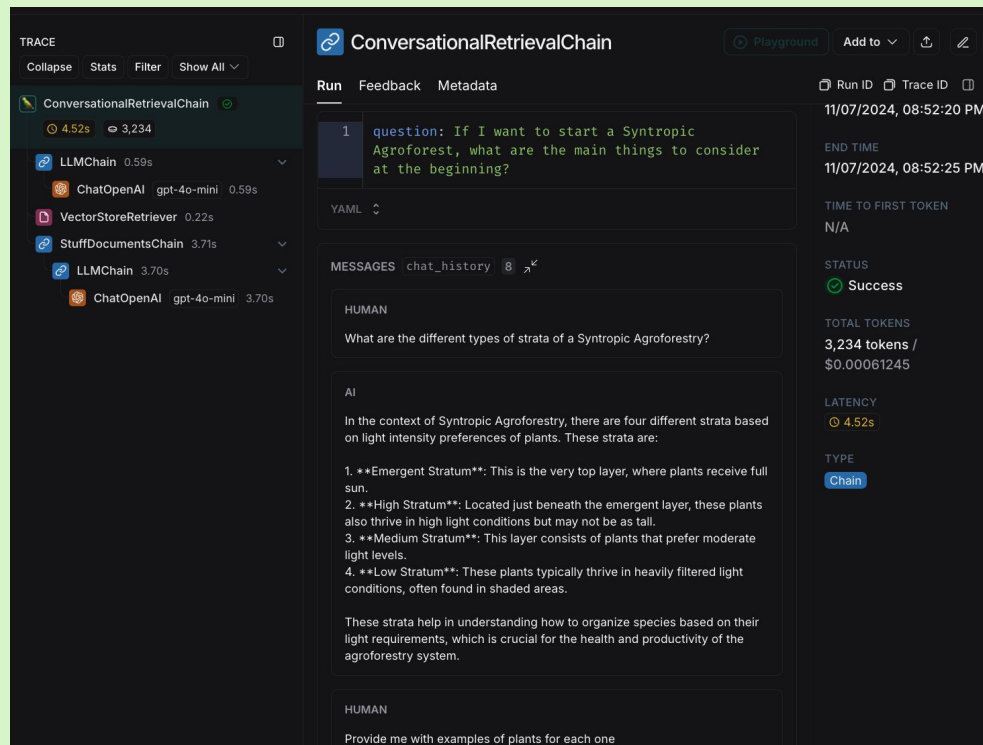
# TOOLS

- **YouTube Downloader**
- **Whisper**
- **Pinecone**
- **World Flora Online**
- **YouTube API**

# EVALUATION

LANG  
SMITH

- Answers out of context - **Prompt**
- Context not being retrieved - **Pinecone**
- No memory - **Q&A Chain + Prompt**
- Response relevance - **Myself**



TRACE

Collapse Stats Filter Show All

ConversationalRetrievalChain 4.52s 3,234

- LLMChain 0.59s
  - ChatOpenAI gpt-4o-mini 0.59s
- VectorStoreRetriever 0.22s
- StuffDocumentsChain 3.71s
  - LLMChain 3.70s
    - ChatOpenAI gpt-4o-mini 3.70s

ConversationalRetrievalChain

Run Feedback Metadata

1 question: If I want to start a Syntropic Agroforest, what are the main things to consider at the beginning?

YAML

MESSAGES chat\_history 8

HUMAN

What are the different types of strata of a Syntropic Agroforestry?

AI

In the context of Syntropic Agroforestry, there are four different strata based on light intensity preferences of plants. These strata are:

1. **Emergent Stratum**: This is the very top layer, where plants receive full sun.
2. **High Stratum**: Located just beneath the emergent layer, these plants also thrive in high light conditions but may not be as tall.
3. **Medium Stratum**: This layer consists of plants that prefer moderate light levels.
4. **Low Stratum**: These plants typically thrive in heavily filtered light conditions, often found in shaded areas.

These strata help in understanding how to organize species based on their light requirements, which is crucial for the health and productivity of the agroforestry system.

HUMAN

Provide me with examples of plants for each one

Run ID Trace ID

11/07/2024, 08:52:20 PM

END TIME

11/07/2024, 08:52:25 PM

TIME TO FIRST TOKEN

N/A

STATUS

Success

TOTAL TOKENS

3,234 tokens / \$0.00061245

LATENCY

4.52s

TYPE

Chain

# EVALUATION

LANG  
SMITH

- **To improve:**
  - No answer with dense prompts
  - Sometimes still mixes languages
  - Tendency to search for queries in same language
  - Sometimes needs a second attempt to answer

# CONCLUSION

