

SMART WASTE BOT

a user-friendly AI powered chat assistant with expertise in circular design & waste management

Designed to provide guidance on domestic waste disposal and offer recommendations for community waste management. This presentation will highlight the key features and benefits of the Smart Waste Bot in promoting sustainable waste management practices.

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AI Hackathon Challenge
by LabLab.AI March 2024

Lead Team Member



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(for the hackathon challenge)

Newbie in AI ..from Dec 2023

GenAI/LLM Enthusiast; Social Entrepreneur;

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Introduction

With its interactive and conversational interface, the Smart Waste Bot aims to simplify the complexities of waste management and make sustainable practices accessible to everyone. By bridging the gap between technology and environmental stewardship, the Smart Waste Bot serves as a valuable resource for individuals looking to minimize their environmental impact and communities striving to enhance their waste management efforts.

By engaging with the Smart Waste Bot, users can access expert advice, practical tips, and strategies to reduce waste, promote recycling, and create a more environmentally conscious society.

Key Features and Benefits

1. **Personalized Guidance:** The Smart Waste Bot offers personalized guidance on domestic waste disposal, tailored to the specific needs and preferences of individual users. This ensures that users receive relevant and customized recommendations for managing their household waste effectively.
2. **Real-Time Assistance:** Users can interact with the Smart Waste Bot in real time to ask questions, seek advice, and receive instant assistance on waste management queries. This feature enhances user engagement and ensures quick access to accurate information.
3. **Environmental Sustainability:** The Smart Waste Bot promotes environmental sustainability by encouraging users to adopt eco-friendly waste disposal practices, reduce waste generation, and increase recycling rates. By fostering a culture of environmental consciousness, the tool contributes to a cleaner and greener planet.

Extra Features and Benefits

Community Recommendations & Engagement: In addition to household waste disposal guidance, the Smart Waste Bot provides strategic recommendations for community waste management initiatives. By offering insights into collective waste management practices, the tool empowers communities to work together towards sustainable waste solutions.

Easy Accessibility: The Smart Waste Bot is easily accessible through various digital platforms, allowing users to engage with the tool conveniently from their smartphones, computers, or other devices. The user-friendly interface makes it simple for individuals and communities to navigate and utilize the features of the chat app.

Educational Resource: As a knowledge hub in waste management areas, the Smart Waste Bot serves as an educational resource for users seeking to enhance their understanding of sustainable waste management practices. Through informative content and practical tips, the tool empowers users to make informed decisions about waste disposal.

Brief Tech Overview

The bot is fine-tuned on several prompt engineering datasets, including conversational datasets and question-answering datasets.

The bot was evaluated for toxicity, truthfulness, and bias. The results showed that the model had relatively low truthfulness percentages for pre-trained models, but this percentage increased after instruction fine-tuning.

The bot model have been evaluated on a human evaluation task that measures the helpfulness of the model's responses

```

mainChat.py > ...
45     """<div class="pixel-font">: Smart Waste Bot :</div>
46     """
47     unsafe_allow_html=True,
48 )
49 st.markdown("##### Interactive Chat - by SuperNova *Paul*")
50 #st.text("Interactive Chat - by SuperNova Paul")
51 st.header(" :wastebasket: Your 24/7 Assistant on Circular Design :recycle: ")
52 st.markdown("##### Please type in the Input Field at the bottom any Queries related to Domestic Waste Disposal Guidance and Community Waste Management Recommendations!")
53
54
55 # Set OpenAI API key from Streamlit secrets
56 client = OpenAI(api_key=st.secrets["OPENAI_API_KEY"])
57
58 # Set a default model
59 if "openai_model" not in st.session_state:
60     st.session_state["openai_model"] = "gpt-3.5-turbo-0125"
61
62
63 # Initialize chat history
64 if "messages" not in st.session_state:
65     st.session_state.messages = []
66

```

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL PORTS

(base) universepaul@PAULs-16MacBook-Pro Smart-ChatBot-Paul % streamlit run mainChat.py
 2024-03-07 13:57:23.555 "theme.gatherUsageStats" is not a valid config option. If you previously had this config option set, it may h

OPENAI_API_KEY Aa ab .* 4 of 4 ↑ ↓ ×

You can now view your Streamlit app in your browser.

Local URL: <http://localhost:8501>
 Network URL: <http://192.168.1.2:8501>

For better performance, install the Watchdog module:

```

$ xcode-select --install
$ pip install watchdog

```

2024-03-07 13:57:27.843 Uncaught app exception

Traceback (most recent call last):

```

File "/opt/homebrew/lib/python3.11/site-packages/streamlit/runtime/scriptrunner/script_runner.py", line 535, in _run_script
    exec(code, module.__dict__)

```

```

File "/Users/universepaul/PlayPYTHON/WasteBot/Smart-ChatBot-Paul/mainChat.py", line 86, in <module>
    stream = client.chat.completions.create(

```

```

File "/opt/homebrew/lib/python3.11/site-packages/openai/_utils/_utils.py", line 275, in wrapper
    return func(*args, **kwargs)

```


```

File "/opt/homebrew/lib/python3.11/site-packages/openai/resources/chat/completions.py", line 663, in create
    return self._post(

```

Your 24/7 Assistant on Circular Design

Please type in the Input Field at the bottom any Queries related to Domestic Waste Disposal Guidance and Community Waste Management Recommendations!


 Excellento! Muy Bien! what about "Ami tomake Bhalobasi" ?

 That means "I love you" in Bengali. It's a sweet and romantic phrase to express your feelings to someone special.

 Namaskar!

 Namaskar! That means "hello" in Hindi. It is a respectful and traditional way of greeting someone in India.

 Namaste!

 Namaste! That is another common greeting in India, particularly in Hindi and Nepali-speaking regions. It is a respectful way of welcoming someone and showing gratitude.

 Hajimemashite!

 Hajimemashite! That means "Nice to meet you" in Japanese. It is often used when meeting someone for the first time. It's a polite and friendly way to introduce yourself.

 You:

What you say this in URDU? How to greet in Urdu?

 Your Waste Bot:

In Urdu, you can greet someone by saying "Assalamu Alaikum" (السلام عليكم) which means "Peace be upon you". It is a common greeting in Urdu-speaking countries and is often followed by the response "Wa Alaikum Assalam" (وعلیکم السلام), meaning "And peace be upon you too".

Give me some tips for Recycling Recommender System?



Thank you! I specialize in providing information and assistance related to smart waste management. If you have any questions or need guidance on this topic, feel free to ask and I'll do my best to help you.

You:

Yes, My Big Home generates so many waste daily with so many members including our pets. We want better utilise those in SDG goals in mind

Your Waste Bot:

That's great to hear that you are interested in utilizing waste in line with the Sustainable Development Goals (SDGs). There are many ways you can manage and repurpose waste in a sustainable manner. Here are a few suggestions:

1. **Implement a waste segregation system:** Separate your waste into different categories such as organic waste, recyclables, and non-recyclables. This will make it easier to divert waste from landfills and increase recycling rates.
2. **Composting organic waste:** Start a composting system to convert organic waste, including kitchen scraps and yard waste, into nutrient-rich compost for your garden or plants.
3. **Recycling programs:** Encourage recycling of

Give me some tips for Recycling Recommender



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2. **Composting organic waste:** Start a composting system to convert organic waste, including kitchen scraps and yard waste, into nutrient-rich compost for your garden or plants.
3. **Recycling programs:** Encourage recycling of materials such as paper, plastic, glass, and metal. Set up recycling bins in your home for easy sorting and collection.
4. **Reduce single-use plastics:** Minimize the use of disposable items like plastic bags, straws, and bottles. Opt for reusable alternatives to reduce waste generation.
5. **Donate or repurpose items:** Instead of throwing away items that are still in usable condition, consider donating them to local charities or repurposing them for other purposes.

By implementing these practices, you can reduce waste generation, promote recycling, and contribute to the SDGs related to sustainable consumption and production, climate action, and responsible consumption and production. If you need more specific guidance or resources on any of these topics, feel free to ask!

Give me some tips for Recycling Recommender System?



Use Cases

The bot is a highly capable AI assistant that excels in complex reasoning tasks across social sustainability and circular design domains. It can be used for a wide range of applications, including but not limited to:

- Conversation Agents
- UN SDG Goals related to environment and health
- Social Education and SEL
- Social & Mental Health
- Systemic and Circular Design

Thank
You