# Kard Race – Module 1 Public Report

February 3 – April 11, 2025

## About the Game

Kard Race is an innovative Racing Deckbuilder Roguelite set in a post-apocalyptic dieselpunk world, where players manipulate races with cards, align with factions, and sabotage opponents to climb the ranks of a dystopian racing league.

## Strategic Foundation

Over five sprints, we developed the strategic, technical, and narrative pillars of the project. The deliverables completed during this phase serve as the core blueprint for the next modules.

### Modulo 1 Highlights

#### Sprint 1 – Vision and Core Strategy

- Defined the game’s hybrid genre (Racing + Deckbuilder + Roguelite).

- Established business goals: Deliver a compelling vertical slice to attract publishers.

- Created the first target persona to inform design choices.

- Outlined a preliminary roadmap and value proposition.

#### Sprint 2 – Game Blueprint & Market Alignment

- Created a detailed Game Development Canvas, defining setting, mechanics, and pillars.

- Outlined technology stack and market projections.

- Completed a target audience analysis focused on players aged 18–30 who enjoy strategic yet accessible gameplay.

#### Sprint 3 – Communication and Prototype

- Developed a communication plan to guide audience interaction and publisher outreach.

- Delivered the new version of the playable prototype, validating core gameplay mechanics.

#### Sprint 4 – Structure and External Documentation

- Defined a full roadmap, updated the development schedule, and restructured the code repository.

- Created a brand positioning strategy and initial budget estimate.

- Conducted a SWOT analysis, market study, and risk assessment, supporting investor-ready documentation.

- Participated in the SEBRAE CrieGames program to gain mentorship and exposure.

#### Sprint 5 – Final Docs & Future Planning

- Consolidated business analysis and risk matrix with mitigation strategies.

- Delivered the new version of the Pitch Deck, outlining the game concept, market opportunities, roadmap, and financial planning.

- Defined development goals for Modules 2, 3, and 4, including technical implementation, AI development, visual systems, and marketing outreach.

## Key Achievements

- Strong conceptual and narrative identity.

- Validated market demand for roguelike deckbuilders.

- Strategic materials ready for pitching and investment.

## What’s Next (Module 2 Preview)

- Physics and card interaction systems.

- Vehicle AI and race progression.

**Module 2 Sprint Highlights**

***Sprint 1 – Project Plan Consolidation & Init new Project***

* Finalized a detailed project plan, including work schedule, roadmap, feasibility, and cost estimation.
* Initiated the project in Unity 6, setting up the development environment for future progress.

***Sprint 2 – Game Systems Architecture & AI Prototyping***

* Implemented core game systems for game logic and player interaction, including a centralized Scene Management System , Inventory & Shop Manager , Card UI System with drag-and-drop support , and Card-Vehicle Interaction Integration.
* Began AI development by integrating a Goal-Oriented Action Planning (GOAP) system and implementing a modular A\* pathfinding script

***Sprint 3 – Pathfinding System & Deckbuilding***

* Developed a robust A\* pathfinding algorithm for AI-controlled vehicle navigation.
* Designed a deckbuilding UI where players can select cards to compose their racing deck, with support for card addition and removal.

***Sprint 4 – Vehicle Physics & AI Navigation***

* Integrated a vehicle physics system with engine features for motor and brake torque application, steering calculations, and event emission.
* Wheel scripts handles individual wheel physics like suspension and lateral force , while
* Developed AI navigation components, including CarAi for A\* pathfinding and checkpoint-based autonomous driving.

***Sprint 5 – Core Race System & Polish***

* Implemented the foundational racing system logic, including checkpoint validation, lap counting, race flow control, and winner detection, with the RaceManager serving as the core system for managing race flow, monitoring vehicle progression through waypoints, tracking laps, and recording segment/total race times.
* CarAI was enhanced with checkpoint support for autonomous vehicle control using A\* pathfinding.

**Key Achievements of Module 2**

* Vehicle physics and AI navigation systems were integrated, supporting intelligent driving behaviors and lap tracking.
* The game systems infrastructure, including scene management, inventory/shop, and card UI with drag-and-drop interaction, was implemented.
* A modular A\* pathfinding system and an initial deckbuilding system were developed.

**What’s Next (Module 3 Preview)**

Module 3 is set to significantly enhance the game experience by integrating advanced AI, comprehensive audio and visual effects, and deepening core system complexities. This phase will also prioritize the production of detailed technical documentation, including an academic article.