AI-Powered Climate Awareness & Action Assistant

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1. Project Title

AI-Powered Climate Awareness & Action Assistant

2. Student Details

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Program: 1M1B – IBM SkillsBuild AI for Sustainability Virtual Internship

3. SDG Alignment

Primary SDG: SDG 13 – Climate Action

This project aligns with Sustainable Development Goal 13 by promoting awareness, education, and responsible action to combat climate change and reduce carbon emissions at an individual and community level.

4. Problem Statement

Climate change is a growing global challenge, but many students and citizens lack awareness of how their daily activities contribute to carbon emissions. Due to limited access to simple, reliable, and personalized climate information, people often fail to adopt sustainable habits.

Problem Statement Format:
How might we use AI to educate and guide individuals on climate-friendly actions so that carbon emissions can be reduced and climate awareness can improve at a community level?

5. Target Users

- College students
- Urban citizens
- Environment-conscious individuals
- Educational institutions and climate awareness groups

6. AI Solution Overview

The proposed solution is an **AI-powered Climate Awareness and Action Assistant** that functions as a conversational chatbot. The system provides users with easy-to-understand information about climate change, carbon footprints, and sustainable practices.

The AI assistant helps users by:

- Answering climate-related questions in simple language

- Suggesting eco-friendly alternatives for daily activities

- Providing actionable steps to reduce carbon emissions

- Spreading awareness about sustainable habits

This solution focuses on awareness and guidance rather than prediction or control, making it accessible and easy to adopt.

7. Role of AI in the Project

Artificial Intelligence is used to:

- Understand user queries related to climate and sustainability

- Retrieve relevant climate information

- Generate clear and responsible responses

- Support decision-making through recommendations

AI enables scalability, quick information access, and personalized guidance, which would be difficult to achieve manually.

8. Prototype / Workflow Description

A. Chatbot Prompt Workflow

System Prompt:
You are an AI Climate Awareness Assistant. Your role is to educate users about climate change, explain the impact of daily activities on the environment, and suggest simple, ethical, and practical actions to reduce carbon emissions. Use clear, non-technical language and promote responsible climate action.

User Prompt Examples:

- What is climate change?

- How can I reduce my carbon footprint?

- What are eco-friendly alternatives to plastic?

- How does saving electricity help the climate?

AI Response Logic:

1. Understand the user's climate-related query

2. Identify the intent (awareness, action, explanation)

3. Retrieve relevant climate knowledge

4. Generate a clear, actionable, and ethical response

5. Encourage sustainable behavior without forcing decisions

B. Screenshot-Style Sample Outputs

Sample Output 1
User: What are simple ways to reduce carbon footprint?

AI Assistant:
- ✔ Use public transport, cycling, or carpooling
- ✔ Switch off lights and appliances when not in use
- ✔ Reduce plastic usage and recycle waste
- ✔ Support renewable energy where possible

Sample Output 2
User: Why is climate change dangerous?

AI Assistant:
Climate change leads to rising temperatures, extreme weather events, melting glaciers, and threats to food and water security. Taking small sustainable actions today helps protect the planet for future generations.

Sample Output 3
User: How can students help fight climate change?

AI Assistant:
Students can conserve electricity, avoid single-use plastics, use public transport, spread climate awareness, and participate in environmental initiatives.

4. AI provides climate-friendly advice and recommendations
5. User gains awareness and applies sustainable actions

Sample Input and Output

Input: What are simple ways to reduce my carbon footprint?

Output:

- Use public transportation or carpool

- Reduce electricity and water usage

- Avoid single-use plastics

- Support renewable energy sources

9. Responsible AI Considerations

This project follows responsible AI principles:

- **Fairness:** The system avoids biased assumptions and provides neutral advice

- **Transparency:** Responses are explained clearly and are easy to understand

- **Ethics:** The AI is used only for awareness and positive environmental impact

- **Privacy:** No personal or sensitive user data is collected or stored

10. Expected Impact

- Increased climate change awareness among users
- Encouragement of sustainable daily habits
- Reduction in individual carbon footprints
- Contribution to long-term community-level climate action

11. Conclusion

This project demonstrates how AI can be responsibly applied to address climate challenges. By focusing on awareness, education, and simple action-oriented guidance, the AI-Powered Climate Awareness & Action Assistant serves as a practical and impactful sustainability solution aligned with SDG 13.