

e-Tartan: App Concept, Overview, and Introduction

App Concept

e-Tartan is a next-generation platform designed to bring competitive football gaming—especially eFootball and similar sports games—to the Somali region and beyond, in a highly organized, accessible, and fair way. The platform enables everyone to participate in or follow digital football tournaments and leagues, blending real competition, community, and digital convenience.

Core Idea:

- Democratize participation in digital football competitions.
 - Provide seamless, transparent tournament management.
 - Automate match scheduling, results verification (including AI-assisted), and ranking.
 - Foster an active community where users can connect, compete, and celebrate together.
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Overview

e-Tartan serves several user groups, each with specific features:

1. Everyone (Guests & Registered Users)

- Browse tournaments and leagues, see schedules/fixtures.
- View standings, rankings, and leaderboards.
- Get notifications (e.g., new tournaments).
- Explore player profiles and public stats.

2. Players

- All features above, plus:
- Register/join tournaments and leagues.
- Pay for subscriptions (weekly/monthly) or use promo codes for discounts/free entries.

- Submit match results (with screenshot upload for AI verification).
- Chat with opponents during matches.
- Track personal stats and receive match reminders.

3. Admins

- All of the above, plus:
- Create/manage tournaments and leagues.
- Oversee results, resolve disputes, and override when needed.
- Ban users and manage blacklists.
- Handle tournament automation (e.g., auto-create knockout cups weekly).

4. System/Automation

- Auto-generates knockout tournaments weekly.
 - Auto-matches players, sends notifications, and manages time-based logic (e.g., cut-off times, reminders, result auto-assignment).
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Introduction

What is e-Tartan?

e-Tartan is a centralized, cloud-based platform that makes competitive football gaming accessible, automated, and community-driven. It brings order to the chaos of casual and semi-pro eFootball matches by providing structure, fair play, and automated tools for both players and organizers.

Key Features:

- Automated Tournament Management: Knockout cups, leagues, scheduling, and result tracking.
- Subscription System: Weekly or monthly paid access, with promo code support.
- Smart Match Verification: AI-powered screenshot analysis for result validation.
- Player Communication: Built-in chat, notifications, WhatsApp reminders.
- Accessibility: Open to everyone—only players need to register to participate; spectators can browse and watch.

Why e-Tartan?

- Many Somali gamers lack organized eFootball tournaments and reliable systems for fair play and tracking.
- Manual tournament management is slow, error-prone, and unscalable.
- e-Tartan solves these by providing end-to-end digital tournament management, leveraging automation and smart technologies.

Vision

To become the leading digital hub for football gaming tournaments in Somalia and East Africa—empowering communities, promoting healthy competition, and making e-sports more accessible, fun, and transparent.

How it Works: High-Level Flow

1. Player/Guest opens the app: Sees active tournaments and can browse leaderboards.
2. Player wants to join a tournament: Registers, pays via mobile money, joins open tournaments (with weekly/monthly options).
3. Automatic matching: System schedules matches, notifies players, and opens chat between opponents.
4. Match played: Players submit results and screenshots; system/AI verifies outcomes.
5. Leaderboard updated: Standings auto-refresh; rewards and next rounds set up automatically.
6. Admins monitor: Can intervene for disputes, create new tournaments, or ban users if necessary.

Conclusion

e-Tartan is more than just a tournament manager—it's a community-driven digital football league built for the region, by the region. It's a fair, fun, scalable solution that grows with its players and brings Somali e-sports to the next level.

Technologies Used

1. Backend

- Node.js: Runtime environment for JavaScript/TypeScript server code.
- Express.js: Web framework for creating RESTful APIs.
- TypeScript: Strongly typed JavaScript for more robust and maintainable code.

- TypeORM: Object Relational Mapper (ORM) for working with the database using models/entities.

2. Database

- MySQL: Relational Database Management System for structured data storage.

3. Authentication & Security

- JWT (JSON Web Token): Stateless authentication and authorization.
- Bcrypt: Secure password hashing.

4. Email & SMS

- Nodemailer: Sending emails (OTP, notifications).
- (Planned/Optional) Twilio / Hormuud API: For sending SMS (OTP, notifications).

5. Validation & Utilities

- class-validator: For validating DTOs and user input.
- dotenv: Managing environment variables.
- Custom Middlewares: For authentication, admin access, DTO validation, etc.

6. Server Management & Deployment

- PM2: Production process manager for Node.js apps.
- Nginx: Web server and reverse proxy.
- Ubuntu Server (VPS): Linux server hosting the backend and database.
- Git: Version control.
- GitHub: Source code repository hosting and collaboration.
- VS Code Remote SSH: For code editing directly on the server.

7. Testing & Debugging

- Postman: API testing and documentation.
- VS Code Debugger: Debugging backend code.

8. Others

- OpenAI API (Planned): For match result verification (AI image-to-JSON extraction).
- SPF/DKIM/DMARC (Planned): For email deliverability and trust when using a custom domain.

1. User Management

- User Table: Stores all users (admin, player, etc.).

Fields: id, username, phoneNumber, email, firstName, middleName, lastName, roleId (FK), isDeleted, isActive, etc.

- Role Table: Defines roles (admin, player, ...).
- Player Table: Extends user with player-specific fields (eFootball ID, username, etc.).

Every player is a user, but not every user is a player.

2. Authentication/Authorization

- JWT Tokens (with token version): Used for API auth, supports single-device login per user.
- OTP Table: Handles both SMS and Email OTPs for verification, password reset, etc.
- SysConfig Table: Stores configuration flags (e.g., isSmsOtpActive, isEmailOtpActive).

3. Mobile Operator Validation

- MobileOperator Table: Stores operator names, prefixes, and active status for phone validation.
- Custom validator ensures only active operator prefixes are accepted.

4. Tournament Management

- Tournament Table:

- id, name (unique, with auto-increment if name exists),
- type (KNOCKOUT/LEAGUE),
- status (UPCOMING, ACTIVE, etc.),
- startDate, endDate (auto-calculated if not given),
- maxPlayers, isAuto (auto-creation of tournaments),
- createdBy (FK to User/Admin).
- Admins can create tournaments; tournaments get unique names if duplicates.

5. User Profile

- User can update name, password, etc.
- Players have additional profile fields.

6. Password & OTP Flows

- Unified OTP system (email/sms based on config & user verification).
- Password reset and forgot password logic:
- Sends OTP via preferred/verified channel
- User can't use old password
- Update password after OTP validation

7. Account Deletion/Logout

- Deletion is soft (user is marked as deleted, but not recognized by the system).
- Logout simply invalidates token (via token version bump).

Entity Relationships

- User ← Role
- Player ← User
- Tournament ← User (createdBy)
- OTP ← User
- MobileOperator (standalone, used for validation)

What's Implemented So Far?

- User, role, player, mobile operator, sysconfig, otp, and tournament tables/entities
- Authentication and admin middleware
- Tournament creation with name uniqueness, automatic end date
- List and get tournament endpoints
- User registration, login, OTP, password reset/forgot password
- Profile logic, account deletion, and logout.

e-Tartan App Core Idea & Flow

1. For Everyone (Non-Registered Users)

- View tournaments/leagues: See upcoming, ongoing, or past tournaments and leagues.
- View match schedules/fixtures: See who is playing when.
- View standings/rankings/leaderboards: Check who's leading or recent winners.
- Get notifications: Learn about new tournaments or results (public notifications, app homepage).
- View player profiles and stats: See top players, their history, and stats.

2. For Players (Registered Users)

Players get all features above, plus:

Joining a Tournament

1. Browse tournaments and click "Join".
2. Register/login if not already.
3. Pay subscription (weekly/monthly, or enter promo code).
4. Join the tournament (auto-assigned or choose).
5. Get matched/scheduled automatically (pairings shown).

On Match Day

- Get notified when it's your match.
- Enter the match/chat screen; your opponent is notified.
- Press "Ready" to signal you're present. If both do not press ready, both are marked absent.
- If you enter and your opponent doesn't, you can win by forfeit if they remain absent.
- Chat/message opponent (when match time starts).
- Play the match on eFootball, then submit the result (upload screenshot).

After the Match

- AI verifies screenshot (using OpenAI).
 - Results/standings update automatically.
 - Admins can override results if needed (disputes, errors).
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3. Subscriptions

- Weekly: Join 1 tournament per week.
 - Monthly: Join 4 tournaments per month.
 - Promo codes: Can be applied for free/discounted entry.
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4. Admin Features

- Create/manage tournaments (manually or auto-generated weekly).
 - Manage users (ban, unban, verify).
 - Override results if needed.
 - See and manage subscriptions, payments, and promo codes.
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5. Tournament Logic

- Knockout: 32 players, single-elimination, auto-starts weekly.
 - League (future): Round robin, points-based, longer duration.
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6. Verification

- OTP via SMS/Email for secure logins and actions.
 - AI for result verification (screenshot analysis).
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Database Structure (Current)

- User, Player, Role (users, with profile and role info)
- MobileOperator (for phone validation)
- Otp, SysConfig (for authentication & system settings)
- Tournament (core tournament table, with creator/admin)
- ... more to come (Matches, Results, PromoCodes, Subscriptions)

Typical Flow: From New Player to Winner

1. Browse tournaments → Register/Pay → Join tournament → Get scheduled → Play match → Submit result → Standings update → Play next match/round

On Match Day:

1. Match Day Overview

On Match Day, the main goals are:

- Notify players about their upcoming matches.
- Ensure both players are “ready” before the match (with a “Ready” button in the app).
- Enable players to communicate (in-app chat/WhatsApp integration).
- Record match results (with screenshots and AI validation).
- Handle no-shows and forfeits according to your rules.

2. Key Features & User Experience

A. Notifications

- Players are notified (app push, email, SMS) a few hours before their match, and repeatedly if they haven’t acknowledged.
- If a player enters the match/chat screen, the other player is alerted that their opponent is waiting.

B. Ready Button

- Each player must press a Ready button in the app to confirm presence.
- If neither presses “Ready” by match deadline (e.g., 23:59), match is declared a draw (missed match).
- If one player presses “Ready” and the other does not, the present player wins by forfeit.

C. Communication

- Once both are present, an in-app chat is enabled. Optionally, WhatsApp integration can notify the absent player that their opponent is waiting.

D. Result Submission

- After the match, both players can submit the result and upload a screenshot.
- The screenshot is processed by your AI for automated validation.

E. Reminders and Escalation

- If neither player joins the match screen, multiple reminders are sent.
- If deadline passes, result is automatically processed according to your rules.

4. Match Day Logic (Backend Service)

A. When Match Day Starts

- Scheduled jobs check which matches are due today.
- Send reminders to both players (app, email, SMS).

B. On Ready Button

- Player presses Ready; backend marks isPlayer1Ready or isPlayer2Ready = true.
- If both ready, enable chat; else, send alert to opponent that “X is waiting”.

C. No-Show Handling

- Cron job checks at 23:59:

- If neither ready: set match as missed, result is draw, notify both.
- If one is ready: mark match as forfeit, present player wins, notify both.

D. Chat/WhatsApp

- When one player presses ready, other receives in-app and WhatsApp notification (if integrated).

E. Match Result Submission

- After match, allow both to submit scores + screenshot.
- Process screenshot with AI, save validated result, update leaderboard.

6. Admin/Automation

- Cron job at 23:59 processes any incomplete matches.
- Admin dashboard to review and override results if necessary.