



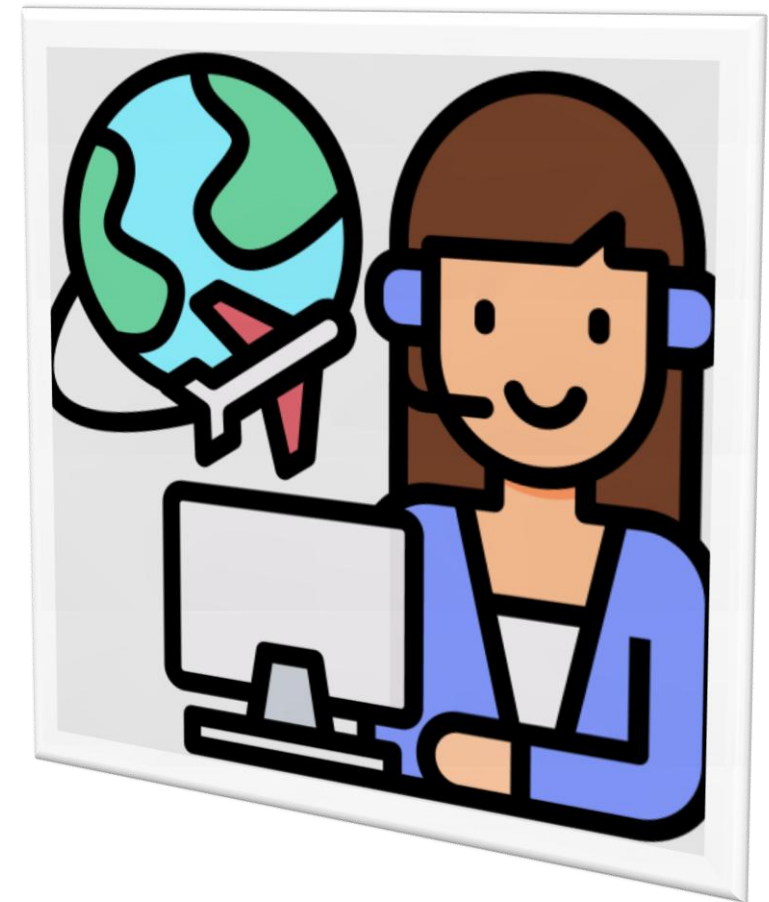
ArcCommerce SynapTron- Powered AI Travel Booking System

Prosus Track – Agent-Powered E-Commerce App

ArcCommerce: AI-Powered Travel Booking

ArcCorp Hackathon 2025

- AI-driven travel booking solution built for the Prosus Track
- Uses proprietary **SynapTron architecture** to convert user intent to APIs
- Decouples natural language from raw LLM behavior
- Introduces **intent-routing core** for safe, controlled LLM usage
- Ensures traceability, backend logic control, and security
- Positioned as a **next-gen e-commerce engine** for structured, intelligent travel booking



Team ArcCorp



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Architect



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PR & Brand Designer

The Problem with Travel Booking Today

Rigid Interfaces

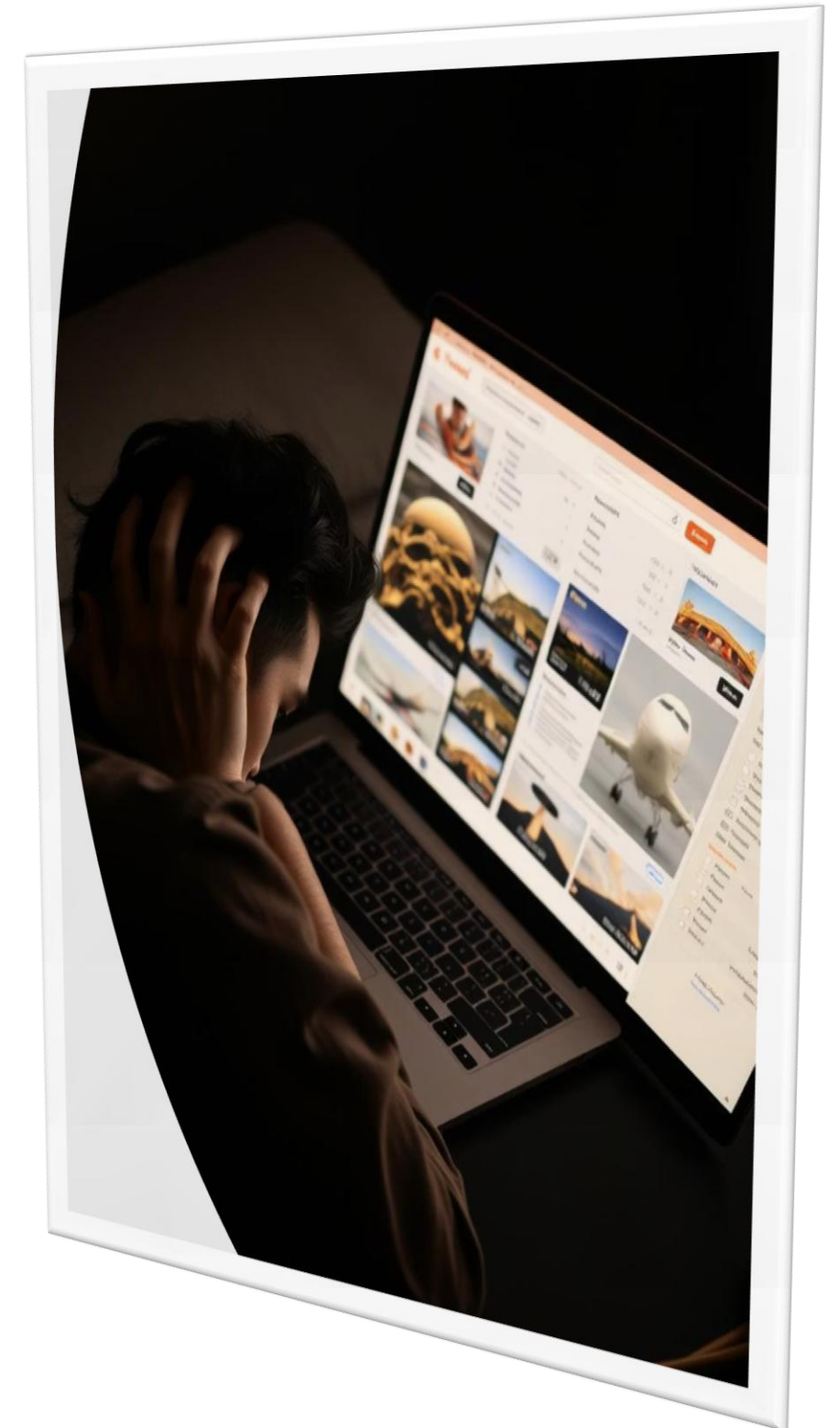
Booking interfaces are often form-heavy and unintuitive, forcing users to adapt to static dropdowns and filters.

Gimmicky Chatbots

Current chatbots are unpredictable and often unsafe, failing to provide a truly seamless experience for users.

No Natural Language

There is no effective way to express complex travel needs in natural language and receive real-time, actionable results.



Our Vision: Human-Centric, AI-Native Travel Booking

Imagine booking travel by simply describing your desires. No forms, no dropdowns, no gimmicky chatbots.

ArcCommerce delivers a travel agent that understands and executes with safety, structure, and incredible speed.

ArcCommerce:

Natural Language → Structured API Action → Instant Results



The ArcCommerce Architecture

Our robust architecture is designed for efficiency and precision, from the user interface to real-time data integration.

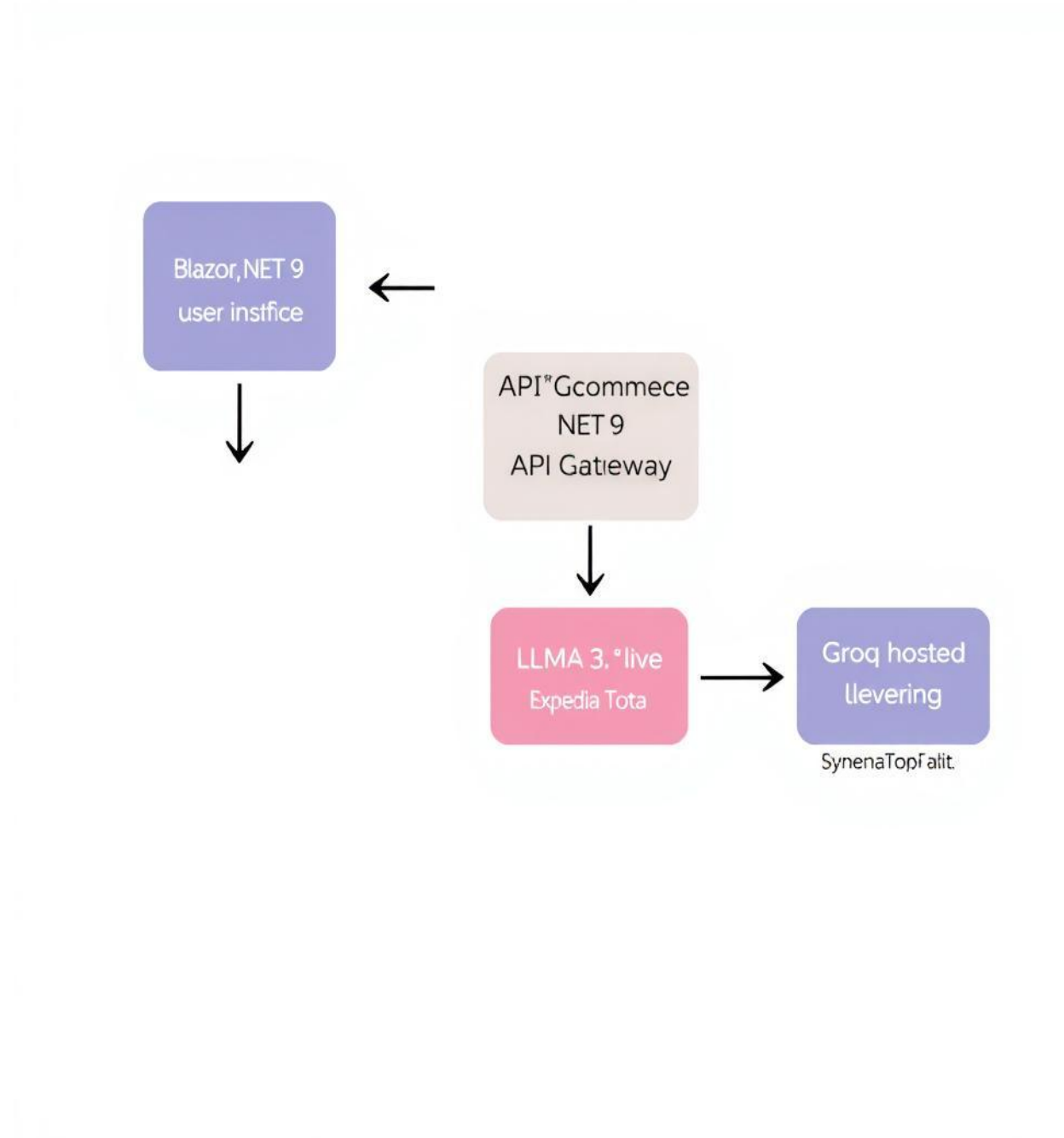
❖ **Frontend:** Blazor (.NET 9) UI for seamless, interactive web experiences with native .NET support.

❖ **Backend:** .NET 9 API Gateway with intelligent intent-routing.

❖ **LLM Layer:** Groq-hosted LLaMA 3 via TravelGPTService for powerful processing.

❖ **SynapTron:** Our proprietary layer mediating and converting LLM output to safe, structured JSON.

❖ **External API:** Live Expedia data for comprehensive hotel and flight options.



Step-by-Step User Flow

1

User Input

User types: "Fly me to Tokyo next Friday, return Sunday, stay near Shinjuku."

2

Intent Detection

Frontend sends query to `/api/intent/query`. TravelGPTService detects 'flights & hotels'.

3

Field Validation

CategoryService checks for any missing fields required for the booking.

4

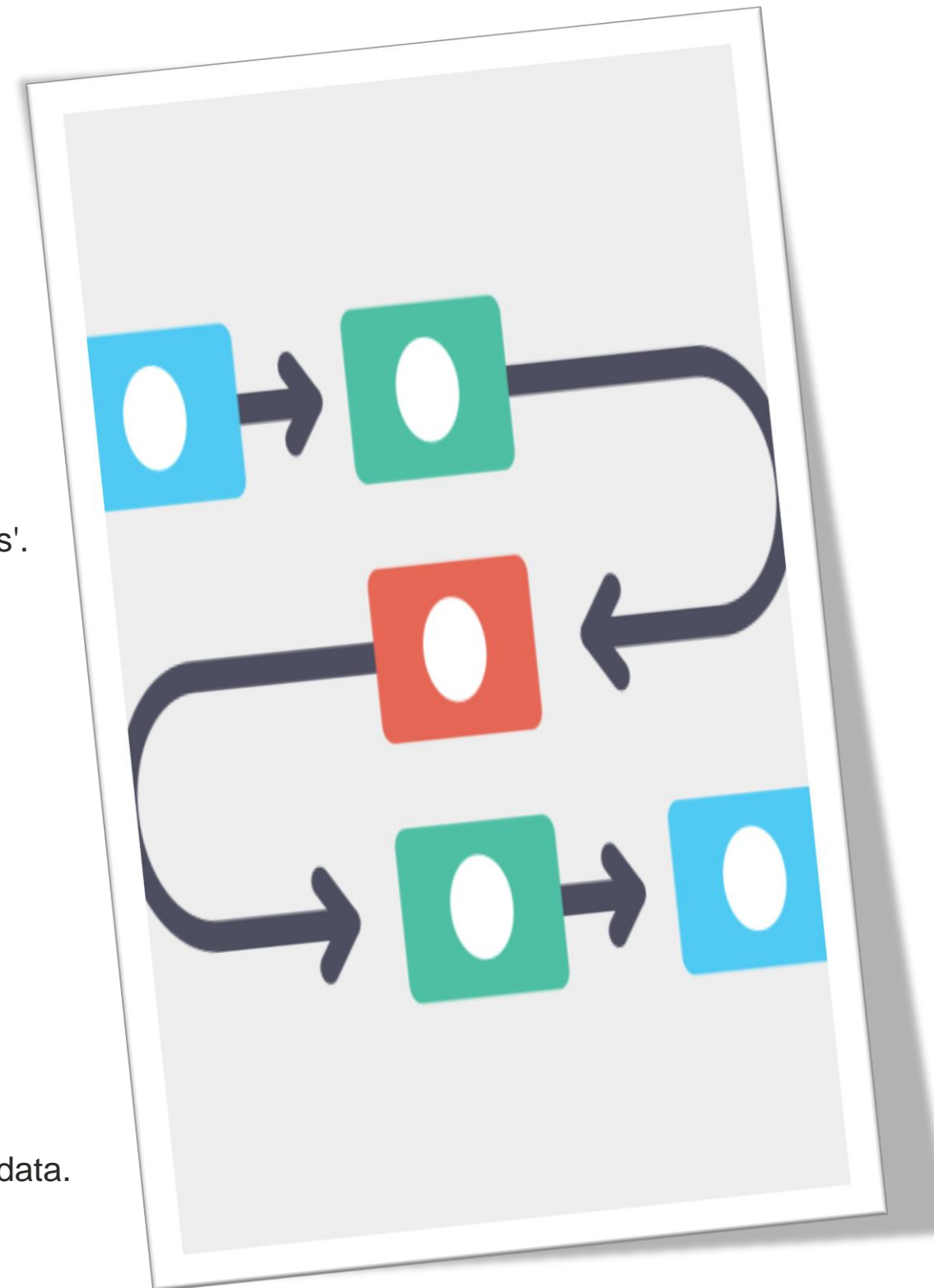
Real-time Query

If complete, Expedia is queried for live availability and pricing.

5

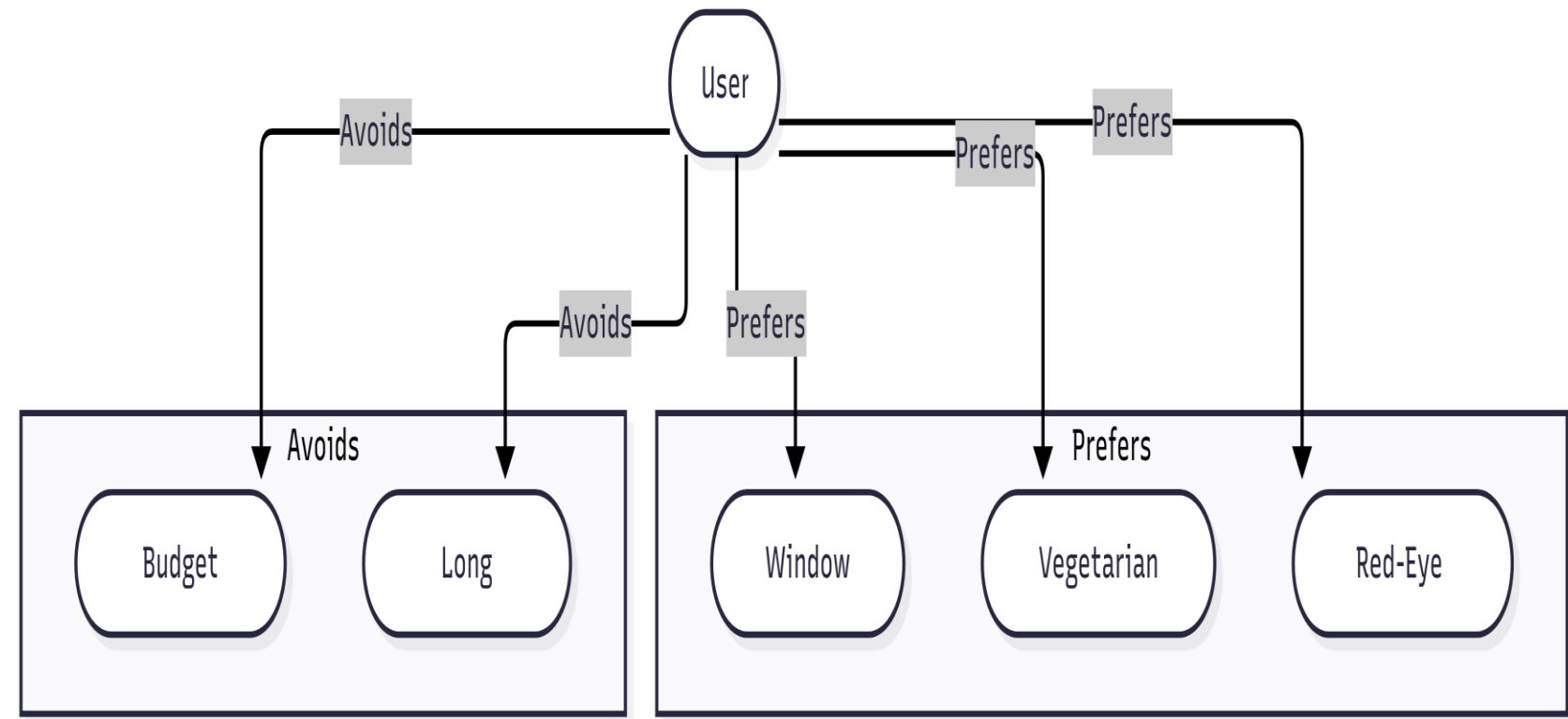
Structured Results

User receives structured results: clear cards, concise messages, and relevant metadata.



Knowledge Graph: Driving Personalized AI Decisions

- Captures user preferences as a **Knowledge Graph**
- Extracts structured insights like:
 - Prefers: Window Seat, Vegetarian Meals
 - Avoids: Budget Airlines
 - Likes: Red-Eye Flights
- Connects preferences to relevant travel services:
 - ✈ Flight Booking
 - ☐ Hotel Selection
 - ☐ Dining Preferences
- Enables consistent **personalization across domains**
- Fulfills the **bonus challenge** by powering memory-aware AI decisions



Not a Chatbot — A Controlled AI Agent



Controlled Responses

GPT never speaks freely; it generates only structured JSON output.



SynapTron Processing

All LLM output is rigorously processed through our proprietary SynapTron layer.



Predictable & Safe

Ensures 100% predictable, safe, and professional responses every time.



Business-Grade

Built for reliability and precision, delivering business-grade functionality, not just novelty interaction.



What Sets ArcCommerce Apart



SynapTron Control

Proprietary AI control layer ensuring unparalleled safety and structural integrity.



Agent-Driven

Users act through the AI agent, not by chatting with it, for efficient task execution.



Live Expedia

Real-time integration with Expedia provides up-to-the-minute travel results.



Scalable Design

Architecture easily extends to logistics, education, and other commerce sectors.

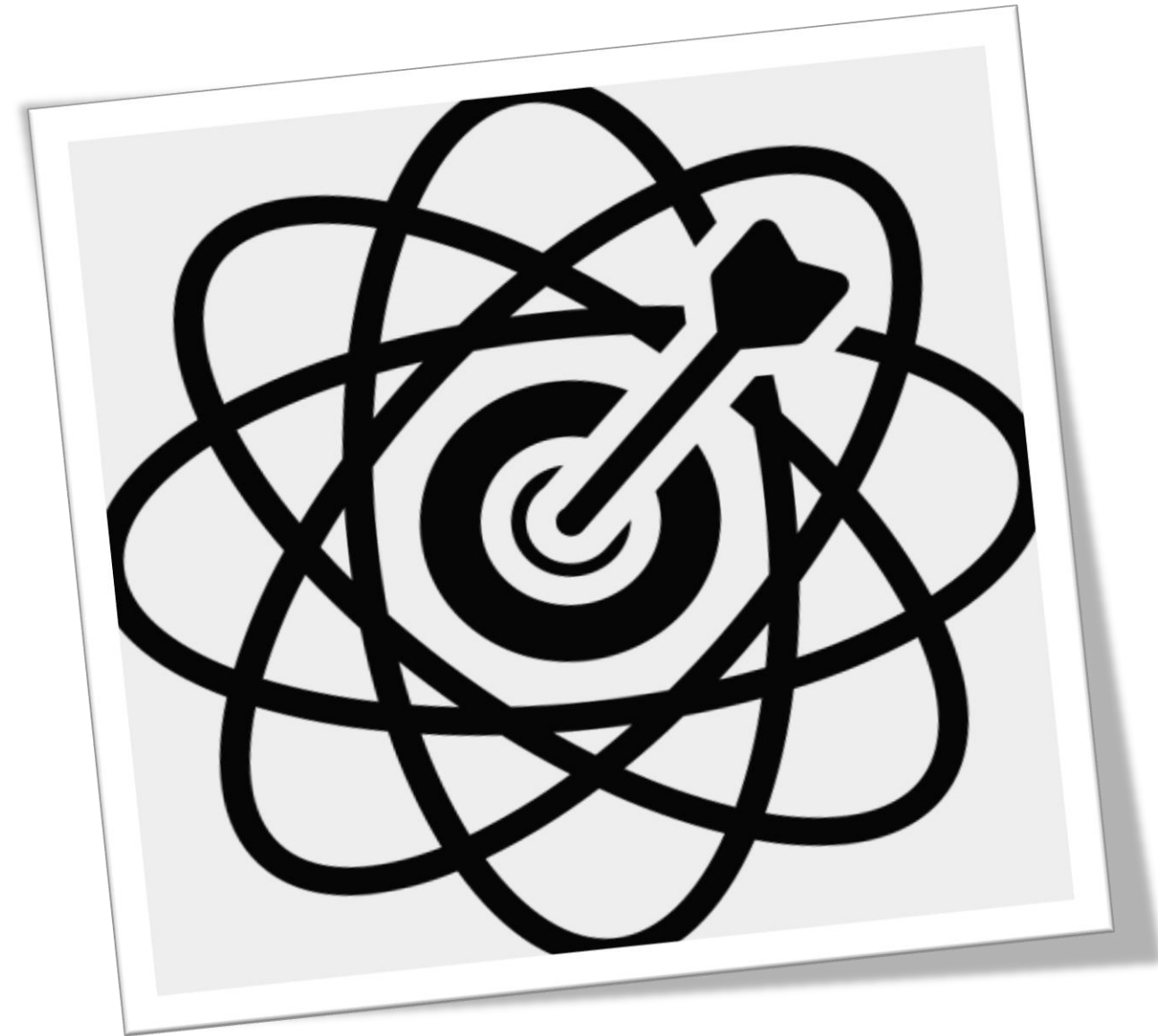


Lightning Fast

Groq-hosted LLaMA 3 ensures extremely rapid inference for instant responses.

Hackathon Compliance & Challenge Relevance

- Uses **Groq API** with **LLaMA 3**
- Built as an **agent-powered e-commerce** system
- Enables **natural language input** → **API execution**
- Features **SynapTron architecture** for safe AI handling
- Integrates a **Knowledge Graph** for persistent personalization
- Directly addresses the **Bonus Challenge**:
Memory-aware, structured, cross-session AI behavior



What's Next: Post-Hackathon Vision

- ☐ **Expanding ArcCommerce Lite into a full ecosystem:**
 - **ArcBay** – Bitcoin-native auction platform
 - **ArcLogistics** – Global AI routing system
 - **ArcOS** – AI-native operating system
- ☐ **All powered by:**
 - SynapTron architecture
 - Persistent **User Profiles & Knowledge Graphs**
- ☐ **Foundation ready for scale, personalization, and reuse**

Let's Redefine Travel Together

- ArcCommerce is more than a hackathon project.
- It's a framework for the next generation of AI-native digital experiences.
- Built for scale, designed for trust — and ready for the world.

