

Multi-language Course Content Translator Agent

Presented by:

Name : Chandrasekhara Reddy Vangala

Institution: KBN College, Vijayawada

Department: MCA

Problem Statement

In India, many students struggle to understand academic materials due to language barriers.

Most course content is available only in English, limiting access for non-English-speaking learners.

There is a need for a solution that provides accurate translations of academic content into multiple Indian regional languages.

The translation must preserve technical accuracy, subject-specific meaning, and educational integrity.

Proposed System/Solution

An AI-powered translator agent that converts academic content into Indian regional languages.

Uses Retrieval-Augmented Generation (RAG) to provide accurate, context-aware translations.

Ensures subject-specific terms are retained by retrieving content from glossaries and notes.

Built with IBM Watsonx.ai, it supports inputs like PDFs, DOCX, and text from users.

System Development Approach (Technology Used)

Platform: IBM Watsonx.ai

Model: Granite-3-3-8b-instruct

RAG Support: Document Search Tool (vector index for glossary & notes)

Fallback Tools: Google Search, Wikipedia Search (optional)

LangGraph: Used for designing flow of input → retrieval → translation → output

Data Source: Uploaded glossary and academic notes (DOCX)

Workflow: User inputs content → Document Search retrieves context → Granite generates translation → Output delivered

Deployment: Manual testing via Watsonx UI preview panel; public links unsupported in Lite plan

Result (Output Image)

The screenshot displays the IBM watsonx Agent interface. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, the user name 'CHANDRASEKHARA REDD...', and the location 'Dallas'. Below this, the breadcrumb trail shows 'Projects / Multi-language Course Content Translator Agent / watsonx Agent', along with a 'Share feedback' link, an 'Autosaved 10:51 AM' status, and buttons for 'New agent +' and 'Deploy'.

The main interface is split into two panels. The left panel, titled 'Build', contains a sidebar with icons for a list and a person. The main area of this panel has sections for 'Setup', 'Configuration', 'Knowledge', and 'Tools'. Under 'Knowledge', a 'Vector Index' section shows 'Academic_Notes_for_Translation' selected. A description states: 'A vector index searches documents for relevant information to ground the model. Upload the files to index or select an existing index.' The 'Tools' section has buttons for 'Add a tool' and 'Create custom tool'. Below, 'Added tools (3)' lists 'Google search' (with a description: 'Retrieve information from the internet with the Google search engine.') and 'Wikipedia search'. The right panel, titled 'Agent preview', shows a chat window. The header says 'watsonx Agent 10:51 AM' and 'Welcome to watsonx Agent'. Below this is a placeholder image with a magnifying glass icon and the text 'Change this description to reflect your particular agent'. At the bottom is a text input field with the placeholder 'Type something...' and a send button.

Deployment

IBM watsonx

Upgrade ? 🔔



CHANDRASEKHARA REDD... ▾ Dallas ▾ CV

Deployment spaces /

Multi-language Course Content Translator Agent


Overview Assets **Deployments** Jobs Manage





🔍 Search







| Name | Type | Status | Asset | Asset type | Tags | Last modified | ⌵ |
|---|--------|--|---------------|------------|-------------------------|--|---|
|  watsonx Agent | Online |  Deployed | watsonx Agent | AI service | wx-agent ✎ | 20 minutes ago CHANDRASEKHARA REDDY VANGALA (You) | ⋮ |



Items per page: 20 ▾ 1-1 of 1 items 1 of 1 pages ⏪ ⏩

Final Out Put

 IBM watsonx


Upgrade ?  CHANDRASEKHARA REDD...  Dallas  CV 


Deployment spaces / Multi-language Course Content Translator Agent / watsonx Agent /      

watsonx Agent  Deployed  Online


API reference Test **Preview**

New chat +

 You 12:35 PM
"Translate this concept into Telugu using the uploaded document"

 watsonx Agent 12:35 PM
I'm sorry for the confusion, but I don't have access to an "uploaded document". However, I can translate the given English terms into Telugu based on the provided glossary:

1. Photosynthesis - కీరణజనక సంశ్లేషణ
2. Gravity - గురుత్వాకర్షణ
3. Equation - సమీకరణ
4. Atom - అణువు
5. Energy - శక్తి
6. Molecule - అణుసమూహం
7. Temperature - ఉష్ణోగ్రత

Type something... 

Conclusion

The system successfully bridges language barriers in academic learning. Translations retain technical accuracy using glossary-driven RAG. Easy to test, modular to expand, and built on IBM's no-code AI platform. Enables equitable learning environments for students across India.

Future Scope

Add support for more Indian languages (Kannada, Punjabi, Gujarati).

Enable full file upload and parsing within the agent UI (available in paid plans).

Build a public-facing web or mobile app for broader reach.

Integrate curriculum-specific glossaries for CBSE and state boards.

Include voice input/output for accessibility.

References

IBM Watsonx.ai Documentation

IBM Granite LLMs

LangGraph Builder

Academic Glossary Resources (NCERT, CBSE)

Project Files & Sample Notes by Author

<https://github.com/Chandu-AB/Multi-language-Course-Content-Translator-Agent>

Getting Started With AI

In recognition of the commitment to achieve
professional excellence



Chandrasekhara Reddy Vangala

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 16, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/316b1e83-b198-4b32-a734-13995cb63644>



Journey to Cloud

In recognition of the commitment to achieve
professional excellence



Chandrasekhara Reddy Vangala

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



Issued on: Jul 20, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/3b1a4be6-5b75-4096-80b4-f687b2181d60>



RAG LAB

7/24/25, 3:28 PM

Completion Certificate | SkillsBuild

IBM SkillsBuild

Completion Certificate



This certificate is presented to

CHANDRASEKHARA REDDY VANGALA

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

Thank you for your attention!