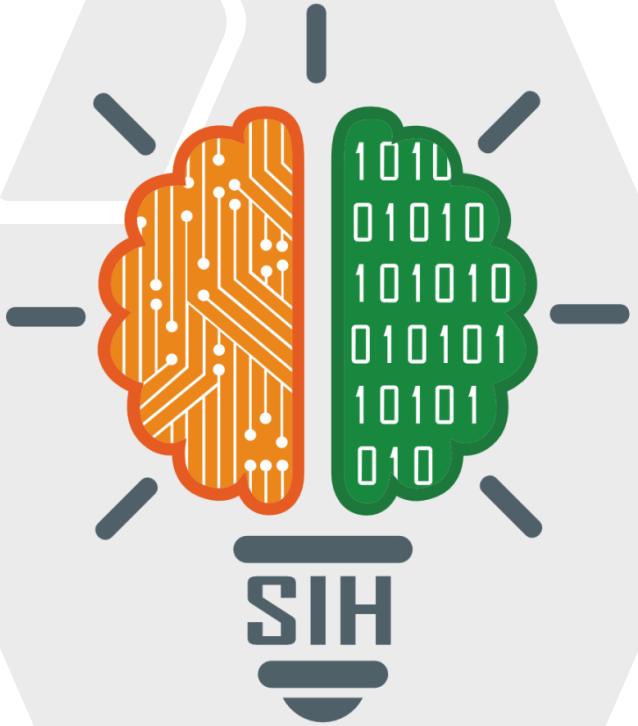
SMART INDIA HACKATHON 2025

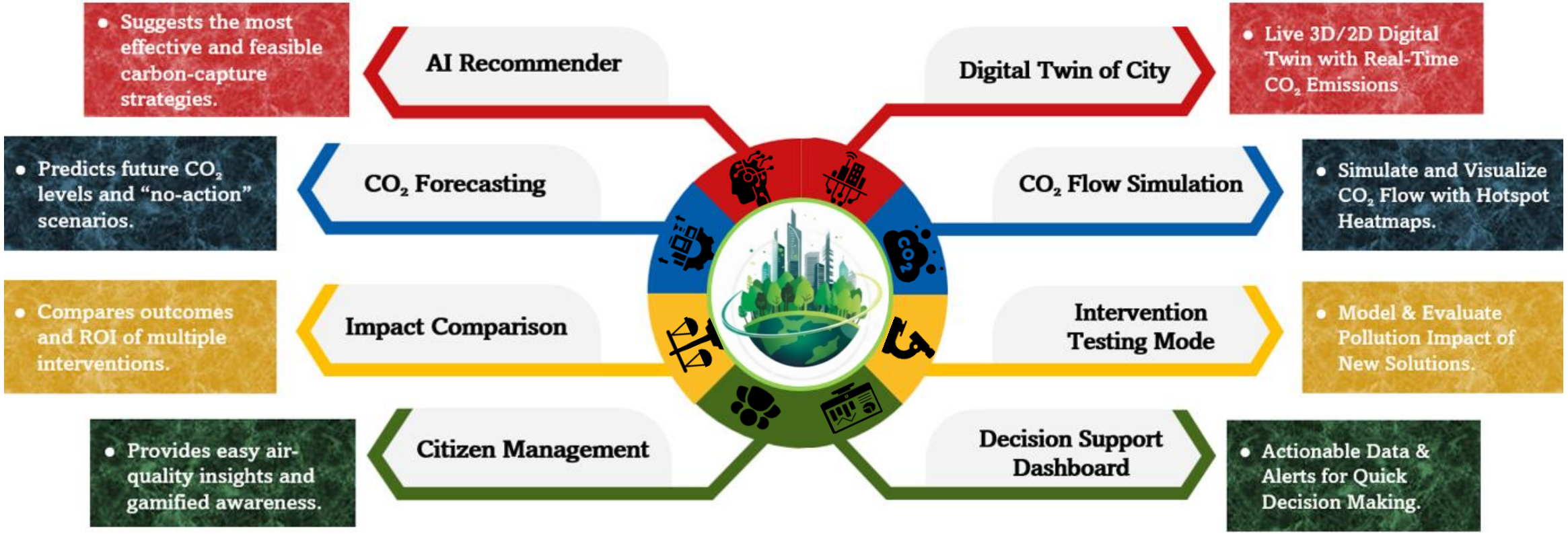
Digital Twin for CO_2 Capture in Urban Settings

- **Problem Statement ID -** SIH25222
- **Problem Statement Title -** Digital Twin for CO_2 Capture in Urban Settings
- **Theme -** Clean & Green Technology
- **PS Category -** Software
- **Team ID -** 67595
- **Team Name (Registered on portal) -** MindSpire

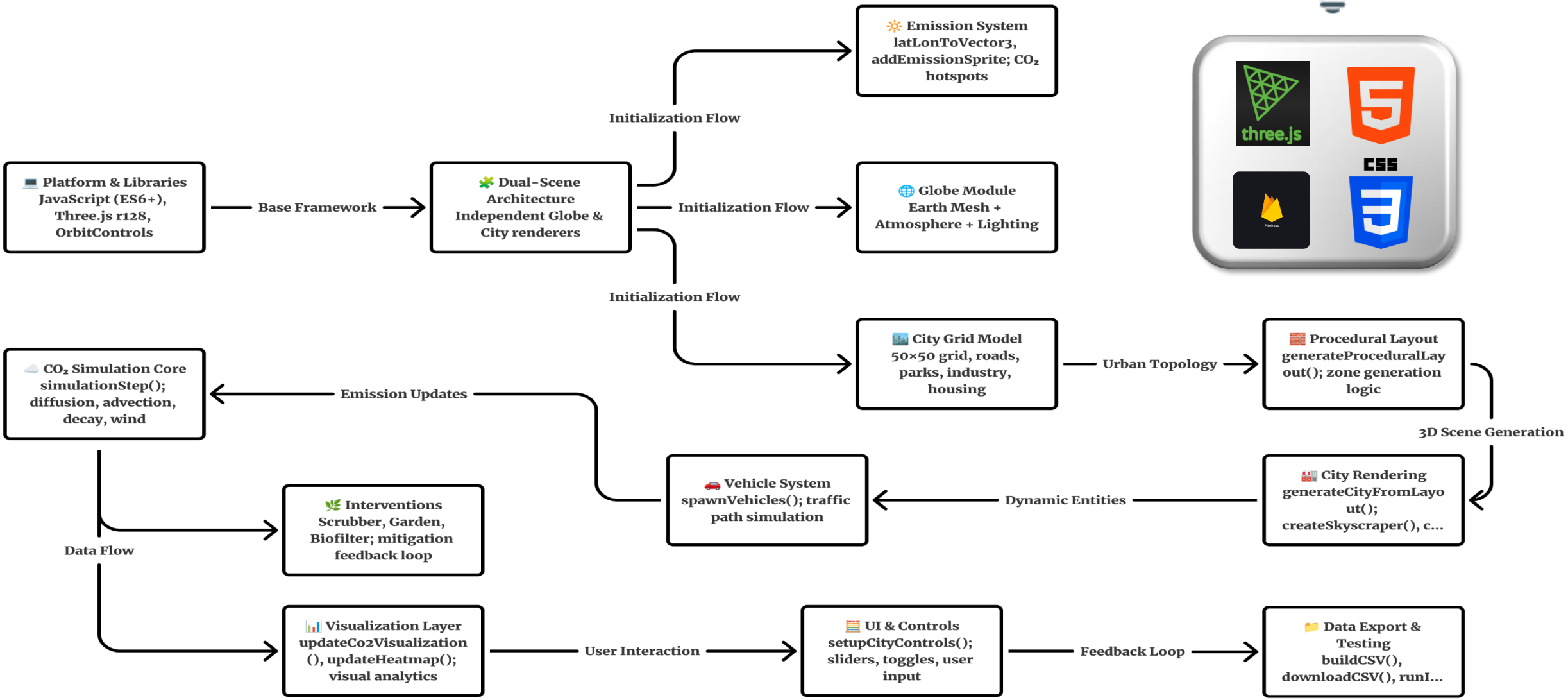


DHARA :
CO2 Capture Optimization Platform

Dhara is an advanced digital twin platform that simulates CO_2 emissions, forecasts trends, tests innovative carbon-capture solutions, compares outcomes, and delivers AI-driven, cost-effective insights for sustainable urban planning and citizen engagement.



TECHNICAL APPROACH



FEASIBILITY AND VIABILITY

~ *Feasibility* ~

→. Tech: Builds AI digital twin using existing APIs, IoT-ready.

→. Resource: Fast, low-cost prototyping with open data & cloud.

→. Implementation: "Start small, expand fast" within a short timeframe.

~ *Viability* ~

→. Economic: Helps cities test projects virtually, saving major funds.

→. Environmental: Reduces CO_2 emissions, smarter urban planning

→. Social: Boosts citizen engagement, Gamification, healthier communities.

Open data often inconsistent, Ensuring precise CO_2 models, Tackling government hurdles, Sustaining citizen interest.

Challenges

Start with open data, add IoT for accuracy, Use models, enhance with ML,Test in one city to prove value, Collaborate with NGOs & schools for reach.

Strategies

IMPACT AND BENEFITS

DHARA

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IMPACTS — Target Audience — BENEFITS

- Smarter, Data-Driven Decisions
- Promotes Eco-Friendly Behavior
- Improves Public Health Outcomes
- Engages Community And Policy

- Ensures Environmental Sustainability
- Optimizes Economic Efficiency
- Empowers Social Participation
- Drives Technological Advancement

RESEARCH AND REFERENCES

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