

SmartGolf Token (SGi)

Whitepaper v1.04

Abstract

SmartGolf transforms how people experience and engage with golf. As one of the most powerful sports for physical and mental health, golf is facing stagnation due to outdated business models and limited accessibility for younger generations and urban players. SmartGolf changes that. By combining AI-powered swing analysis, real-time feedback, and blockchain-based rewards, SmartGolf enables users not only to learn and improve, but to own and monetize their progress. With SmartGolf, golf practice becomes part of a decentralized value network. Every swing is verified, rewarded, and owned. It's not just a game. It's a new on-chain sport economy.

1. Problem Statement

Current Issues:

- Traditional golf practice lacks real-time feedback, personal data ownership, and reward mechanisms.
- Screen golf platforms remain limited transparency and no user-driven incentives



High cost of lessons

Hard to improve without expensive coaching.



Barrier for beginners

Hard to start due to lack of gear or skills.



Only consuming contents

Golfers spend but don't earn or grow.

Proposed Solution:

- SmartGolf lowers barriers with IoT clubs, AI coaching, and on-chain
- With SmartGolf home and Plaza setups, practice becomes participation and earning.

2. SMARTGOLF Technical Architecture

Designed with deep technical foundations, SmartGolf delivers a fully integrated swing-to-digital asset system. The system combines IoT hardware, proprietary AI coaching, and blockchain rewards to convert each golf swing into a secure, ownable digital asset—enabling a seamless cycle of practice, verification, and earning.

Core Technologies:

- **IoT Golf Clubs:** SmartGolf's clubs are equipped with 9-axis motion sensors that collect real-time swing data and display the swing path in 3D. This allows players to see their unique swing posture in motion.
- **AI Coaching Engine:** Our AI analyzes per swing to provide real-time, personalized feedback. This engine is based on SmartGolf's proprietary golf physics and sensor interpretation.
- **Blockchain Integration:** By linking each swing to the SGi token on-chain, SmartGolf turns offline activity into verified digital assets.

Unlike basic swing sensors or video analysis apps, SmartGolf reconstructs player motion in real time and anchors performance data on-chain—laying the groundwork for tokenized rewards and fair online competition.

Additionally, SmartGolf supports creator-class swing NFTs—such as those from professional players—that are individually minted and monetized. NFTs can be burned in exchange for SGi tokens, and protected by an off-chain download control system to ensure fair access and prevent abuse.



Smart golf club

A club analyze swing data with accurate algorithm.



AI Educational practice app

User-friendly, data-driven AI learning application.



Social networking features

Share feedback and progress within a web3 golf community.

Security and Standards:

- Swing NFTs: Every recorded swing can be issued as a unique NFT, ensuring ownership
- Smart Contracts: Implemented for reward systems, DAO governance, and exchange compatibility.
- KYC & Privacy Protection: Employs zero-knowledge(zk) hash mechanisms for on-chain KYC, ensuring privacy-preserving identity verification.

Layer	Function	Example
Swing NFT Contract	Issues NFTs per validated swing; links metadata from motion sensors	<code>mintSwingNFT()</code>
Reward Contract	Calculates SGI Points and converts to SGI Coins based on on-chain activity	<code>claimRewards()</code>
Marketplace Contract	Enables users to trade swing NFTs or book AI coaching sessions	<code>listSwingForSale()</code>
DAO Governance Contract	Handles proposals, voting, fund allocation, and community-driven roadmap execution.	<code>voteOnProposal()</code>

All contracts follow upgradeable architecture (EIP-1967 proxy pattern), with regular audits and version tracking.

On-chain KYC by Swing

Each user's swing signature is stored as a unique multi-sensor pattern (15 IMU inputs), enabling biometric-style verification.

- Biometric Motion Signature: Each swing generates a unique 15-sensor pattern (IMU), hashed and stored on-chain.
- User KYC Hash Mapping: Swing hashes are cryptographically mapped to anonymized KYC records, enabling secure yet privacy-compliant user verification.

Reward Flow Model

flowchart LR

A[Practice Swing] --> B[Upload via App]

B --> C{Validated?} -->|Yes| D[Mint NFT]

D --> E[Earn SGI Points] --> F[Convert to SGI Coin] --> G[Use in Ecosystem]

Explanation: The user's swing is uploaded, validated, and minted into an NFT. This NFT earns SGI points, which are then converted into SGI Coins for use across the SmartGolf ecosystem.

Competitive Advantage

- **Patented Technology:** With multiple patents in both the U.S. and Korea, SmartGolf's IoT club provides a verifiable technical moat and commercialization barrier.
- **Commercial Success:** Over 4,500 units sold through crowdfunding campaigns, demonstrating market traction.
- **Real-World Impact:** Strong partnerships with education systems and PGA professionals solidify SGI's relevance and scalability

Why SGI Matters

- Transforms real-time swing data into on-chain value via NFT and ERC20 tokenization.
- Fixed supply + burn model = deflationary incentive loop
- Full transparency: DAO-voted governance + open metrics

How SGI Compare to Others

Feature	SGi (SmartGolf)	Web2 Golf Apps / Sensors	Web3 Move-to-Earn (e.g. STEPN)
Reward Mechanism	AI-verified swings → NFT mint → SGI token reward	None	GPS-based distance rewards
Data Ownership	On-chain ownership of swing data	Stored on company servers	Partially anonymized user data
Community Participation	Tournament participation, user-driven decisions, DAO voting,	Basic SNS-style sharing	Discord-driven social activity
Product Integration	Connected to AIX smart club (hardware)	Sensors optional or sold separately	No physical integration
Revenue Streams	NFT mints, lesson fees, tournaments, course downloads	App subscriptions or ads	NFT sales and token speculation
Transparency & Trust	Full blockchain transparency; AI-verification embedded	Private backend systems	Mixed – some data on-chain

SGi uniquely integrates AI-verified swing data, real-world hardware, and transparent Web3 incentives.

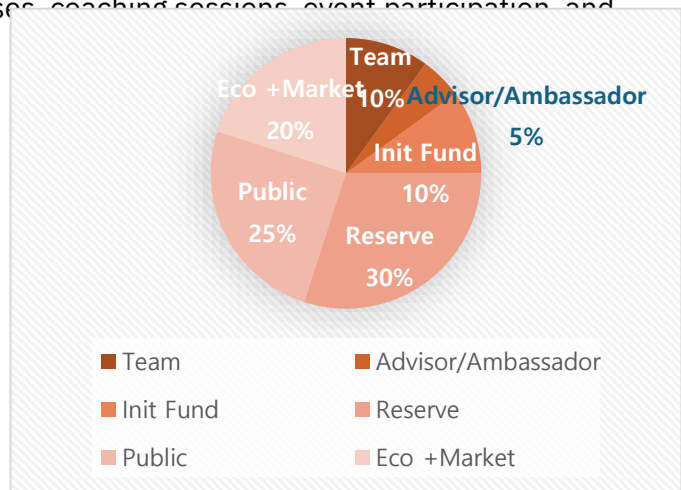
3. Tokenomics

Token Structure:

- Total Supply: initially 1,000 million SGi tokens.
- Swing Generation: Each swing generates 1–3 SG Points based on quality and verification.
- Conversion: 1,000 SmartGolf Points = 1 SGi Token
- Utility: Used for equipment purchases, coaching sessions, event participation, and DAO governance.

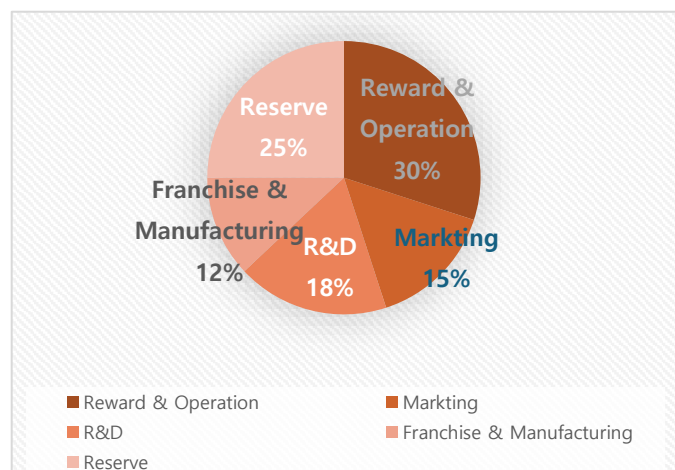
Distribution Plan:

- Public Sale: 25%
- Private Round: 10%
- PGA/Ambassadors: 2.5%
- Advisors: 2.5%
- Team: 10%
- Liquidity: 5%
- Community(marketing): 5%
- Ecosystem/Rewards: 10%
- Reserve (future DAO use): 30%



Fund Allocation:

- Rewards & Operations: 30%
- Marketing & Community: 15%
- R&D: 18%
- Franchise Launch: 10%
- Manufacturing: 2%
- Reserve (Contingency fund): 25%



Note: Reserve tokens and contingency funds are governed separately to ensure long-term sustainability and DAO flexibility.

Private Sale Terms & Vesting:

Early contributors benefit from tiered SGi token pricing and structured vesting schedules to promote long-term alignment. The public sale price is set at \$1.00 per SGi token, in alignment with its internal utility valuation.

Private Sale Opportunity:

Round	Price per SGi (USD)	Discount vs \$1.00 peg	Vesting Schedule
Seed	\$0.50	50% off	6-month cliff, 12-month linear vesting
Strategic	\$0.65	35% off	6-month cliff, 12-month linear vesting
Private	\$0.75	25% off	6-month cliff, 12-month linear vesting
Public Sale	\$0.85	15% off	Fully unlocked

This structure ensures price fairness while rewarding early believers. Vesting is enforced via smart contracts.

Dual Valuation Context: SGi's public sale price is set at \$1.00, reflecting its internal utility value when applied toward real-world products such as the AIX Club. For example:

- $500 \text{ SGi} + 1 \text{ AIX Club} = \$500 \rightarrow \text{SGi} = \1.00
- $1,000 \text{ SGi} + 1 \text{ AIX Club} = \$1,000 \rightarrow \text{SGi} = \1.00

The public sale price of SGi is set at \$0.85 per token, offering a 15% entry incentive compared to the internal utility value of \$1.00.

This ensures ecosystem consistency while rewarding new community members with early access benefits.

Utility Components:

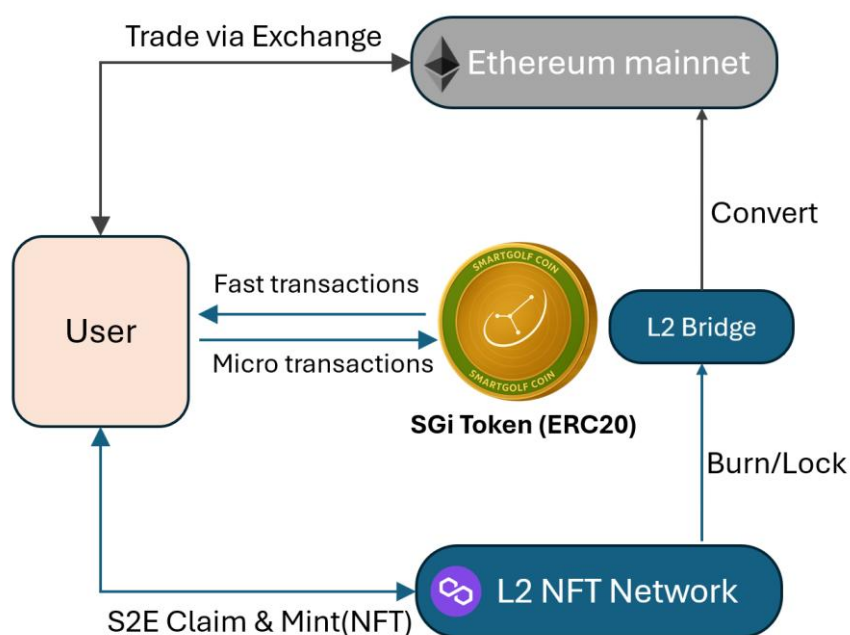
- Access to AI swing coaching modules
- Gallery-based cheering participation in tournaments (token-supported prediction)
- Access to franchise-based SmartGolf Plaza locations and branded F&B rewards

- Minting and trading swing-based NFTs
- Entry into SmartGolf Plaza events and competitions
- Participation in DAO governance and platform voting
- Token-based redemption of golf hardware (e.g., AIX Club) through token holding tiers

SGi Earn Flow with Layer 2 NFT Integration

🔑 Key Advantages of This Architecture

- **Cost Efficiency**
All reward claims and swing validations occur on Polygon via NFT minting, ensuring cost-efficiency. Only finalized token transfers to ERC20 require mainnet interaction.
- **Security & Transparency**
SGi minting occurs only after NFT burn via a verifiable bridge → ensures full traceability and immutability.
- **Web3 Friendly Design**
Users interact with familiar Web2-like interfaces and only engage with Ethereum mainnet when liquidity or trading is needed.
- **Token Separation for Utility and Proof**
 - NFT (ERC721): Swing-based proof of activity
 - ERC20 SGi: Tradable, exchangeable, utility token



🔧 Technical Notes

- L2 NFT Network: Powered by Polygon PoS
- Bridge Logic: NFTs are burned on Polygon, triggering a verifiable mint on Ethereum. This ensures tamper-proof conversion and maintains mainnet token integrity.
- Claim Logs: Tracked across dApp, API, and server-side for auditability
- Extensible: Pro swing data (e.g., Tiger Woods) can also be minted as NFTs in same flow

Reward Integration Model:

Round	SGi Holding Threshold	Reward	Description
Bronze	500 SGi	1 AIX Club	Entry-level real swing experience with token utility
Silver	1,000 SGi	1 AIX Club + Swing NFT rights	Active user tier with digital asset engagement
Gold	3,000 SGi	1 AIX Club + Swing NFT rights + DAO voting priority + Plaza Event Pass	Ecosystem contributor + governance enabler

SGi holders can unlock a combination of physical rewards, digital features, and community governance rights. This tiered model supports both mass adoption and incentivized participation, while reinforcing SGi's identity as a non-securitized, real-world utility token.

Ecosystem Components:



- SmartGolf Club: AI-integrated sensor golf club
- SmartGolf App: Real-time swing analysis, personalized AI feedback, and built-in digital wallet with downloadable courses
- SmartGolf Plaza: Physical venue for SGI-based tournaments, NFT rewards, and community gatherings
- SmartGolf Tournament: Tokenized entry into global and local golf competitions
- Blockchain Layers:
 - **Smart Contract Layer:** Rewards, staking, and ecosystem economics
 - **Governance Layer:** DAO voting, proposal mechanisms
 - **NFT Layer:** Minting/trading of swing-performance-based NFTs

4. Use Cases

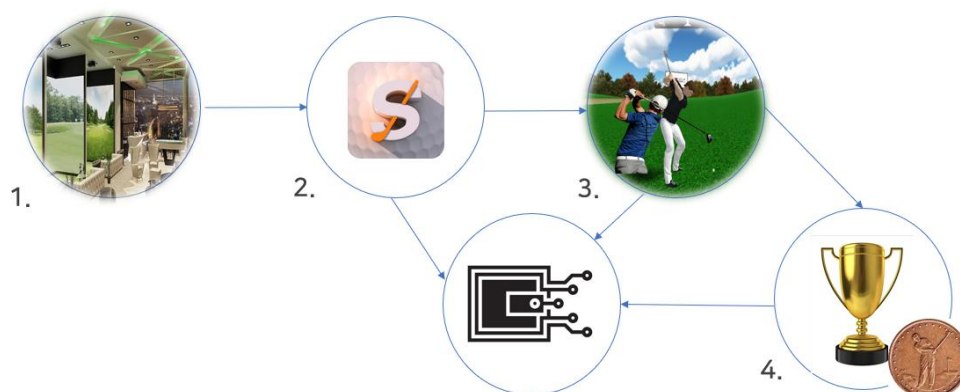
Use Case I – Swing Tokenization

- Players practice at home using the SmartGolf AIX club. Each swing is recorded, analyzed by AI, and minted as an on-chain Swing NFT. These NFTs can be redeemed for SGi rewards, used for personalized coaching, or traded within the marketplace.



Use Case II – SmartGolf Plaza Economy

- Users participate in multiplayer competitions or support players through token-based predictions at SmartGolf Plaza. All gameplay and cheering outcomes are transparently recorded on-chain, with SGi token rewards distributed based on performance or participation.

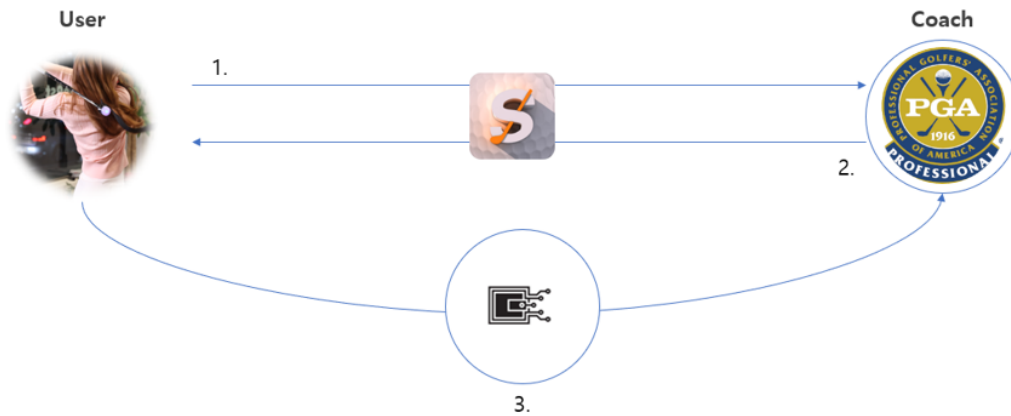


1. Users access SmartGolf Plaza (or play remotely via app and AIX club).
2. Players and gallery participants log in and connect through the SmartGolf system.
3. Players compete in multi-round matches; the gallery can cheer using SGi tokens.
4. Winners receive SGi token rewards based on gameplay and gallery support.

Use Case III – Additional Coaching

- Users receive personalized feedback from certified coaches by submitting swing

data through the SmartGolf platform. Fees are paid in SGi tokens via smart contracts, and sessions are managed through the SmartGolf digital wallet.



1. The user swings with a SmartGolf club; motion data is instantly uploaded to the system and matched with a certified coach.
2. The coach analyzes the swing data using SmartGolf AI tools and sends personalized feedback through the app, including drills and correction instructions.
3. Coaching fees are processed through smart contracts using SGi tokens, with automatic settlement via the SmartGolf digital wallet.

Use Case IV – Professional Swing NFT Distribution

Professional golfers (e.g., PGA players) can upload certified swing data and issue premium NFTs. These NFTs are sold on the SmartGolf marketplace using SGi tokens, and may include access to exclusive 3D swing visualizations. To ensure digital rights, each NFT includes a controlled download limit enforced via the SmartGolf off-chain authentication API.

- Creator sets price (e.g., 100 SGi) and download cap (e.g., 3x)
- Buyer proves NFT ownership on-chain to unlock access
- API verifies eligibility and grants secure, signed access to swing content

This enables a new monetization model for sports talent, while adding high-value content to the SmartGolf ecosystem.

5. Market Opportunity

- Global Golf Population: Over 65 million active players worldwide.
- U.S. Golf Equipment Market: Valued at \$15.8B, with increasing demand for connected devices.
- Digital Golf Courses: 500+ courses adopting digital/AI infrastructure.
- SmartGolf's Strategic Access: Existing deployments in Houston-area schools and direct collaboration with PGA-certified coaches.
- Emerging Web3-Sports Market: Rising demand for tokenized sports engagement platforms.

6. Team

Core Team:

- [Jongmin Kim](#) (CEO):
Founder of SmartGolf, Ph.D. in engineering. Over a decade of innovation in swing analytics and now pioneering AI/Web3 integration in sports tech.
- Jason Oh(CIO):
Former professor of Sookmyung University. Ph.D. in Economics, especially Tokenomics, Design in NFT commerce and Web3 and DAO design at SmartGolf.
- Moon Jang(Software Development):
Full-stack AI/IoT developer with a background in mobile and embedded systems. Designed and built the SmartGolf AIX system architecture and AI engine.
- Sion Lee(Server / Blockchain Integration):
Backend lead specializing in Ethereum-based contracts and scalable infrastructure. Responsible for SGi deployment and system security.

Professional Golf Ambassadors:

PGA-certified coaches and professional players who actively use SmartGolf AIX for lessons and clinics, endorsing its accuracy and training value.

- [Steve Parker](#), [JJ Wood](#), Steve Jurgenson, Matthew Williams

Global Partners:

Support local expansion and user onboarding in their respective regions.

- [Terry Williams](#)(USA)
- [Lee Dewerson](#)(Oceania)

Advisors:

- [Fraser Warren](#) – Global Marketing in EU, Former VP, Kubik(EU marketing agency)
- [Pradeep Kumar](#) - International Strategy. 30+ years in international Business across Web3, IoT, and tech investment.

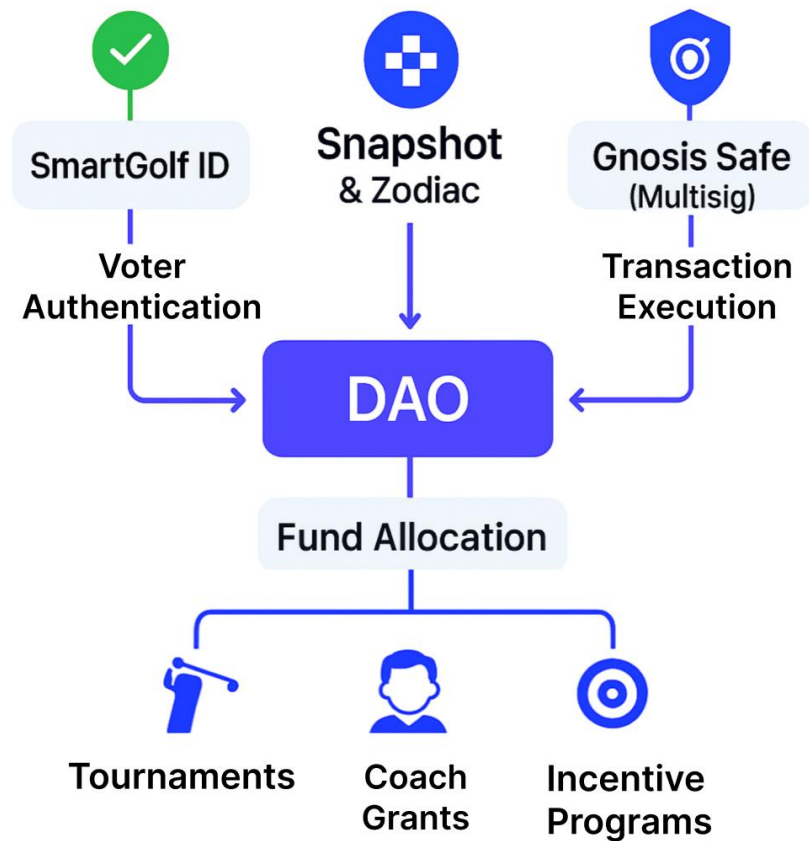
7. Roadmap Highlights

- 2015–2023: Completed SmartGolf hardware R&D, raised \$400K via crowdfunding, and secured endorsements from PGA professionals.
- 2024: Partnered with 5 schools in Houston, presented at VivaTech & Expand North Star as official exhibitors.
- 2025 Q2: SGi Token smart contract deployed on Ethereum mainnet.
- 2025 Q3: First DEX listing completed. Community onboarding and Zealy campaign launched.
- *2025 Q3: Expand DEX presence and initiate staking + utility rollout. CEX listing under due diligence by exchange partners.*
- *2025 Q4: Launch NFT-based swing minting + activate DAO voting via SGi token governance module.*

8. Governance & DAO Structure

- **SGi Holders:** Participate in governance by voting on platform upgrades, tokenomics changes, tournament rules, and coach onboarding.
- **Financial Management:** A multi-signature DAO board, operated via Gnosis Safe, executes transactions based on community voting outcomes.
- **Community Proposals:** Governance proposals are submitted via Snapshot and automatically executed using the Zodiac module, ensuring fully on-chain governance.
- **Authentication Layer:** Voter eligibility is managed through SmartGolf ID, a permissioned authentication system built on Firebase.
- **Fund Allocation:** DAO funds are allocated to tournaments, onboarding coach grants programs, and community incentives based on governance votes.
Additionally, 5% of all SGi wager-based transactions are automatically routed to the DAO treasury.
- **Spectator Participation:** Gallery users can engage by predicting match outcomes and cheering with tokens. Winning predictors earn token rewards; the rest supports DAO sustainability. This fosters future initiatives like city-level franchise tournaments in venues such as hotels or golf hubs (e.g., Las Vegas).

- **Tournaments:** DAO-funded competitions for SGi holders and spectators.
- **Coach Grants (or Rewards):** Token-based compensation for verified coaches.
- **Incentive Programs:** Rewards for community participation and referral campaigns.



9. Token Burn & Supply Management

To ensure long-term value stability and align user incentives with ecosystem health, SGi adopts a hybrid token supply mechanism involving controlled token burns and capped minting:

- **Token Burn:**
 - A portion of tokens used for in-game betting fees, tournament entry fees, and SmartGolf virtual course purchases are automatically burned.
 - This deflationary mechanism prevents oversupply and enhances the long-term value of the SGi token.
- **Controlled Minting:**
 - New SGi tokens may be minted only in limited, governance-approved scenarios

such as:

- Ecosystem expansion into new regions
- Strategic partnerships or franchise launches
- Rewards pool replenishment (subject to DAO voting)
- Minting is subject to a hard cap and transparent governance via SmartGolf DAO.
- Treasury Reserve Policy:
 - A portion of SGI tokens is held in the DAO treasury and gradually released according to performance milestones, with unclaimed rewards subject to periodic burn cycles.

10. Risk Factors

Standard Web3 Risks:

- **Blockchain Volatility:** As with any Web3 project, fluctuations in the blockchain market can impact token values.
- **Regulatory Uncertainty:** While the regulatory landscape for cryptocurrencies is still evolving, SmartGolf Token (SGi) has been designed as a Utility Token rather than a Security Token. This distinction ensures that SGI complies with regulatory frameworks governing utility tokens, which are typically more favorably accepted by regulatory authorities. The token's creation and use are fully integrated within the SmartGolf ecosystem, which mitigates regulatory risk by ensuring that SGI's primary function is as a utility for real-world golf training, AI coaching, and community participation. We believe this approach reduces exposure to the potential risks associated with Security Token regulations.
- **Security Vulnerabilities:** Risks related to wallet security and potential exploits of smart contracts remain prevalent. However, SmartGolf's smart contracts are built with upgradeable architecture and undergo regular audits to minimize vulnerabilities.
- **Market Adoption Dependency:** The success of SmartGolf is largely dependent on its adoption by golfers, coaching professionals, and the global golf community. Scaling the platform and ensuring widespread user participation is key to the

ecosystem's success.

11. Conclusion

SmartGolf Token is built on real use, not empty promises. With PGA-proven devices, live users, and a functioning reward system, the platform already brings Web3 into everyday golf practice.

By turning swing data into meaningful digital value, SmartGolf connects physical performance with blockchain rewards in a way that is simple, secure, and scalable.

This creates a new kind of sports experience that motivates, verifies, and grows with its community.

More info:

 Website: smartgolf.io

 GitHub: github.com/SmartGolf/SmartGolfDAO

 Telegram: t.me/SmartGolfSGi

 Twitter: [@SmartGolfDAO](https://twitter.com/SmartGolfDAO)