Hack For Green Bharat Hackathon Problem Statement document

About Pathway :

Pathway is a Palo Alto–based AI company building **LiveAI™ systems** that process and adapt to data in real time, unifying batch and streaming workflows through a Python-native framework powered by a high-performance Rust engine. Founded around 2020 and backed by Łukasz Kaiser (co-creator of Transformers), Pathway is led by CEO Zuzanna Stamirowska, CTO Jan Chorowski, and CSO Adrian Kosowski. Its platform offers 300+ connectors, real-time retrieval-augmented generation (RAG) pipelines, and built-in vector/full-text search, enabling dynamic AI assistants, analytics, and document processing without separate vector databases. Trusted by organizations like NATO, Intel, DB Schenker, and Formula 1 teams, Pathway has been recognized as a leader in next-gen generative AI infrastructure.

In this **Hack For Green Bharat hackathon**, you'll build the projects using pathway framework.

Pathway is recently known for inventing BDH Architecture – a post-transformer LLM architecture that enables generalization, real-time learning in LLMs, and interpretability (unlike other black-box LLMs).

However, be mindful that your focus for this hackathon is on the Pathway framework. The Pathway framework, when used for RAG/Argentic use cases, maintains a live hybrid index that updates the instant a file changes. You can use it to connect 300+ data sources, for pre-processing and post processing if bandwidth permits during the hackathon, for its MCP server, or simply for live vector and BM25 indexes that always stay up to date.

Resources:

BDH Architecture : https://github.com/pathwaycom/bdh
Pathway Developer Documentation : Welcome | Pathway
Pathway YAML templates : Pathway Templates:
Community Showcase projects : Blog | Pathway
Pathway Github Repo : Pathway · GitHub

Project Pathway Track Eligibility (Important)

Allowed Tracks (Pathway Compatible)

Track	Allowed	Notes
AI / Machine Learning	✓ Yes	Real-time AI, RAG, agents, streaming ML
Sustainability	✓ Yes	Live monitoring, optimization, alerts
Climate & Environment	✓ Yes	Weather, pollution, climate data streaming
FinTech	✓ Yes	Fraud detection, spend analysis, risk
Healthcare	✓ Yes	Simulated / anonymized real-time data
Logistics & Supply Chain	✓ Yes	ETA prediction, tracking, optimization
Manufacturing / Industry 4.0	✓ Yes	Predictive maintenance, automation
Cyber security & System Monitoring	✓ Yes	Logs, anomaly detection, alerts

Tracks Not Suitable for Pathway

1. Static Web Development
2. UI / Frontend-Only Applications
3. Mobile Apps with No Real-Time Data Processing
4. Offline Machine Learning Model Training Only
5. Pure Blockchain / Smart Contract Development (On-Chain Only)
6. Game Development
7. AR / VR Projects without Real-Time AI or Data Streaming
8. Simple CRUD Applications
9. Design-Only or No-Code Projects
10. Projects without Live or Continuously Updating Data

📌 Mandatory Note (optional to include)

Pathway must be used as the real-time data ingestion, streaming processing, and AI reasoning layer in all tracks.

Some Project ideas using pathway framework

- Real-Time Document Q&A; (Live RAG)
- Live News / Content Summarizer
- Simulated Event Monitoring Dashboard
- Real-Time Financial Spend Analyzer
- Live Stock / Crypto Market Intelligence
- Streaming Log Analysis & Anomaly Detection
- Smart Logistics & ETA Prediction System
- Predictive Maintenance + Technician Assistant
- Multi-Source Real-Time AI Agent

Important Note : This hackathon focuses on building real-time AI systems using Pathway. Projects must ingest live or simulated streams, process them continuously, and update outputs automatically.

One-line rule: If your system does not update automatically when new data arrives, it is not a Pathway project.

ALL THE BEST TO ALL HARDWORKING PARTICIPAINTS

Best Regards,
TEAM HACK FOR GREEN BHARAT