Golf 4
Circularity

ECO GOLF DESIGN LAB FOR A MOBILE ECO GOLF SIMULATOR

GOLF ON THE MOVE

Co-funded by
the European Union

Project: 101133954 — GOLF 4 CIRCULARITY ERASMUS-SPORT-2023

1. Executive Summary

GOLF ON THE MOVE is a mobile, sustainable, and educational golf experience built around an electric vehicle concept with two functional trailers. One features a high-tech golf simulator and eco-learning space, while the other showcases a modular mini-golf course built with recycled materials. With integrated solar power, kid-friendly features, and educational programming, this mobile facility offers a hands-on platform to promote environmental awareness, inclusivity in sport, and circular economy practices.

As part of the GOLF 4 CIRCULARITY initiative, this proposal also incorporates an Eco Golf Design Lab, where young participants co-create the infrastructure to be deployed in local communities post-project as part of its sustainability legacy.

2. Objectives

- Promote circular economy and eco-conscious behavior through golf
- Create a mobile, scalable, and sustainable infrastructure
- Educate youth on sustainability, green reading, and fundamental golf skills
- Foster creativity and community engagement through the Eco Golf Design Lab
- Leave a lasting impact in at least 12 local communities, including disadvantaged areas

3. Project Concept

3.1 Vehicle & Structure Overview

- Electric Truck: 100% electric, low-emission vehicle suitable for travel across urban and rural regions.

- **Trailer A – Golf Simulator Lab:**
  - Indoor Hitting Bay: A professional-grade simulator setup featuring artificial turf, screen, ceiling-mounted projector, and top-tier swing analysis technology such as Trackman or a similar system. This setup provides an immersive and accurate experience for practicing full swings and short game.
  - Portable Seating & Safety Netting: Foldable benches and padded seating for observers and resting participants. Safety netting is installed for side protection during simulator sessions.
  - Educational Area: A built-in corner equipped with digital display panels, touchscreen tablets, and visual infographics. These provide engaging content on the circular economy, green supply chains, sustainable sportswear, and the lifecycle of golf equipment.
  - Battery-Powered Lighting & Digital Panels: Interior lighting and displays run entirely on solar-charged batteries, enabling nighttime operation or indoor venue usage.

- **Trailer B – Eco Mini-Golf Experience:**
  - Sustainability-Themed Mini-Golf Holes: Four creative and educational holes inspired by key environmental issues:
    i. Climate Change Hole – featuring elements like rising sea levels or melting icebergs
    ii. Recycling Hole – using waste objects to create obstacles and hazards
    iii. Biodiversity Hole – incorporating artificial flora and animal shapes to reflect habitat preservation
    iv. Water Use Hole – mimicking irrigation systems and stormwater challenges
  - Sustainable Construction: Each hole is fabricated using reclaimed materials from golf course renovations, salvaged wooden frames, repurposed plastic piping, and metal barriers sourced from scrap material yards.
  - Modular & Mobile: The holes are designed for quick assembly and disassembly, with adjustable bases allowing for installation on a variety of surfaces (grass, pavement, playgrounds). Transported flat-packed within the trailer.

3.2 Renewable Energy and Green Features

- Solar Panel Arrays: Mounted on the roofs of both trailers to capture renewable energy throughout the day
- Battery Storage: High-efficiency batteries store energy to power:
  - Golf simulator and projector
  - Lighting and ventilation
  - Interactive displays and kiosks
  - Ice cream/snack appliances
- Biodegradable Packaging: All items at the snack station are served in compostable or biodegradable containers, minimizing single-use plastic.
- Recycling Stations: Clearly labeled bins for paper, plastic, organic, and mixed waste, helping young visitors learn about sorting waste.
- Eco-Certified Materials: All internal furniture, flooring, and display structures use FSC-certified wood, low-VOC paint, and other sustainable finishes.

3.3 Family & Community Zone

- Ice Cream & Refreshment Corner: Compact and solar/hybrid-powered freezer and dispenser for ice cream, juice, and light snacks. Emphasizes healthy and local options.
- Interactive Games & Quizzes: Touchscreen kiosks and analog activities challenge players on eco-knowledge (e.g., sustainability trivia, carbon footprint match-ups).
- Pop-Up Lounge: Shaded canopy area with bean bags, benches, and fold-out tables for group discussions, relaxation, or cooling off.

Community Art Wall: A writable, magnetic surface where children can draw or post ideas related to sustainability, dreams for the planet, and green sports. Repainted and refreshed per event.

4. Eco Golf Design Lab – Completed Phase

The Eco Golf Design Lab was successfully delivered as a co-creative workshop embedded in the project's educational program. It actively engaged youth aged 10–18 and assistant coaches from the national partner organizations in the design and conceptualization of innovative, sustainable golf structures.

4.1 Achieved Goals

- Stimulated creative and critical thinking on sustainability and sports infrastructure
- Enabled hands-on application of knowledge gained through the project's circular economy and sustainability curriculum
- Supported the development of portable, low-footprint golf facility designs ready for implementation in community settings after project completion

4.2 Implementation Process

The Lab was conducted through several interactive stages:

- Target groups participated in guided brainstorming sessions, applying their training and local context to eco-golf ideas
- Participants submitted detailed modular design concepts, including layout sketches, materials lists, cost estimates, and community use plans
- An expert panel, composed of project staff and sustainability specialists, evaluated all submissions based on feasibility, creativity, environmental impact, and inclusiveness
- One winning design was selected through a transparent scoring process and then adapted into a finalized prototype for use in 12 local communities (including two underserved areas)

4.3 Key Features of the Final Design

- Compact footprint suitable for putting, chipping, and short-range golf drills
- Constructed entirely from recycled and reused materials, including reclaimed wood, repurposed turf, and salvaged metal elements
- Integrated educational components, such as QR-coded signage linking to sustainability content, and visual guides designed by youth participants
- Built with universal accessibility in mind, including adjustable equipment height, safe walkways, and low-sensory learning options for children with disabilities

5. Educational Program Features

- On-site golf lessons led by PGA-certified coaches
- Hands-on learning stations explaining golf's environmental footprint (e.g. turf maintenance, equipment lifecycle, travel emissions)
- Sustainability challenges such as:
  - Step-count competitions using wearable trackers or mobile apps
  - Recycling sorting games with point rewards
  - Eco-themed scavenger hunts
- QR-linked digital materials including:
  - Interactive lesson plans
  - Short educational videos
  - Infographics and quizzes
- Inclusive setups ensuring access and enjoyment for children with disabilities (e.g. adjustable height equipment, sensory-friendly designs)

6. Social & Environmental Impact

6.1 Social Inclusion

- Brings golf to underserved and rural communities
- Inclusive infrastructure with fun, youth-oriented features
- Involves youth in hands-on learning and creation

6.2 Environmental Benefits

- Promotes reuse and circularity in sports infrastructure
- Powered by renewable energy (solar panels)
- Reduces carbon footprint through electric mobility

7. Sustainability and Legacy

- Post-project, the best Eco Golf Design Lab output will be implemented in 12 communities, including 2 disadvantaged areas
- Infrastructure remains with local organizations to continue outreach
- Toolkits will be created for replicating the mobile facility in other regions
- Online platform hosts design plans, usage guides, and instructional videos

8. Partnerships & Funding

- National Golf Federations and PGA Bodies
- Municipalities and schools
- EU Programs
- NGOs in education and environmental advocacy
- Sponsors from golf, sport tech, and eco-manufacturing sectors

10. Conclusion

GOLF ON THE MOVE provides a dynamic, forward-thinking solution to promote sustainability and inclusivity through golf. By integrating advanced technology, circular economy practices, and youth engagement, this project offers a scalable and replicable model that leaves a lasting legacy. Through the Eco Golf Design Lab and community deployments, we aim to build a new generation of golfers who play not only with passion — but with purpose.


GOLF ON THE MOVE
A Mobile Eco Golf Simulator
EV
Golf 4 Circularity
CIRCULAR ECONOMY RESEARCH CENTER
École des Ponts business school
GOLF AUSTRIA
GOLF 4
CIRCULARITY
EV

GOLF SIMULATOR

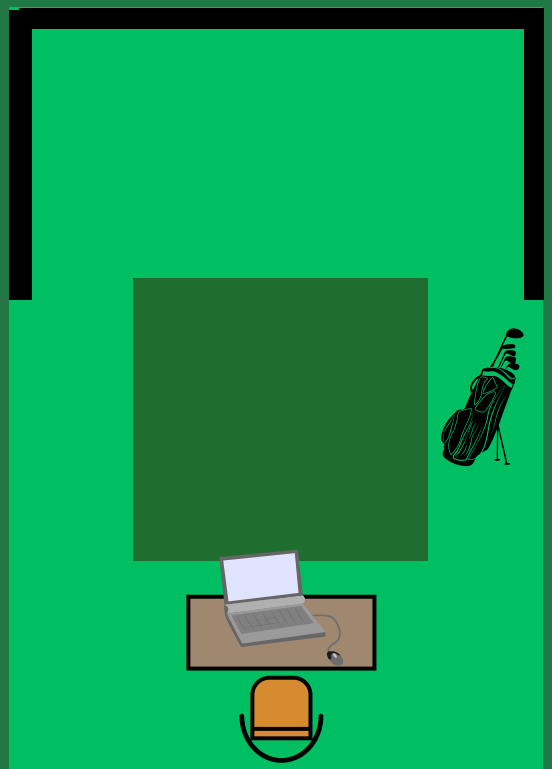
ECO MINI GOLF

INDOOR SIMULATOR

MINI GOLF

EDUCATION AREA

ICE CREAM



Floor Space Plan – GOLF ON THE MOVE
Two-Trailer Configuration

Trailer A – Golf Simulator Lab & Educational Zone
Total Area: ~31.2 m² (13 m × 2.4 m)

Zone 1: Golf Simulator Bay
Location: Front section
Size: 5.5 m (L) × 2.4 m (W) = 13.2 m²
Features:

- Hitting area with pro turf and screen
- Ceiling-mounted projector and Trackman or similar system
- Swing safety netting on sides
- Space behind for follow-through and camera tracking
- 1–2 seats for observing or coaching
-

Zone 2: Swing Analysis & Tech Station
Location: Center section
Size: 2.5 m × 2.4 m = 6 m²
Features:

- Wall-mounted screen for swing review
- Digital touch display with training feedback
- Storage rack for clubs and balls
- Charging station for tablets and phones

Zone 3: Educational Corner
Location: Rear section
Size: 5 m × 2.4 m = 12 m²
Features:

- Circular economy learning panels (infographics, tactile exhibits)
- Touchscreen quiz station or digital display
- Fold-down table for drawing/design challenges
- Shelving with OER handouts and learning packs
- Optional small projector for school group presentations

Trailer B – Eco Mini-Golf + Community Zone
Total Area: ~31.2 m² (13 m × 2.4 m)

Zone 1: Mini-Golf Course (4 Holes)
Location: Front to middle (approx. 9 m total length)
Size: 9 m × 2.4 m = 21.6 m²
Features:

- 4 sustainable-themed holes (climate, water, recycling, biodiversity)
- Holes vary in shape and challenge (e.g. slope, loop, tunnel)
- Built from upcycled wood, plastic, artificial turf
- Ramp/adjustable incline at hole entry for accessibility

Zone 2: Storage & Staging Area
Location: Between holes and community zone
Size: ~2 m × 2.4 m = 4.8 m²
Features:

- Folded ramps, barriers, putters, and balls
- Lockable drawers for toolkits and spare parts
- Charging dock for mobile devices and display kiosks

Zone 3: Family & Community Area
Location: Rear section
Size: ~1.6 m × 2.4 m = 3.8 m² (inside trailer)
Exterior Fold-Out Area: Optional +6–8 m² via awning
Features:

- Ice cream/snack service counter with mini fridge (solar-powered)
- Compostable packaging, reusable cups
- Fold-out chairs and small tables (stored inside trailer)
- Magnetic art wall or board for kids to post drawings or notes
- Access to mobile quiz/game stand (powered via solar batteries)

Shared Features Across Both Trailers

- Solar panels on each trailer roof (~6–8 m² surface area per trailer)
- Battery bank for powering projector, lights, fridge, tablets
- LED lighting throughout
- Eco-certified flooring and wall panels
- Accessible entry ramps, handrails, and 1.2 m-wide walkways

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