Eco Lifestyle Agent

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Presented By

Kanamukkala Parveen - JNTUA college-computer science

OUTLINE

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PROBLEM STATEMENT

Increased environmental degradation due to unsustainable daily habits, improper waste disposal, overuse of plastic, and lack of awareness has led to an urgent need for eco-conscious living. However, most individuals lack personalized guidance, easy access to localized recycling rules, and awareness of government initiatives that support sustainable practices. There is a need for an intelligent assistant that can help bridge this knowledge gap and guide users towards greener living through simple, impactful actions.

PROPOSED SOLUTION

The propose the Eco Lifestyle Agent, an AI-powered assistant that leverages Retrieval-Augmented Generation (RAG) and IBM Cloud Lite Service to deliver real-time, personalized recommendations for sustainable living. It answers natural language queries using trusted environmental data sources, including guidelines.The agent promotes small lifestyle changes that cumulatively lead to large-scale environmental benefits.

SYSTEM APPROACH

To develop and deploy the Eco Lifestyle Agent, the following system requirements were needed:

A local development environment with at least a dual-core CPU and 4 GB RAM.

Any operating system such as Windows, Linux, or macOS.

A modern web browser like Chrome, Firefox, or Edge to access the agent's web interface.

Stable internet connectivity to interact with IBM Cloud services.

IBM Cloud account with access to:

IBM watsonx.ai runtime for running the Mistral-large foundation model.

IBM Watsonx.ai studio

IBM Cloud Storage

ALGORITHM & DEPLOYMENT

1. Input Processing

User enters a natural language query.

The input is preprocessed and converted into a semantic embedding.

2. Document Retrieval

The retriever queries the vector index to find relevant content.

Sources: CPCB, UNEP Guidelines.

3. Answer Generation

IBM Mistral-large model takes both the query and retrieved content to generate a personalized response.

The output includes actionable suggestions and may link to external resources.

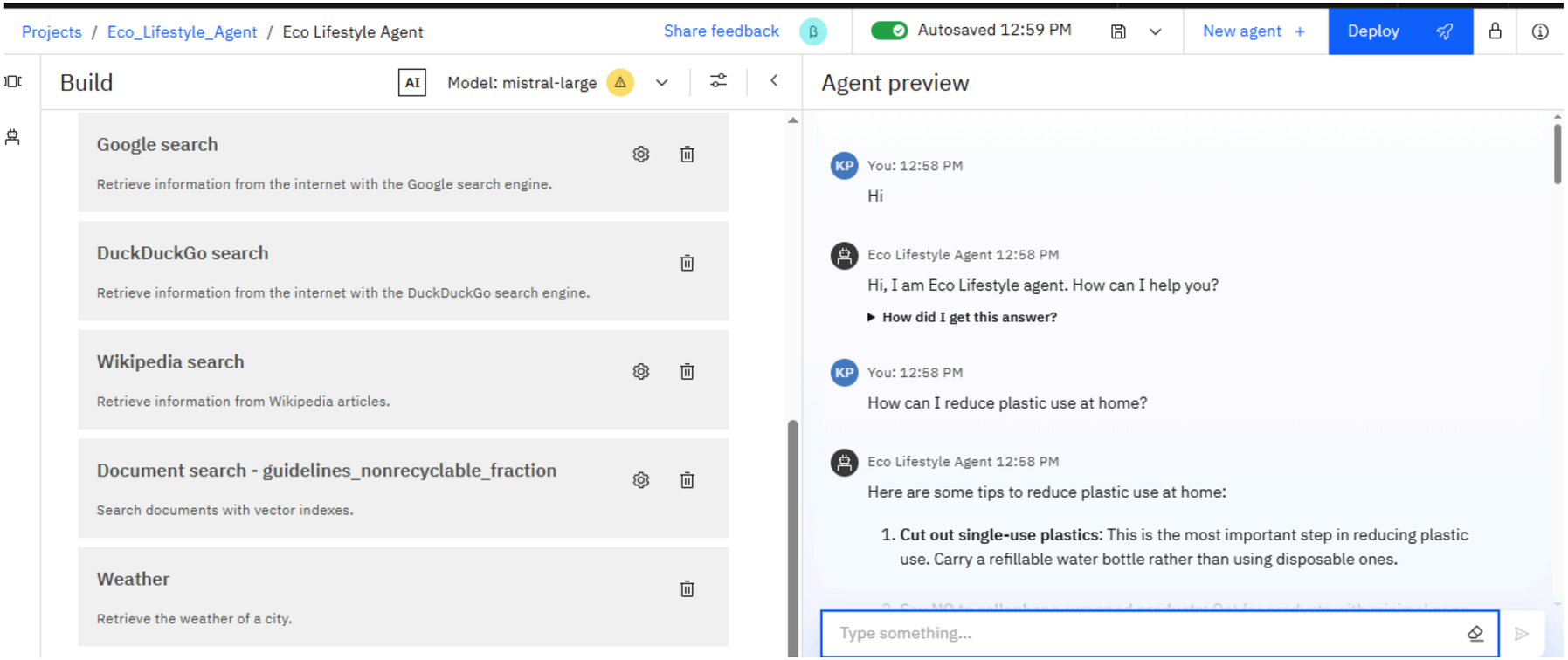
4. Response Delivery

The generated answer is returned to the user via the frontend.

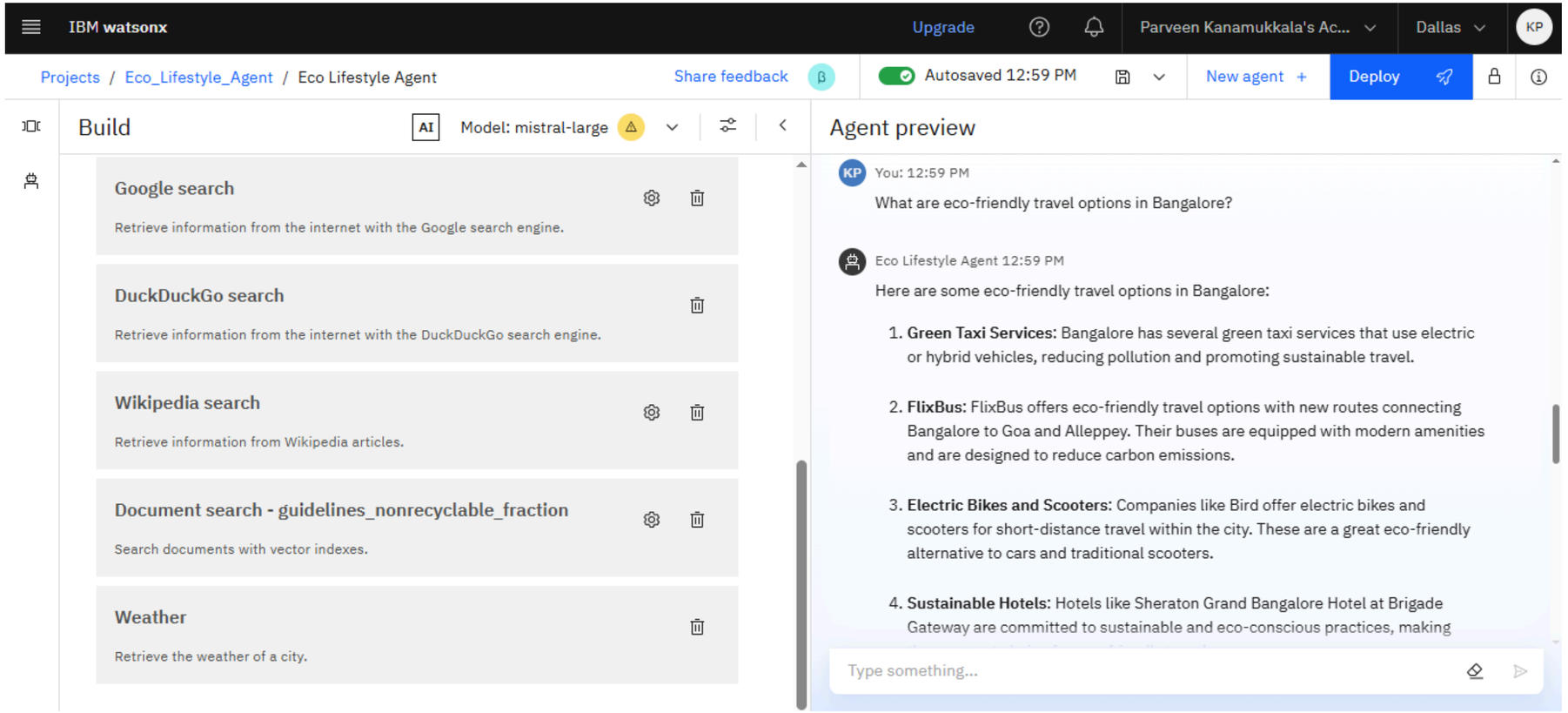
5. Deployment

The Eco Lifestyle Agent is deployed on IBM Cloud using IBM watsonx.ai services, with the Mistral-large foundation model powering natural language generation.

RESULT


Projects / Eco_Lifestyle_Agent / Eco Lifestyle Agent
Share feedback
Autosaved 12:59 PM
New agent +
Deploy
Build
AI
Model: mistral-large
Google search
Retrieve information from the internet with the Google search engine.
DuckDuckGo search
Retrieve information from the internet with the DuckDuckGo search engine.
Wikipedia search
Retrieve information from Wikipedia articles.
Document search - guidelines_nonrecyclable_fraction
Search documents with vector indexes.
Weather
Retrieve the weather of a city.
Agent preview
KP
You: 12:58 PM
Hi
Eco Lifestyle Agent 12:58 PM
Hi, I am Eco Lifestyle agent. How can I help you?
How did I get this answer?
KP
You: 12:58 PM
How can I reduce plastic use at home?
Eco Lifestyle Agent 12:58 PM
Here are some tips to reduce plastic use at home:
1. Cut out single-use plastics: This is the most important step in reducing plastic use. Carry a refillable water bottle rather than using disposable ones.
Type something...

RESULT


IBM watsonx
Upgrade
Parveen Kanamukkala's Ac...
Dallas
KP
Projects / Eco_Lifestyle_Agent / Eco Lifestyle Agent
Share feedback
Autosaved 12:59 PM
New agent +
Deploy
Build
AI
Model: mistral-large
Google search
Retrieve information from the internet with the Google search engine.
DuckDuckGo search
Retrieve information from the internet with the DuckDuckGo search engine.
Wikipedia search
Retrieve information from Wikipedia articles.
Document search - guidelines_nonrecyclable_fraction
Search documents with vector indexes.
Weather
Retrieve the weather of a city.
Agent preview
KP You: 12:59 PM
What are eco-friendly travel options in Bangalore?
Eco Lifestyle Agent 12:59 PM
Here are some eco-friendly travel options in Bangalore:
1. Green Taxi Services: Bangalore has several green taxi services that use electric or hybrid vehicles, reducing pollution and promoting sustainable travel.
2. FlixBus: FlixBus offers eco-friendly travel options with new routes connecting Bangalore to Goa and Alleppey. Their buses are equipped with modern amenities and are designed to reduce carbon emissions.
3. Electric Bikes and Scooters: Companies like Bird offer electric bikes and scooters for short-distance travel within the city. These are a great eco-friendly alternative to cars and traditional scooters.
4. Sustainable Hotels: Hotels like Sheraton Grand Bangalore Hotel at Brigade Gateway are committed to sustainable and eco-conscious practices, making
Type something...

CONCLUSION

The Eco Lifestyle Agent bridges the gap between sustainable knowledge and daily action. By combining powerful AI with reliable environmental data, it empowers users to make informed eco-conscious decisions. Its use of IBM Foundation model and RAG architecture ensures responses are not only accurate but also contextual and personalized.

FUTURE SCOPE

- Multilingual Support: Extend support to regional languages (e.g., Hindi, Telugu).
- Voice Interface: Integrate speech-to-text and voice replies for accessibility.
- User Profiles: Tailor suggestions based on user behavior or preferences.

REFERENCES

- Central Pollution Control Board (CPCB) – Plastic Waste Management Rules https://cpcb.nic.in/plastic-waste/
- Swachh Bharat Mission (Urban) – Ministry of Housing and Urban Affairs https://swachhbharatmission.gov.in/

- IBM Foundation Models on watsonx https://www.ibm.com/watsonx/foundation-models
- Retrieval-Augmented Generation (RAG) – IBM Architecture https://www.ibm.com/blog/retrieval-augmented-generation-llm/

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Completion Certificate

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for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM- COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins