

SOLAR THRIVE: AFFORDABLE DIGITISED COOLING



Quick Snapshot



Savanna Circuit Tech (SCT)



Ruai-Nairobi, Kenya



Productive Use of Renewable Energy

Key Achievement: Empowered 65000+ farmers

Business Summary

Project: SOLAR THRIVE

Project Stage: Growth stage with piloting in new markets

Core Offering: **Decentralized Cooling-as-a-service** and **MaziwaPlus DMS** streamlining operations from milk collection to cooperative management(**end to end solution**), integrating tracking, quality control, and farmer management.

Key Products

- **Ice Water Dispenser:** Dispenses ice cold water to the ice battery (Thermocore)
- **Nomad Cans:** Portable cans that keep milk fresh for up to 12 hours.
- **EcoSav Boxes:** Lightweight cold storage for meat and fish.
- **MaziwaPlus DMS:** Simple ERP system for cooperatives to track milk collection and quality.

Benefits to Farmers and Processors



Increased income



Strengthened cooperatives operations



Climate resilient sustainable solutions



Empowerment of women and youth

Installation and Product Validation

- Partnered with cooperatives in remote and underserved areas, testing cooling units with dairy and fish cooperatives.
- Iterative design improvements based on real-world feedback, leading to a lighter, low-maintenance product.
- Product refined to address initial challenges (weight, cooling efficiency, ease of cleaning) and tailored for local needs.
- Proven adaptability for both dairy and fish cooling applications, showing the versatility of SOLAR THRIVE's cooling solutions.

SOLAR THRIVE offers **locally manufactured, farmer-centered, solar-powered, affordable cooling solutions** through Cooling as a Service model, making it accessible and sustainable for smallholder farmers

SOLAR THRIVE TECH STACK

Ice Water Dispensers



Mobile delivery for first and last-mile cold chain coverage



Installed at local hubs for walk-in cooling access

Nomad Cans with Thermocore



- Portable glycol-based cooling units
- Ideal for milk transport.

Ecosav Bags



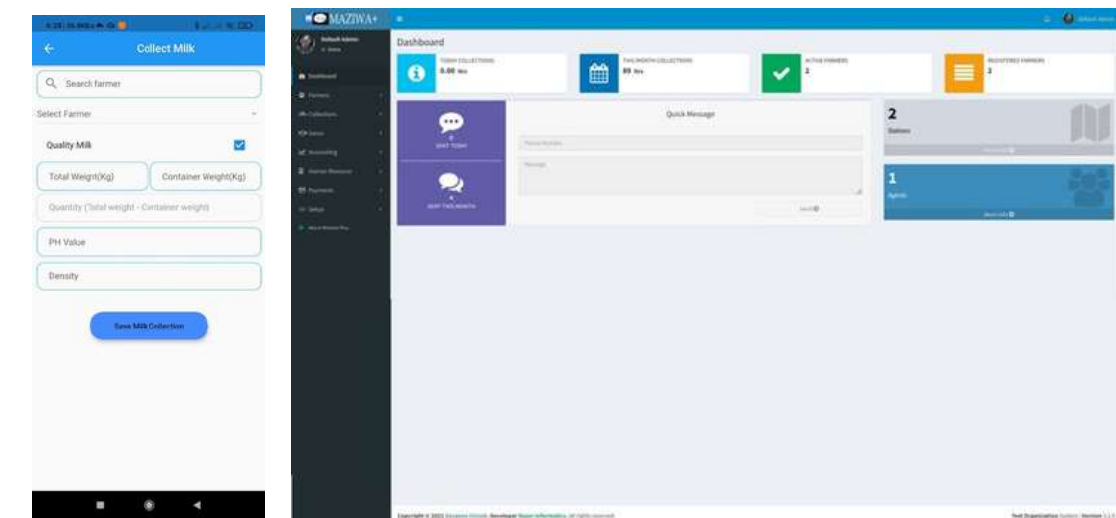
- Thicker insulation, reinforced lining
- Ideal for fish traders

MaziwaPlus Lite Kit



- Designed for off-grid dairy collection and transport in hilly or inaccessible areas.
- Offers cooling on the go without needing fuel or electricity.

MaziwaPlus Dairy Management Platform



A digital tool for tracking milk collection, volumes, quality, and farmer payments.

ICE WATER DISPENSER(IWD)



The Stationary Ice Water Dispenser is a digitally controlled, solar powered chilling system that produces and stores food-grade glycol-cooled water. This chilled water is used to cool milk, fish, and other perishables through closed-loop cold packs (ladder packs or thermocores).

It works as a mini cold chain anchor, enabling safe storage and transport for farmers, fisherfolk, and vendors with limited access to full refrigeration.

Feature	Description
Digital Dispensing System	Users select the amount of chilled water needed via touch interface or app
Metered Delivery	Water is dispensed by volume (1–20L) with prepayment or post payment (M-Pesa compatible)
Insulated Glycol Tank	100L chilling tank stores glycol-cooled water at stable cold temps
Recirculation Loop	Used glycol water is returned, re-cooled, and reused Separate tanks: 100L (chilled) + 200L (warm return)
Low-Cost Access Model	Pay-per-use system supports inclusivity for small producers

NOMAD EV/D



The Nomad EV/D is a rugged three-wheeler designed to deliver cold chain mobility and dispensing functionality in a single unit. It's available in two drivetrain options:

- Electric (EV): For energy-efficient, solar-charged use in low-emission zones or off-grid areas.
- Diesel (D): For cooperatives operating in high-duty cycles or without reliable power infrastructure.

It serves as a mobile glycol water chiller and dispenser, while also transporting up to 28 Nomad Cans

Feature	Description
Cooling System	Chills glycol water and stores in cold reservoir (ice water system)
Dispensing Mode	Digitally metered output via onboard touchscreen
Transport Capacity	12–28 Nomad Cans (25L / 50L)
Drivetrain Options	EV (Solar-Charged) / Diesel (Fuel-Efficient)
Digital Integration	Compatible with MaziwaPlus traceability platform

NOMAD CANS

The Nomad Cans are patented, insulated food-grade containers designed for the safe transport of milk.

Built for modular use on the Nomad EV/D or stationary ice water dispensers setups, these cans maintain optimal temperature using chilled glycol water, in a thermal insert.



Feature	Description
Can Sizes	10L, 25L and 50L
Cooling Method	External contact with ice/glycol water inside the thermocore
Material	Food-grade Aluminium, HDPE Ccladding, double-insulated body
Lid Design	Leak-proof, wide-mouth opening
Use Cases	<ul style="list-style-type: none"> • On the farm cooling • Milk collection from decentralized farmers • Pre-cooled storage for market days or remote sale points

NOMAD CANS

Comparative Advantages Over Traditional Milk Cans

Feature	Nomad Can (10L)	Traditional Cans
Cooling Capability	Integrated (Solar)	None
Weight (with cooling)	3.6kg	Stainless Steel: 3kg
Spill & Leak Protection	Yes	Limited
Locks & Security	Yes	No
Insulation	Yes	No
Carrying Straps/Harness	Yes	No

Weight Comparison

Can Type	5L Weight(kg)	10L Weight(kg)	20L/25L Weight(kg)	50L Weight(kg)
Aluminum Can (w/lid)	1.2	2.4	4.2	8.2
Stainless Steel (no lid)	2.6	3	3.4	7.4
Nomad Can (w/Thermocore)	N/A	3.6	4.08	8.88

The Superior Benefits of the Nomad Can

1. Functional Superiority

- **Anti-Spill & Leak-proof:** Prevents milk loss during transport.
- **Lockable & Secure:** Protects milk quality and prevents unauthorized access.
- **Integrated Cooling (Thermocore):** Solar-powered cooling to keep milk fresh without external refrigeration.

1. Weight & Durability

- 3.6kg (10L), **only 0.6kg heavier than stainless steel cans, with superior cooling functionality.**
- **Built for rugged conditions**, offering long-lasting durability and reliability.

2. Sustainability Advantage

- **Carbon Neutral Cooling:** Eliminates the need for diesel- powered refrigeration, reducing emissions.
- **Supports global ESG goals** with an eco-friendly transport solution.

1. Operational Benefits

- **Reduces spoilage and keeps milk fresh** during off-grid or long-distance transport.
- **Cost-efficient:** Eliminates refrigeration costs, improving supply chain reliability and reducing expenses.

While traditional cans may be lightweight, they lack the **integrated cooling, spill-proof design, and secure, lockable features** of the **Nomad Can**. This makes the Nomad Can a **transformative choice** for dairy processors aiming to achieve both **sustainability** and **operational efficiency** in milk transport.

ECOSAV BAGS

ecoSaV Bags are durable, insulated carry packs designed for transporting fish, and produce in cooled conditions . They are used together with ladder packs filled with ice water from our Ice Water Dispensers or mobile trikes.

Whether strapped on a boda, placed on a boat, or carried by hand ecoSaV Bags give farmers and traders a way to preserve freshness, reduce spoilage, and deliver high-quality products to market.



Feature	Description
Thermal Insulation	Multi-layer walls maintain cold for 8–12 hours using glycol ice packs Keeps internal temp low even under direct sun
Flexible Carry Options	Shoulder straps, side handles, or top load design for ease of transport
Waterproof Inner Lining	Food-safe and easy to clean for hygiene and safety
Rugged Outer Fabric	Dust-resistant and weatherproof for rural and market places
Custom Sizing	<ul style="list-style-type: none"> Starting from 60kg depending on use case and capacity needs

MAZIWAPLUS PRO



The MaziwaPlus Pro is a robust, solar-powered active cooling tricycle built for reliable bulk milk transport. It ensures real-time temperature control during transit ideal for high-value milk routes and areas with strict cold chain requirements.

Fully integrated with the MaziwaPlus digital platform, this solution offers traceability, efficiency, and independence from grid-based infrastructure

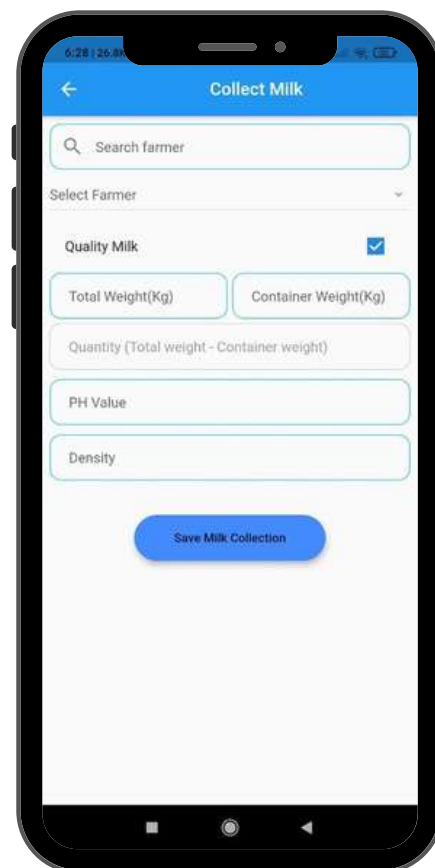
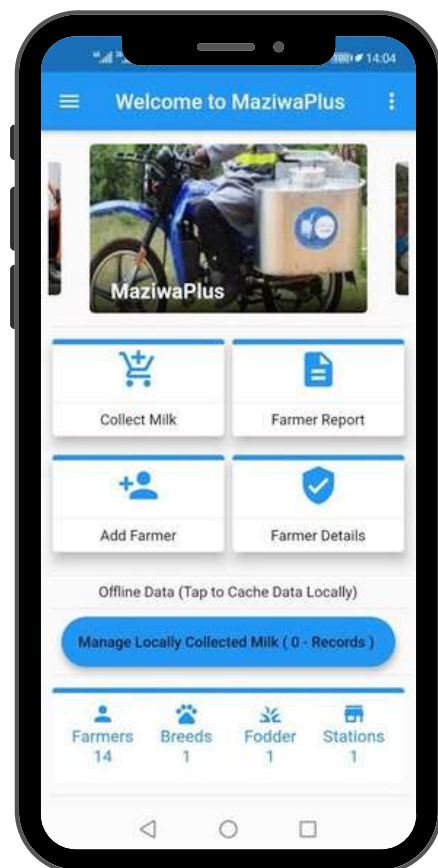
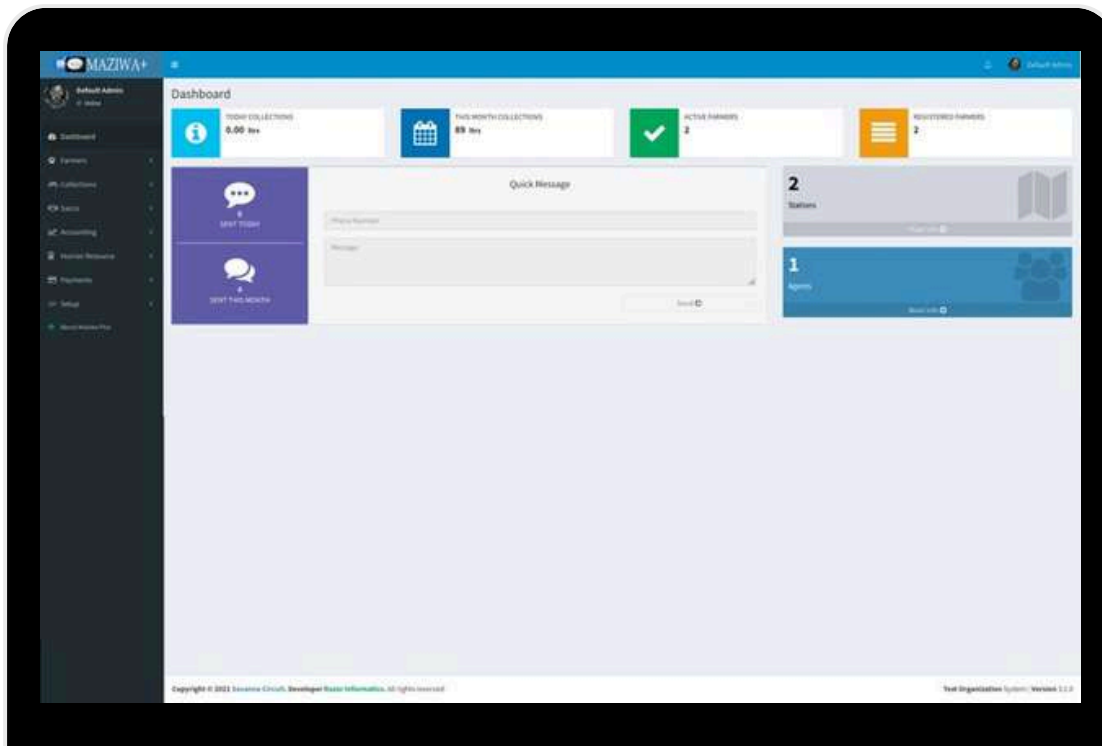


Feature	Description
Cooling Type	Active chilling (compressor, solar battery and solar on body)
Material	Food-grade stainless steel
Capacity	300L – 1000L (customizable)
Digital Platform	Fully integrated with MaziwaPlus for data tracking
Use Cases	<ul style="list-style-type: none">• Bulk milk collection for processors or cooperative-owned routes• Field quality control for high-value milk grades• First-mile transport in compliance-heavy zones• Route-based micro chilling for farmer groups

MAZIWAPLUS DMS

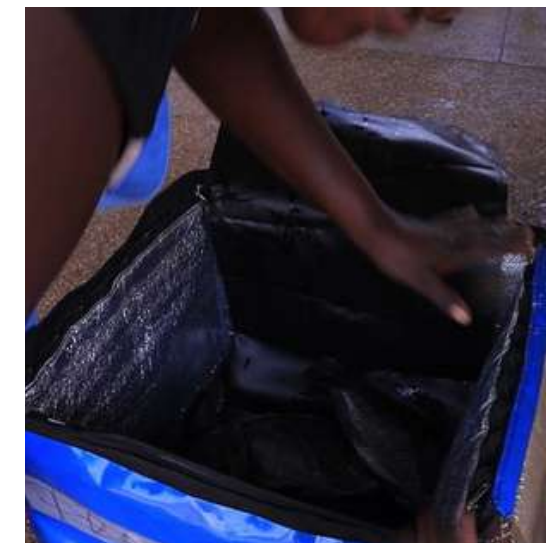
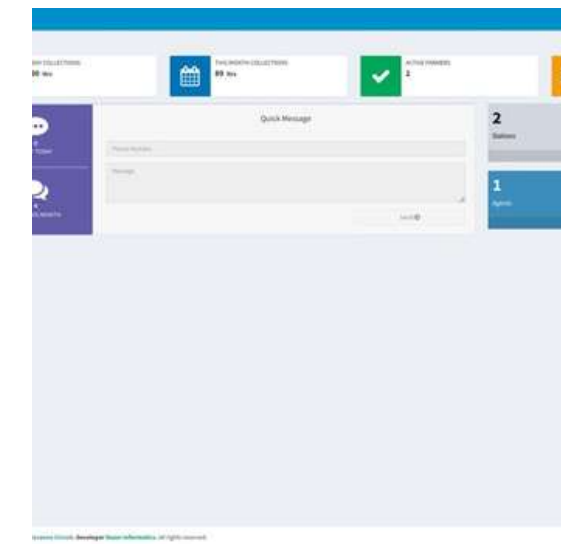
The MaziwaPlus Dairy Management System is a cloud-based, mobile-integrated software platform designed for real-time monitoring, route management, and digital records across the dairy supply chain.

Built to support both smallholder cooperatives and commercial processors, the system connects milk transporters, processors, quality officers, and administrators into a single, traceable ecosystem.



Module	Features
Farmer & Route Registry	Farmer profiles, collection routes, GPS-linked data, production history
Milk Collection Logs	Volume, source, temperature, timestamp, can traceability
Payments & Records	Mobile payments, digital receipts, farmer balance records
Analytics Dashboard	Aggregated trends by volume, spoilage, route performance
Mobile Access	Works offline with auto-sync; Android app for field users

SUMMARY



me	collection_temperature	collection_volume	battVoltage	compressor
1.00	-16.19	1000.00	5.23	on
1.00	-16.38	1000.00	5.97	on
1.00	-16.19	1000.00	5.95	on
1.00	-16.06	1000.00	5.90	on
1.00	-15.94	1000.00	5.92	on
1.00	-15.88	1000.00	5.90	on
1.00	-15.63	1000.00	5.94	on
1.00	-15.75	1000.00	5.92	on
1.00	-15.69	1000.00	5.95	on
1.00	-15.56	1000.00	5.71	on

Owned and maintained by Savanna

- Core cooling hubs of the ecosystem.
- Stationary units at markets and landing beaches
- Mobile 3-wheelers deliver chilled glycol to remote users
- Pay-per-use system with digital prompts
- Chills to -30°C , enabling deep, fast cooling for milk and fish
- Efficient, solar-powered, and built for off-grid use.

Users: Farmers/ Traders

- Mobile cooling units designed for transport and last-mile use.
- Nomad Cans (10L/25L/50L) with thermocores for milk
- EcoSav Bags with ladder packs for fish
- Use glycol from dispensers for continuous cold
- Durable, stackable, and easy to clean
- Keeps produce cold from farm or lake to buyer.

Users: Aggregators

- Reliable cold transfer from producers to hubs or markets.
- Motorbikes with custom carriers for $4 \times 25\text{L}$ or 50L cans(MaziwaPlus Lite)
- 3-Wheeler Trikes (EV or diesel) for higher volumes
- Compatible with Nomad Cans and EcoSav Bags
- Option for MaziwaPlus Pro trike with solar-cooled SS tank
- Optimized and built to move cold anywhere.

Users: Agents, Clerks

- Digital tools to track quality, quantity, and payments.
- MaziwaPlus DMS for cooperative records and farmer payouts
- Real-time tracking of volumes, temperatures, and routes
- Seamless syncing with mobile collection units
- Reduces loss, boosts trust, and unlocks financing
- Data-backed cold chain, from farm to final sale.

MAZIWAPLUS BULK MILK CHILLER



Designed for cooperative hubs and milk collection centers, Bulk Milk Coolers rapidly chill and store large volumes of milk, safeguarding quality from farm to processor. Powered by solar or hybrid energy, they provide a dependable, hygienic solution for bulk milk handling in off-grid or grid-limited areas.



Feature	Description
Cooling Type	Glycol-based active chilling with solar power and grid backup options
Capacity	200-2000L(Customisable)
Material	Food-grade stainless steel with multi-layer insulation
Integration	Compatible with MaziwaPlus DMS for volume and temperature logging
Use Cases	Cooperative hubs, milk aggregation centers, and processing plants needing centralized cooling

ECOSAV PASTEURISERS



Our Pasteurisers enable safe, efficient milk processing, extending shelf life and meeting food safety standards. Built for small-scale and cooperative-level dairy production, they ensure high-quality pasteurised milk and dairy products ready for market.



Feature	Description
Heating Method	Electric or hybrid (grid + generator)
Capacity	100L – 500L batch sizes
Material	Food-grade stainless steel, easy-clean design
Temperature Control	Digital thermostat with pasteurization cycle automation
Integration	Works seamlessly with Bulk Milk Coolers and MaziwaPlus DMS for batch tracking
Use Cases	Dairy cooperatives, processors, and small-scale milk product manufacturers



SOLAR PROCESSING SERIES



1 CUP FILLER & SEALER

Semi/ Automatic
Cup size: 50ml-1000ml
From KES 520,000



2 HOMOGENIZER

Capacity Options: 100-2000L/h
Pressure Range: Up to 250 bar (adjustable)
From KES 720,000



3 POUCH FILLER & SEALER

Semi/ Automatic
Cup size: 50ml-1000ml
From KES 1.82M




Get in Touch

Let's build your cold chain solution together.

Savanna Circuit Tech

Savanna Business Park, Church rd

 +254-714-574007

 www.sav-circuit.com

 5107, Ruai - Nairobi

PARTNERSHIP & INVESTMENT INQUIRIES:

partnerships.sct@sav-circuit.com

