

Weather Prediction Model

AI IN AGRICULTURE



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Aim of the Lecture

The objective of the lecture is to learn how to create a weather prediction model, an activity scheduling system that leverages both the **OpenWeather API** and the **EmbedChain** LLM framework. This system aims to assist farmers in optimizing their activity schedules based on local weather information.

Goal

At the end of the lecture, you will;

- Understand how to use EmbedChain LLM framework
- Learn the OpenWeatherMap API
- Understand the projects workflow
- Be able to develop activity scheduling system that assist farmers in optimizing their activity schedules.

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Introduction

The weather prediction model (activity scheduling system) leverages both the **OpenWeather API** and the **EmbedChain** LLM framework to assist farmers in optimizing their activity schedules based on the local weather information.

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Tech Stacks

- EmbedChain LLM framework
- OpenWeatherMap API
- Streamlit

Libraries

- GeoPy
- Request

GeoPy

[Geopy](#) makes it easy to locate the coordinate of addresses, cities, countries and landmarks using the third-party geocoders and other data sources.

— The current location of the user is sent as input to the GeoPy API and as a response returns the coordinate **(latitude & longitude)** of the address. This is then passed to the OpenWeatherMap API.

OpenWeatherMap

[OpenWeather](#) provides historical, current and forecasted weather data via light-speed APIs.

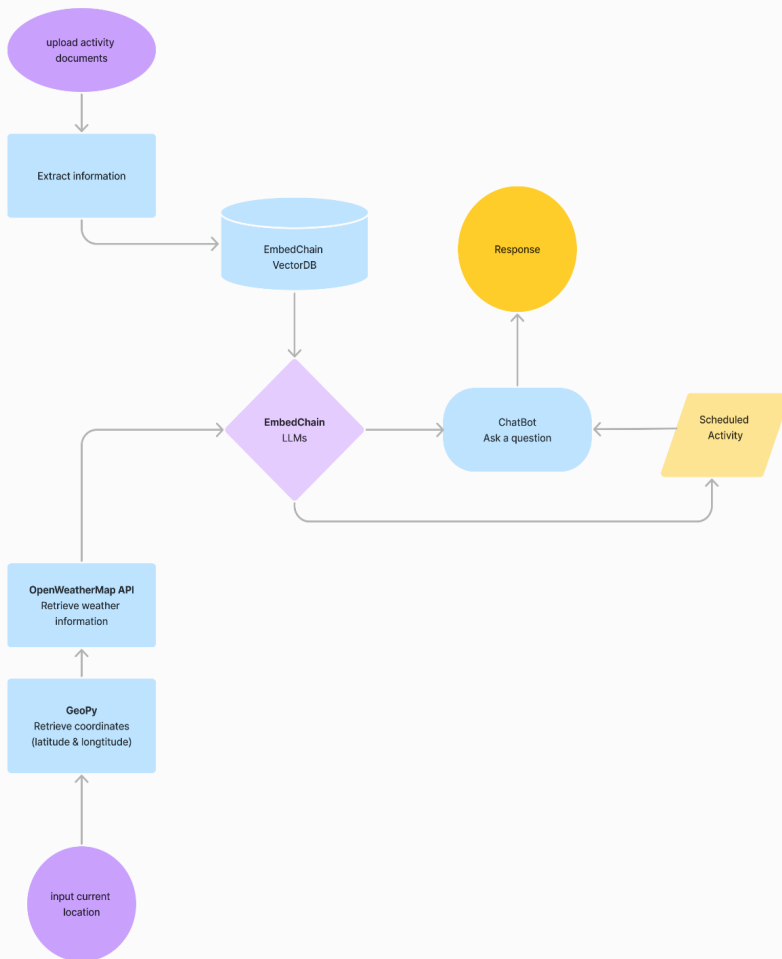
The coordinates returned by the **GeoPy API** is fed to the **OpenWeather API** which in turn returns the current weather data as well as the forecast up to **5 days**.

Embedchain


[EmbedChain](#) is a framework to easily create LLM powered bots over any dataset. it abstracts the entire process of loading dataset, chunking it, creating embeddings and storing it in a vector database.

The users activity and the weather data are fed to the LLM which then uses the information provided to **optimize** the farmers schedules as well make **recommendations**. It also provides a chat interface which allows the farmer to interact with the data.

Project Workflow



Application



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upload your activity plan

Drag and drop files here
Limit 200MB per file


Browse files

Operation Schedule.docx
7.8KB

when would you like to schedule for?

Today

Deploy

Weather Prediction Model

your activity schedule assistant

Temperature	Humidity	Windspeed	pressure
30.14 °C	65 %	1.17 mph	1008
↑ light rain	↑ 4%	↓ -8%	

Scheduled Activity Board

Revised Schedule

Based on the provided farming activities and local weather information, here is the revised schedule that takes into account the weather conditions and optimizes productivity.

Morning Activities (7:00 AM - 12:00 PM):

1. Inspect Fields (7:00 AM - 7:30 AM): Recommended Start Time: 7:00 AM (No change)
2. Weeding and Pest Control (7:30 AM - 9:00 AM): Recommended Start Time: 7:30 AM (No change)
3. Irrigation Management (9:00 AM - 10:00 AM): Recommended Start Time: 9:00 AM (No change)
4. Harvest Planning (10:00 AM - 10:30 AM): Recommended Start Time: 10:00 AM (No change)

what activities are scheduled for the evening time?

The activities scheduled for the evening time are:

1. Maintenance and Equipment Check (5:00 PM - 5:30 PM): This activity involves conducting routine maintenance checks on farming and processing equipment and addressing any maintenance issues promptly.
2. Record Keeping (5:30 PM - 6:00 PM): This activity involves maintaining records related to farming activities, such as crop yields, expenses, and other important information.

Ask me a question, e.g what activity is scheduled for 2pm

THANK YOU!

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