

Spikelines

Technical Paper

A real-time prediction game on live World Cup data, verified on Solana via TxLINE. Built by Onenept Studios.

1. Overview

Spikelines turns a live football match into a stream of 5-second micro-predictions. When a team builds an attack, the player is asked whether a specific event (goal, corner, or shot for the attacking side; a booking for either) occurs within a short window. Correct calls build a streak and earn SPIKES, the in-app currency. It is a free, viral, provably-fair prediction game powered end-to-end by the TxLINE on-chain data layer.

2. Game mechanics

- Trigger: prompts fire on attacking/danger/high-danger possession and shots, attributed to the attacking side. High-danger bypasses the routine cooldown so a sudden chance always asks.
- Markets: goal / corner / shot (side-framed to the attacking team) + booking (either team). Each settles on the relevant cumulative stat delta, or the shot action.
- Windows: live calls resolve in 2-4 minutes ~80% of the time; longer windows occasionally.
- Modes: Live (real-time, in-play matches) and Archived (full matches replayed from kickoff).
- One-shot-per-match: each match is playable once per user, preventing replay-farming of known archived outcomes.

3. Scoring & leaderboard

The leaderboard ranks by streak accuracy, not raw winnings. Each played match contributes the ratio of the maximum streak reached to the number of calls made; the score is the sum of those ratios times 100.

Example: Match A — 40 max streak over 80 calls = 50 pts. Match B — 20 max streak over 50 calls = 25 pts. Score = 75.

Anti-farming: a match's points are capped at 35 unless at least 14 calls were made in it, so a few lucky calls on a tiny sample cannot post a high accuracy. Scoring on accuracy (a ratio) rather than volume keeps players who buy more entries from dominating purely by quantity.

4. SPIKES economy & monetization

- SPIKES are earned per correct call (15 archived / 50 live) plus a once-per-run bonus at a 5-streak (25 archived / 50 live), or bought in USDC packs.
- SPIKES sink 1 — 'streak-save': when a wrong call would end an active streak, spend SPIKES to keep it. Cost escalates per use each day (25, 50, 125, 150, then capped at 175).
- SPIKES sink 2 — 'replay': every match is one-shot, but an already-played archived match can be replayed for 175 SPIKES.
- SPIKES never buy a bigger bankroll or better prize odds (equal-footing; everyone plays the same stake). SPIKES packs are 100% revenue; USDC reward pools are funded by a discretionary allocation.
- Revenue = SPIKES pack sales. TxLINE API volume is a cost, not a revenue line.

5. Architecture

- Next.js 16 (App Router) + Tailwind v4 on Vercel; a server-side SSE proxy holds the TxLINE token (no keys in the browser).
- TxLINE's push scores stream is heartbeat-only on the free tier, so live state is derived by polling and diffing the scores snapshot; full matches are replayed from the updates sequence (static JSON + a runtime endpoint).
- Cumulative stats (goals, corners, cards) are read as a running max because feed records are sparse — this keeps the scoreboard monotonic.
- Finished matches move from Live to Archived automatically (detected via the `game_finalised` action); a recorder banks them before TxLINE drops them from its window.

6. TxLINE endpoints used

- Guest-start -> Solana wallet-signature -> activate: obtain the API token (Anchor on-chain subscription).
- GET /api/fixtures/snapshot — fixtures, team names, kickoff times, finished detection.
- GET /api/scores/snapshot/{fixtureId} — live in-play state (polled).
- GET /api/scores/updates/{fixtureId} — full kickoff-to-FT sequence (replay + archive).

7. Fairness & compliance

Players never wager real money on outcomes and all receive the same play-money stake; purchases buy information, convenience and entries — never a larger share of the prize. Leaderboards are scored on accuracy. Contestants are responsible for gaming/securities compliance in their jurisdiction.

8. Roadmap

- On-chain USDC: real SPIKES packs and the \$5 vault (10% rake context), cross-user leaderboard and payouts.
- Player-level identity and a verifiable, un-deletable track record (wins and losses) anchored on Solana.

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