**Retro Football Simulator - Development Tracker**

*Last Updated: [Update this date when making changes]*

**Project Overview**

**Project Name:** Retro Football Simulator  
**Start Date:** [Add today's date]  
**Current Phase:** Phase 1 - Core Foundation  
**Current Status:** 🔴 Not Started

**Technical Stack (FINALIZED)**

* ✅ **Development Environment:** Modern JavaScript with Vite
* ✅ **Canvas Library:** PixiJS
* ✅ **Sprite Style:** 16-bit
* ✅ **Live Communication:** WebSockets
* ✅ **Backend Mock:** FastAPI

**Phase Progress Tracker**

**PHASE 1: Core Foundation 🔴**

**Goal:** Get sprites moving on a rendered field  
**Status:** Not Started  
**Target Completion:** [Add date]

**Components Checklist:**

* [ ] **package.json** - Project setup
  + Lines: ~25 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **vite.config.js** - Build configuration
  + Lines: ~15 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **index.html** - Main HTML structure
  + Lines: ~50 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **main.js** - Entry point
  + Lines: ~50 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **FieldRenderer.js** - Field drawing
  + Lines: ~200 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **SimulationEngine.js** - Game loop
  + Lines: ~400 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **PlayerSprite.js** - Sprite system
  + Lines: ~150 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* [ ] **style.css** - Basic styling
  + Lines: ~100 | Status: ⏳ Pending
  + Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Test Milestone:** ⏳ See sprites move across rendered field  
**Test Date Completed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PHASE 2: Playground Mode 🔴**

**Goal:** Manual play execution  
**Status:** Not Started  
**Target Completion:** [Add date]

**Components Checklist:**

* [ ] **PlaygroundController.js** - Lines: ~250
* [ ] **PlayLibrary.js** - Lines: ~200
* [ ] **PlaySelector.js** - Lines: ~150
* [ ] **DataAdapter.js** - Lines: ~180

**Test Milestone:** ⏳ Select and execute different plays  
**Test Date Completed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PHASE 3: Rewind Mode 🔴**

**Goal:** Load and replay historical games  
**Status:** Not Started  
**Target Completion:** [Add date]

**Components Checklist:**

* [ ] **RewindController.js** - Lines: ~300
* [ ] **GameArchiveLoader.js** - Lines: ~200
* [ ] **PlaybackTimeline.js** - Lines: ~250
* [ ] **Mock game data files** - 3-5 JSON files

**Test Milestone:** ⏳ Replay complete historical game  
**Test Date Completed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PHASE 4: Live Mode 🔴**

**Goal:** Connect to live data feeds  
**Status:** Not Started  
**Target Completion:** [Add date]

**Components Checklist:**

* [ ] **LiveController.js** - Lines: ~400
* [ ] **LiveDataReceiver.js** - Lines: ~250
* [ ] **BufferManager.js** - Lines: ~200
* [ ] **Mock FastAPI server** - Lines: ~300

**Test Milestone:** ⏳ Receive and display live plays  
**Test Date Completed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PHASE 5: Polish & Integration 🔴**

**Goal:** Complete app with all modes  
**Status:** Not Started  
**Target Completion:** [Add date]

**Components Checklist:**

* [ ] **HomeScreen.js** - Lines: ~200
* [ ] **GameModeManager.js** - Lines: ~350
* [ ] **AppController.js** - Lines: ~450
* [ ] **Sound effects integration**
* [ ] **Performance optimizations**

**Test Milestone:** ⏳ All three modes working seamlessly  
**Test Date Completed:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Session Notes**

*Use this section to track what was done each session*

**Session 1 - [Date]**

**Started:** [Time]  
**Ended:** [Time]  
**Completed:**

* Created tracking document
* [Add items as completed]

**Issues/Blockers:**

* None yet

**Next Session Goals:**

* Begin Phase 1 implementation
* Create package.json and project structure

**Testing Checklist**

**Phase 1 Tests**

* [ ] Field renders correctly (100 yards, hash marks)
* [ ] Sprites load and display
* [ ] Basic animation loop runs at 60 FPS
* [ ] Sprites can move from point A to B
* [ ] Field scales properly to window

**Phase 2 Tests**

* [ ] Play selector UI appears
* [ ] Can select offensive play
* [ ] Can select defensive play
* [ ] Play executes when triggered
* [ ] Sprites follow predetermined paths

**Phase 3 Tests**

* [ ] Can load archived game list
* [ ] Game data parses correctly
* [ ] Timeline scrubbing works
* [ ] Play/pause functionality
* [ ] Speed controls (1x, 2x, 4x)

**Phase 4 Tests**

* [ ] WebSocket connects to server
* [ ] Receives live play data
* [ ] Buffers plays appropriately
* [ ] Handles connection drops
* [ ] Syncs state correctly

**Phase 5 Tests**

* [ ] Mode selection screen works
* [ ] Can switch between all modes
* [ ] Settings persist
* [ ] Sound effects play
* [ ] No memory leaks
* [ ] Performance stays above 30 FPS

**Key Decisions Log**

*Document important decisions made during development*

1. **[Date]** - Chose PixiJS over raw Canvas for better sprite performance
2. **[Date]** - Decided on 16-bit sprites vs 8-bit for better visual quality
3. *[Add decisions as they're made]*

**Resource Links**

* **PixiJS Documentation:** https://pixijs.com/
* **Vite Documentation:** https://vitejs.dev/
* **FastAPI WebSockets:** https://fastapi.tiangolo.com/advanced/websockets/
* **Project Repository:** [Add your repo link]

**Color Codes for Status:**

* 🔴 Not Started
* 🟡 In Progress
* 🟢 Complete
* 🔵 Testing
* ⏳ Pending
* ✅ Done
* ❌ Blocked

**Questions/Clarifications Needed:**

1. *[Add any questions that come up]*
2. *[Track items needing clarification]*

**Next Steps:**

1. Generate package.json
2. Set up Vite configuration
3. Create initial HTML structure
4. Begin FieldRenderer implementation

**Contact/Team Info:**

**Developer:**   
**AI Helper:** ChatGPT (20+ years experience)  
**Project Location:** [Your local directory]

*Remember: We always update existing scripts, never create new versions (no script-v2, script-fixed, etc.)*