IBM HACKATHON PROJECT

TRAVEL AI AGENT

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OUTLINE

- **Problem Statement**

- **Technology used**

- **Wow factor**

- **End users**

- **Result**

- **Conclusion**

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PROBLEM STATEMENT

Small-scale farmers often lack timely access to accurate, localized advice about weather, soil, crops, pests, and market rates. This leads to lower yields, higher risk, and missed income opportunities.

Proposed Solution:
 An AI Agent powered by Retrieval-Augmented Generation (RAG) on IBM Cloud, providing real-time smart farming advice in local languages. The agent retrieves trusted data on weather, soil, crops, pest control, and market prices from agricultural departments, meteorological sources, and agri-tech platforms. Farmers interact in natural language (text/voice) to get personalized, actionable guidance, supporting data-driven decisions that boost productivity and income.

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TECHNOLOGY USED

- IBM Cloud Lite Services

- IBM Granite Foundation Model

- Retrieval-Augmented Generation (RAG) with NLP

- APIs for weather, soil, and market rates

- IBM Watsonx AI Studio and Runtime

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IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio

- IBM Cloud Watsonx AI Runtime

- IBM Cloud Agent Lab

- IBM Granite Foundation Model

WOW FACTORS

- Delivers real-time advice based on localized data.

- Understands local languages and dialects.

- Provides market prices (mandi rates), weather updates, soil health analysis, and crop recommendations.

- Auto-summarizes best practices and government advisories.

- Interactive: Farmers ask questions like "Which pesticide for chilli pests?" or "When to sow paddy?" and get instant, authoritative answers.

- Bridges knowledge gap for grassroots farmers and boosts community resilience.

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END USERS

- Small and Marginal Farmers

- Agricultural Extension Officers

- Farmer Producer Organizations (FPOs)

- Agri-entrepreneurs

- Rural Communities

RESULTS

- Higher crop yields and lower risk for small-scale farmers

- More data-driven, timely decisions in farming operations

- Improved income via access to real-time market rates

- Reduced dependency on informal/unreliable advice

- Increased digital literacy in rural farming communities

RESULTS
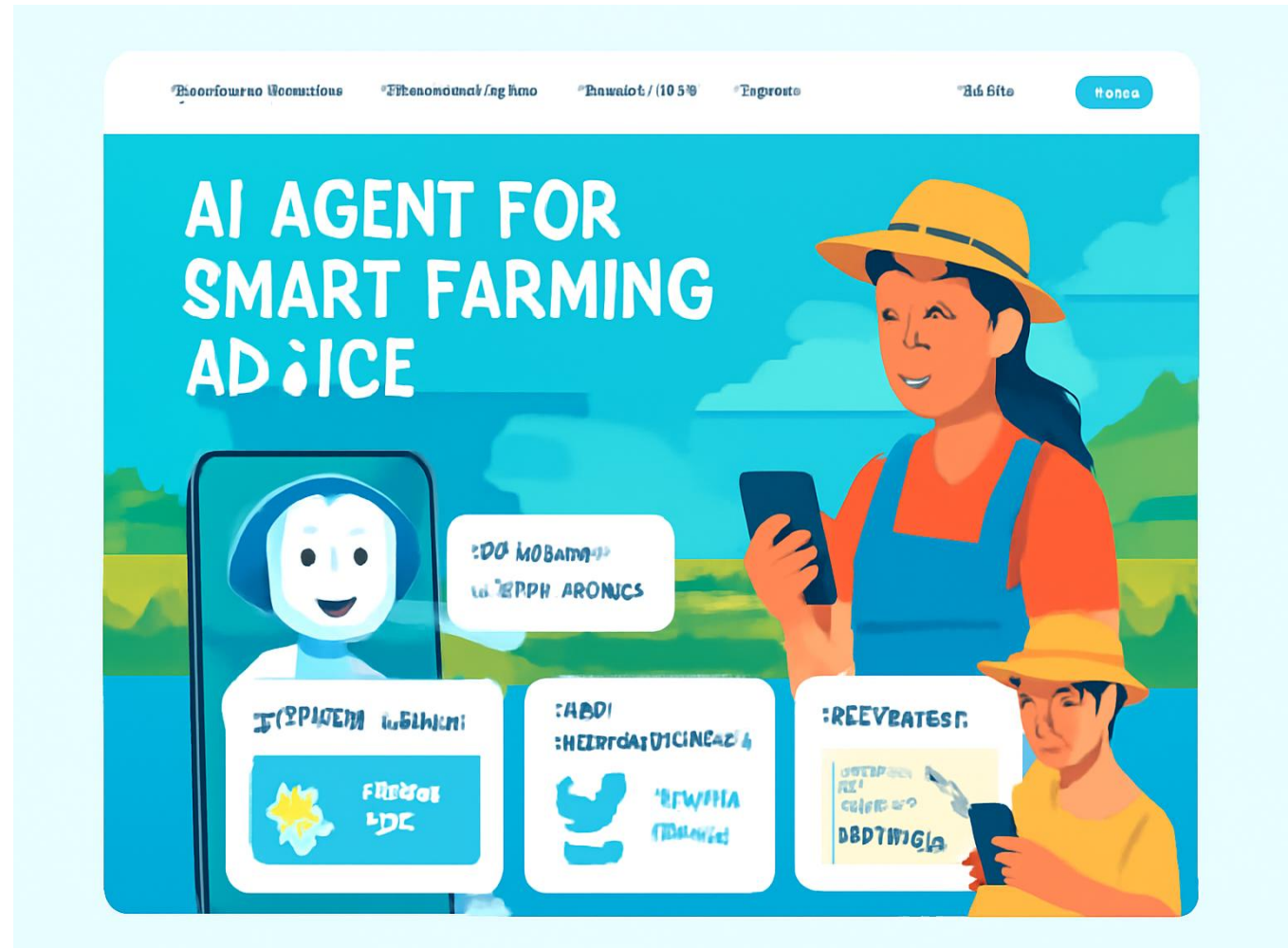
CONCLUSION

- The AI agent empowers farmers through instant, guided decisions.

- Makes expert knowledge accessible in multiple languages via SMS, WhatsApp, or voice.

- Automates repetitive queries and links directly to official resources.

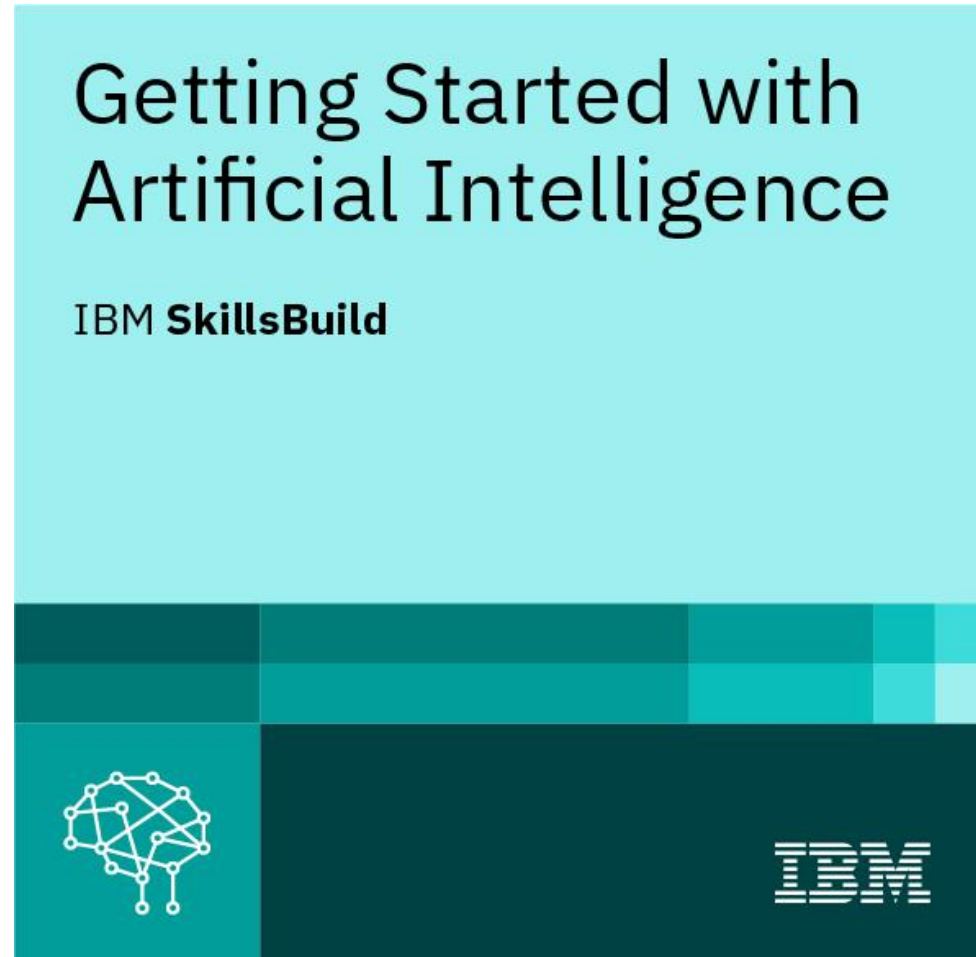- Outcome: Improved productivity, higher incomes, and sustainable practices at the grassroots.

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GITHUB LINK

- https://github.com/vallepuvamsi2003/AI-Agent-for-Smart-Farming-Advice

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FUTURE SCOPE

- Expand to cover animal husbandry and aquaculture.

- Add image-based crop/pest diagnosis using computer vision.

- Integrate real-time market demand prediction and logistics.

- Voice-based, IVR, and offline support.

- Partnership with regional agri-tech startups and platforms.

IBM CERTIFICATIONS

THANK YOU