

IBM HACKATHON PROJECT

ECO_AGENT (ECO LIFESTYLE AGENT)

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OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

PROBLEM STATEMENT

- Many people want to live sustainably but are overwhelmed by **too much or conflicting information** online.
- There is often **no clear starting point** for adopting eco-friendly habits in daily life.
- **Lack of personalized guidance** makes it difficult to choose the right eco-friendly products or actions.
- **Sustainable options** are often perceived as **costly, complex, or inconvenient**.
- **Local recycling rules**, green product availability, and government schemes vary by region and are **not easily accessible**.
- Important **government and NGO initiatives** are underutilized due to poor digital outreach.
- Users lack a tool that provides **real-time, location-based, and verified environmental information**.
- People need **small, actionable suggestions** that are easy to understand and implement in everyday routines.
- Current solutions do not offer a **user-friendly, conversational interface** that adapts to the user's context.
- There is a gap in tools that combine **AI intelligence with environmental action** for everyday decision-making.

TECHNOLOGY USED

- **AI Platform:** Agent built using IBM watsonx.ai Agent Lab
- **Framework & Architecture:** LangGraph framework, ReAct architecture
- **Foundation Model:** ibm/granite-3-3-8b-instruct
- **RAG Retrieval Pipeline** for real-time trusted content from environmental and government sources

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

WOW FACTORS

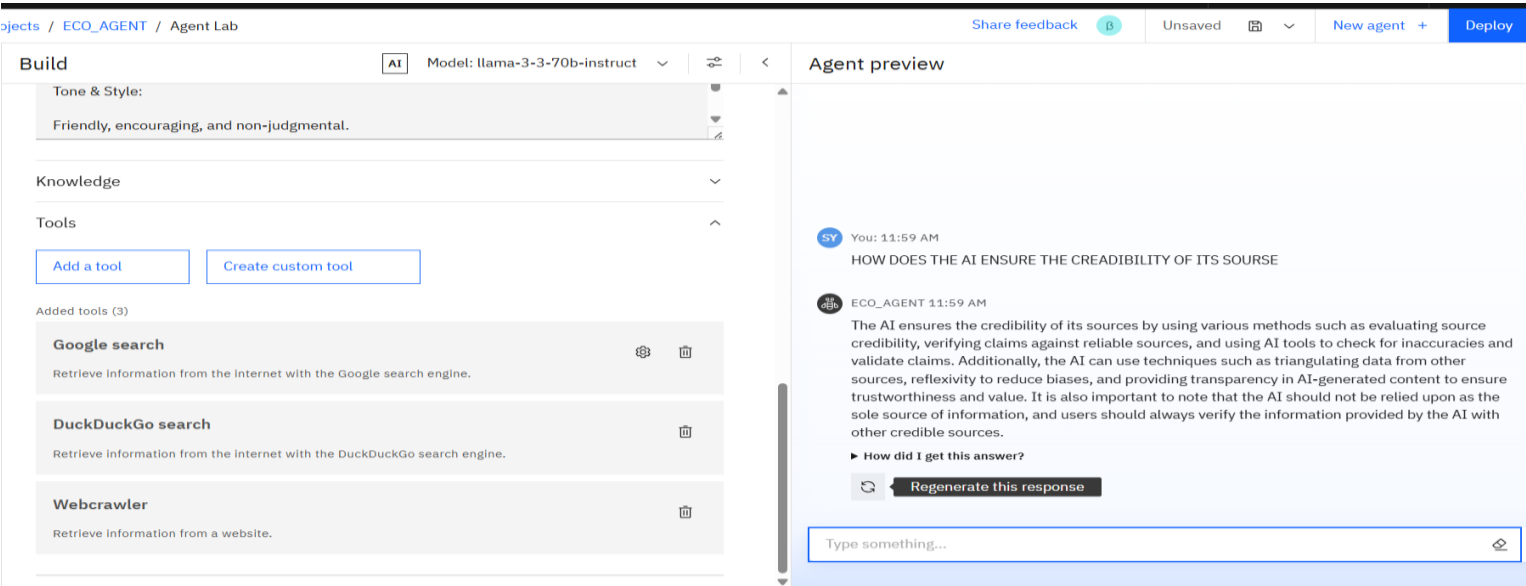
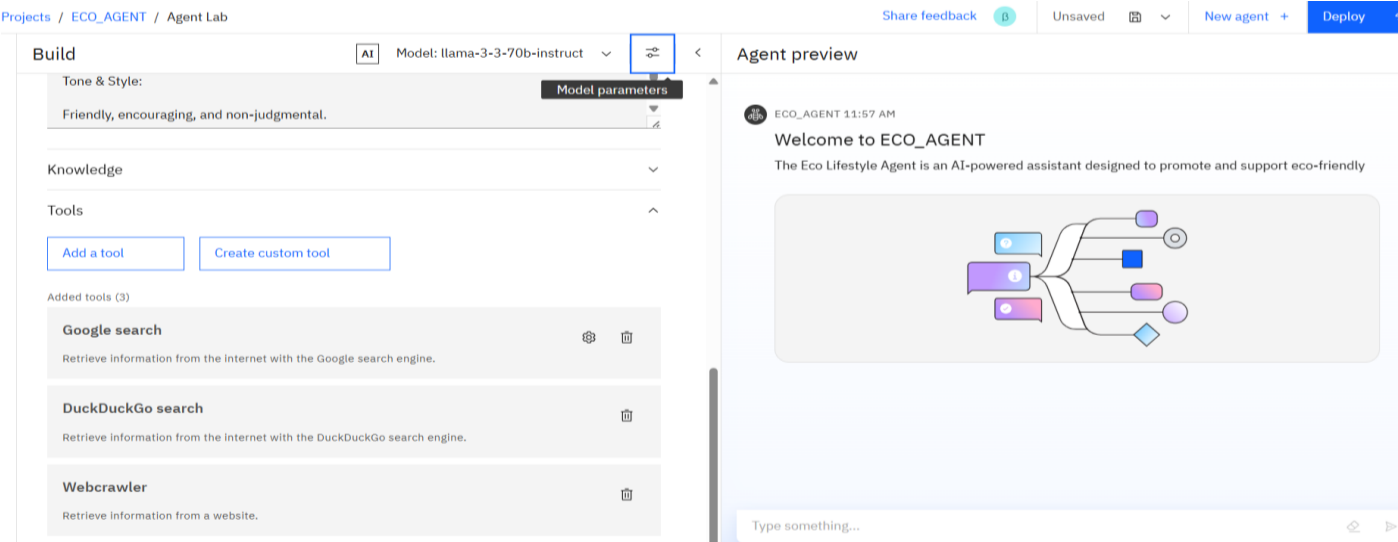
- Uses **Retrieval-Augmented Generation (RAG)** to pull live, trustworthy data from government portals, eco-blogs, and NGO databases.
- Offers **personalized suggestions** based on user lifestyle, preferences, and local resources.
- Can adapt to **urban and rural settings**, making sustainability accessible for everyone.
- Delivers **daily eco-tips** and reminders to build long-term habits effortlessly.
- Maintains a **non-judgmental, empathetic tone**, encouraging users rather than criticizing them.
- Helps users make **eco-conscious shopping decisions** by comparing green alternatives.
- Enables **goal tracking** for users to measure their sustainability progress (e.g., plastic saved, energy reduced).
- Capable of **multilingual interaction** to support inclusivity and wider adoption across diverse regions.
- Easily scalable to integrate into **school systems, smart cities, or community programs**.
- Provides **offline support** for storing basic local eco-guides and tips in areas with low connectivity.

END USERS

- Eco-conscious individuals
- Urban and rural households seeking sustainable practices
- Students and environmental clubs
- NGOs and green businesses
- Local governments promoting recycling or energy conservation

RESULTS

Interface of ECO_AGENT



RESULTS

Share feedback



Unsaved



New agent +

Deploy

Agent preview



You: 12:01 PM

WHAT ARE THE KEY COMPONENTS OF THE SYSTEM ARCHITECTURE ON IBM CLOUD LITE



ECO_AGENT 12:01 PM

The key components of the system architecture on IBM Cloud Lite include:

1. IBM Cloud Pak for Data: A platform built with data fabric architecture that enables faster prediction of outcomes.
2. IBM Watsonx: A cloud infrastructure that provides software, hardware, and services for critical and operational workloads and data.
3. Blue Cloud Mirror Architecture: A set of diagrams that provide an overview of the key components of the IBM Cloud architecture.
4. SAP HANA on IBM Power Systems Virtual Servers: A hybrid cloud solution that provides access to over 40 services, including IBM Watson APIs.
5. Object Storage Solutions: Such as Amazon S3, IBM Cloud Object Storage, and Google Cloud Storage, which provide scalable and hybrid environment solutions.
6. Red Hat OpenShift V4.X and IBM Cloud Pak: A solution that provides a clear architecture with principle components that are important to understand.
7. Qiskit: A library that is the core component of the IBM Quantum platform, which provides modular software components that plug into a workflow to scale or design new quantum algorithms.

Type something...



Query about
components of
The system
architecture on
IBM cloud life

Share feedback



Unsaved



New agent +

Deploy



Agent preview

1. IBM Cloud Pak for Data: A platform built with data fabric architecture that enables faster prediction of outcomes.
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4. SAP HANA on IBM Power Systems Virtual Servers: A hybrid cloud solution that provides access to over 40 services, including IBM Watson APIs.
5. Object Storage Solutions: Such as Amazon S3, IBM Cloud Object Storage, and Google Cloud Storage, which provide scalable and hybrid environment solutions.
6. Red Hat OpenShift V4.X and IBM Cloud Pak: A solution that provides a clear architecture with principle components that are important to understand.
7. Qiskit: A library that is the core component of the IBM Quantum platform, which provides modular software components that plug into a workflow to scale or design new quantum algorithms.

These components work together to provide a comprehensive system architecture on IBM Cloud Lite that enables users to build, deploy, and manage applications and services in a scalable and secure manner.

► How did I get this answer?



Type something...



RESULTS

The user input interface

The screenshot displays the IBM watsonx user interface. At the top, a navigation bar includes the 'IBM watsonx' logo, an 'Upgrade' button, and user account information for 'Shreya Yadav's Account' in 'Dallas'. Below this, a breadcrumb trail shows 'Deployment spaces / ECOLIFESTYLE / ECO_AGENT'. The main content area is titled 'ECO_AGENT' with a green 'Deployed' status and an 'Online' badge. It features four tabs: 'API reference', 'Test', 'Evaluations', and 'Preview', with the 'Preview' tab currently selected. The preview area shows a chat interface where the agent has sent a welcome message: 'Welcome to ECO_AGENT' followed by 'The Eco Lifestyle Agent is an AI-powered assistant designed to promote and support eco-friendly'. Below the message is a large, light-gray rectangular area containing a colorful, abstract graphic of various shapes. At the bottom of the chat area is a text input field with the placeholder 'Type something...' and a send button. On the right side of the interface, a sidebar titled 'About this deployment' provides detailed information about the agent, including its name, description, deployment details (ID, serving name, software and hardware specifications), tags, and associated asset.

IBM watsonx Upgrade ? Shreya Yadav's Account Dallas SY

Deployment spaces / ECOLIFESTYLE / ECO_AGENT /

ECO_AGENT ✓ Deployed Online

API reference Test Evaluations **Preview**

New chat +

ECO_AGENT 12:08 PM

Welcome to ECO_AGENT

The Eco Lifestyle Agent is an AI-powered assistant designed to promote and support eco-friendly

Type something...

About this deployment

Name
ECO_AGENT

Description
The Eco Lifestyle Agent is an AI-powered assistant designed to promote and support eco-friendly

Deployment Details

Deployment ID: c616b7fa-1b40-46...

Serving name:
No serving name.

Software specification:
runtime-24.1-py3.11

Hardware specification:
Extra extra small: 1 CPU and 2 GB RAM

Copies:
1

Tags
wx-agent

Associated asset
ECO_AGENT
470141ae-e08a-44a4-b265-70b952fbbac4

RESULTS

The screenshot displays the IBM Watsonx interface for the **ECO_AGENT** deployment. The top navigation bar includes the IBM Watsonx logo, an 'Upgrade' button, and user account information for 'Shreya Yadav's Account'. The breadcrumb trail shows the path: **Deployment spaces / ECOLIFESTYLE / ECO_AGENT /**. The main content area is titled **ECO_AGENT** and indicates it is 'Deployed' and 'Online'. Below this, there are tabs for 'API reference', 'Test', 'Evaluations', and 'Preview', with 'Preview' currently selected. A 'New chat +' button is visible on the right. The chat interface shows a user query at 12:09 PM: 'HOW TO DISPOSE PLASTIC'. The agent's response, also at 12:09 PM, provides a detailed answer: 'To properly dispose of plastic waste, it's essential to follow the guidelines set by your local waste management authorities. Here are some steps you can take: 1. Check with your local government to see what types of plastic are accepted in your curbside recycling program. 2. Rinse and sort plastic containers, such as bottles, jugs, and tubs, and place them in the recycling bin. 3. Take plastic bags, wrap, and packaging materials to a local grocery store or recycling center for proper disposal. 4. Participate in community recycling programs or drop-off events for hard-to-recycle plastics like Styrofoam, plastics #3-7, and plastic film. 5. Consider composting organic waste to reduce the amount of plastic waste generated. 6. Avoid littering or throwing plastic waste in the trash, as it can end up in landfills or oceans.' A text input field at the bottom prompts the user to 'Type something...'. On the right side, an 'About this deployment' sidebar is open, showing details for the **ECO_AGENT** deployment, including its ID, serving name, software specification (runtime-24.1-py3.11), hardware specification (1 CPU and 2 GB RAM), and associated asset.

IBM Watsonx Upgrade Shreya Yadav's Account Datas

Deployment spaces / ECOLIFESTYLE / ECO_AGENT /

ECO_AGENT Deployed Online

API reference Test Evaluations **Preview**

New chat +

S You 12:09 PM
HOW TO DISPOSE PLASTIC

ECO_AGENT 12:09 PM
To properly dispose of plastic waste, it's essential to follow the guidelines set by your local waste management authorities. Here are some steps you can take:

1. Check with your local government to see what types of plastic are accepted in your curbside recycling program.
2. Rinse and sort plastic containers, such as bottles, jugs, and tubs, and place them in the recycling bin.
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5. Consider composting organic waste to reduce the amount of plastic waste generated.
6. Avoid littering or throwing plastic waste in the trash, as it can end up in landfills or oceans.

Type something...

About this deployment

Name
ECO_AGENT

Description
The Eco Lifestyle Agent is an AI-powered assistant designed to promote and support eco-friendly

Deployment Details
Deployment ID: c616b7fa-1b40-46...
Serving name: No serving name.
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Tags
wx-agent

Associated asset
ECO_AGENT
470141ae-e08a-44a4-b265-70b952fbbac4

Interface asking
“How can I reduce
plastic at home?”

CONCLUSION

- The Eco Lifestyle Agent is a powerful step toward making sustainability practical, personal, and accessible for everyone.
- By leveraging IBM Granite and RAG on IBM Cloud Lite, it transforms complex environmental data into simple, actionable guidance.
- its friendly tone, real-time information, and personalized support, the agent empowers users to make small choices that lead to big environmental impact—paving the way for a smarter, greener, and more responsible future.

GITHUB LINK

https://github.com/Shreyayadav111/ECO_AGENT.git

FUTURE SCOPE

- Voice-based assistant for low-literacy or elderly users
- Smart home & wearable integration
- Carbon footprint tracker
- Eco-point gamification and rewards system
- Partnership with local NGOs and recycling units
- Expansion to multilingual and rural-friendly versions

IBM CERTIFICATIONS



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Shreya Yadav

for the completion of

Earn it! Accept it! Share it! | IBM SkillsBuild

(URL-CC7432BB7A8A)

As indicated by this learner

Completion date: 17 Jul 2025 (GMT)

Learning hours: 4 hrs 2 mins



THANK YOU