
CAPSTONE PROJECT

PMGSY INTELLIGENT CLASSIFICATION

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OUTLINE

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PROBLEM STATEMENT

The Pradhan Mantri Gram Sadak Yojana (PMGSY) is a flagship rural development program in India, aimed at providing all-weather road connectivity to unconnected rural habitations. Over time, PMGSY evolved into multiple schemes (PMGSY-I, PMGSY-II, RCPLWEA, etc.) with different objectives and funding mechanisms.

Manually classifying projects into their correct scheme is time-consuming, error-prone, and not scalable.

Proposed Solution: An AI-based system to automatically classify road/bridge projects into the correct PMGSY scheme based on physical and financial features using IBM Cloud Lite services.

TECHNOLOGY USED

- Flask (Web Interface for Predictions)
- **IBM Cloud Lite Services**
- Python
- Pandas, NumPy (Data Preprocessing)
- Scikit-learn (Machine Learning)
- IBM AutoAI (Automated Model Building & Deployment)

IBM CLOUD SERVICES USED

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

WOW FACTORS

- Fully automated **classification** of PMGSY projects with high accuracy
- **User-friendly web interface** for real-time predictions
- **Deployed on IBM Cloud** with an accessible API endpoint
- Eliminates manual classification errors
- Supports policy makers and planners with faster decision-making

END USERS

- Ministry of Rural Development
- State Government Departments
- Infrastructure Planners
- Policy Analysts
- Data Science Teams in Government Projects

RESULTS

The screenshot shows the IBM Watson AI Studio interface for a deployment named 'PMGSY_API'. The deployment is in a 'Deployed' state and is 'Online'. The 'Test' tab is active, showing an 'Enter input data' section. This section has two tabs: 'Text' and 'JSON'. The 'Text' tab is selected, and it contains a text area for manual input and a 'Download CSV template' link. Below the text area is a table with 5 rows and 6 columns. The columns are labeled: 'NO_OF_ROAD_WORK_SANCTIONED (double)', 'LENGTH_OF_ROAD_WORK_SANCTIONED (double)', 'NO_OF_BRIDGES_SANCTIONED (double)', 'COST_OF_WORKS_SANCTIONED (double)', and 'NO_OF...'. The first row contains the values 5, 25, 1, and 1. A 'Predict' button is located at the bottom right of the table.

Deployment spaces / project_deployment / PMGSY_Best_Model /

PMGSY_API Deployed Online

API reference **Test**

Enter input data

Text JSON

Enter data manually or use a CSV file to populate the spreadsheet. Max file size is 50 MB.

[Download CSV template](#) [Browse local files](#) [Search in space](#) [Clear all](#)

	NO_OF_ROAD_WORK_SANCTIONED (double)	LENGTH_OF_ROAD_WORK_SANCTIONED (double)	NO_OF_BRIDGES_SANCTIONED (double)	COST_OF_WORKS_SANCTIONED (double)	NO_OF...
1	5	25	1	1	
2					
3					
4					
5					

1 row, 743 columns

Predict

RESULTS

127.0.0.1:5000

gate syllabus GATE sheet.xlsx - Mi... Computer Science.p... linkedin GATE AT ZEAL NOTE...

PMGSY Scheme Prediction

5
25.5
1
15.75
3
18.5
0
10.2
2
7.0
0.05

RESULTS

project_deployment

OverviewAssetsDeploymentsJobsManage

Search

Name	Type	Status	Asset	Asset type	Tags	Last modified	↓	
<div><div></div><div>PMGSY_API</div></div>	Online	<div><div></div><div>Deployed</div></div>	PMGSY_Best_Model	Model		4 hours ago Akshat Raj Pathak (You)		<div></div>

Items per page: 20

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1 of 1 pages

CONCLUSION

- **Accuracy:** ~86
- Fully deployed on **IBM Cloud** as a public API endpoint
- Simple form interface built using **Flask** for predictions
- Reduced manual classification time drastically

FUTURE SCOPE

- Integrate **Geospatial Data (GIS)** for more accurate classification
- Add **real-time data entry** from field engineers
- Deploy as a **mobile app** for on-site classification
- Integrate with Government dashboards for **policy analysis**

IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Akshat Raj Pathak

for the completion of

Getting Started with Artificial Intelligence

(PLAN-E624C2604060)

According to the Your Learning Builder - Plans system of record

Completion date: 17 Jul 2025 (GMT)

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

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for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 17 Jul 2025 (GMT)

Learning hours: 20 mins

GITHUB LINK

- <https://github.com/akshatrajpathak/PMGSY>

THANK YOU