
# SOLUTIONSPLUS START-UPS

## SUMMARIES AND BUSINESS CONCEPTS

This project has received funding from the European Union Horizon 2020 research and innovation Programme under grant agreement no. 875041

## PROJECT PARTNERS

## ABOUT

This brochure has been prepared for the project SOLUTIONSplus. The project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement no. 875041

## TITLE

SOLUTIONSplus Start-up brochure

## AUTHORS

Emily Martin, Wuppertal Institute
Shritu Shrestha, Wuppertal Institute
Maria Rosa Munoz, Wuppertal Institute
Constanza Urbina, Wuppertal Institute
Yasin Imran Rony, Wuppertal Institute
Juan Carriquiry, UEMI
Oliver Lah, UEMI

## DISCLAIMER



## LAYOUT

Yasin Imran Rony, WI

## PICTURES

All the pictures are provided by the SOL+ partners

June, 2024

# CONTENTS

# EXECUTIVE SUMMARY

## SOLUTIONSplus: DRIVING THE GLOBAL SHIFT TO SUSTAINABLE URBAN MOBILITY

SOLUTIONSplus, an Inco Flagship Project, stands as a global leader in accelerating the transition towards low-carbon urban mobility. This ambitious initiative aligns itself with critical international agreements like the Paris Agreement, Sustainable Development Goals, and the New Urban Agenda, recognizing the crucial role of electric vehicles (EVs) in achieving these objectives.

## TRANSFORMATIVE SOLUTIONS FOR A GREENER FUTURE

SOLUTIONSplus tackles the challenge of sustainable urban mobility through a multi-pronged approach:

Demonstrating Integrated e-Mobility Solutions: Real-world city demonstrations serve as a testing ground for innovative and integrated e-mobility solutions. These demonstrations take place across diverse regions, including Europe, Asia, Africa, and Latin America, ensuring the solutions address the specific needs and conditions of each location.

Fostering Global Collaboration: SOLUTIONSplus recognizes that achieving a sustainable urban mobility future requires a united effort. The project facilitates collaboration between key stakeholders: cities, industries, research institutions, implementing organizations, and financing partners. This collaboration fosters knowledge sharing, resource pooling, and the development of effective e-mobility solutions.

Nurturing Innovation through the Start-up Incubator: Recognizing the potential of innovative startups and SMEs (small and medium enterprises), SOLUTIONSplus established a dedicated Start-up Incubator. This incubator provides crucial support to startups participating in demonstrations across various cities. The support goes beyond just seed funding, encompassing guidance in drafting business plans, access to local hackathons and events, opportunities for pilot projects with established partners, and training programs. This comprehensive approach empowers startups to develop commercially viable and impactful e-mobility solutions with global reach.

## SOLUTIONSplus: A CATALYST FOR CHANGE

By fostering collaboration, innovation, and practical implementation, SOLUTIONSplus serves as a catalyst for a global shift towards sustainable urban mobility. This project holds immense potential to transform urban environments, leading to cleaner air, reduced greenhouse gas emissions, and a more sustainable future for cities worldwide.

**INFORM**

Boost capabilities of local and national authorities, public transport operators and entrepreneurs about innovative urban e-mobility solutions across various transport modes by informing them about tools to plan, assess, implement and operate e-mobility solutions.

**INSPIRE**

Foster the take-up of e-mobility innovations by businesses, start-ups, local and national governments and transport operators by inspiring officials, operators, industry and businesses through peer-to-peer exchange on innovative e-mobility products and services.

**INITIATIVE**

Strengthen policy and business collaboration by initiating partnerships between local and national governments and local and European entrepreneurs and supporting the development of new e-mobility models business implementation plans.

**IMPLEMENT**

Create reference models for e-mobility innovation by implementing demonstration actions to test innovative e-mobility technologies and services, foster their replication and ensure their long-term sustainability.

# LATIN AMERICA

# BIXICARGO

Ecuador

https://bixicargo.com/

## DESCRIPTION

Ecuadorian start-up that seeks to promote and accelerate the development of the sustainable mobility ecosystem in electric cargo bicycles in Ecuador and Latin America by supporting enterprises, small, medium and large companies and public and private sector institutions in the implementation of strategies that achieve the transfer of technologies towards the transportation of goods and merchandise through bicycle logistics.

## ACHIEVEMENTS

Bixicargo manufactured 10 e-cargo bikes of three models: 4 rear loading, 4 front loading, and 2 long johns for last mile logistic purposes in Quito. The bicycles were tested for two months with 7 logistic operators in 4 operating schemes: 1. Food distributors, 2. Restaurant, 3. Courier companies and 4. Waste pickers associations at the Historic Center of Quito. The pilot showed great results in terms of efficiency, the e-cargo bikes traveled a total of 1,071 km carried 16 tons of cargo, made 229 deliveries, collected recyclables from 134 points, and achieved an estimated reduction in emissions of 491.74 kg CO2e. The significant efficiency gains experienced by most of the participants reveal a high scale-up and replication potential. Currently the e-cargo bikes are still working in the city, the vehicles were granted in permanent custody to the logistic operators who showed the best results during the pilot.

## INNOVATION

Bixicargo has innovated in the incorporation of electric motor assistance to the pedal, control displays, and other technical features to their vehicles. They also seek to generate social innovation, which means, to focus the design of the e-cargo bikes to the needs of vulnerable groups or social and circular economy enterprises that seek efficiency and sustainable growth in the delivery of their services or products. In the context of the SOLUTIONSplus project, they have also received support from PEM Motion to improve its designs.


CARGOBIKE.UY

# CARGO BIKE

Montevideo, Uruguay

https://www.instagram.com/cargo.bike/

## DESCRIPTION

CargoBike is a small start-up that manufactures electric cargo bicycles in e-long-jhon format.

## ACHIEVEMENTS

The piloting activities covered nearly 200 km and 40 driving hours, revealing several key findings based on PedidosYa's data. The tested vehicles, larger and heavier than typical bicycles, require rider training to ensure safety and stability. Proper training should cover vehicle operation and safety protocols, as balance and strength are crucial, potentially linked to the rider's age.

One major finding is the inadequate road infrastructure in Montevideo for bikes, particularly for these larger, heavier vehicles. Poor pavement conditions further exacerbate the unsuitability for cargo bikes, as the load is carried inside the bike.

The business model of PedidosYa, which relies on point-to-point distribution, does not optimize the use of these vehicles. Implementing goods consolidation could enhance operational efficiency and better utilize pedal-assisted electric vehicles.

In conclusion, for these vehicles to be effective in Montevideo's urban logistics, three conditions must be met: proper rider training, business models that incorporate goods consolidation, and improved infrastructure that meets safety standards for e-bikes and pedal-assisted electric bicycles.

## INNOVATION

CargoBike has manufactured a few units to be sold in the local market, or to partner with other companies to scale their business.


# CORADIR

Argentina

https://movilidad.coradir.com.ar/quienes-somos/

## DESCRIPTION

Coradir is company created in 1995, dedicated to the development of electronic and computer equipment, the production of electric vehicles, among others. Founded in the city of San Luis, it focuses on the public and corporate sectors. It works especially with the national government and the different provincial governments. The company produces and sells electric vehicles, and counts with different vehicle models to suit various mobility needs.

## ACHIEVEMENTS

Two electric pick-ups trucks of the "Tita" model were manufactured and provided for a pilot of logistics operations for agricultural purposes, in the context of the SOLUTIONSplus project. The vehicle allows a 500kg load and has an autonomy of 100km. In a pilot led by Asociacion Sustentar and the collaboration of the Municipality of Escobar, the electric pick-ups were used for harvesting and transporting food in the municipal Agro-ecological Gardens, with the aim of improving the delivery frequency of agricultural products to the community and with potential for replication and scaling-up in other municipal programs.

## INNOVATION

Coradir's has the capacity for mass production of six models of electric vehicles, as counts with five manufacturing plants, 3500 sqm of production space, 120 job positions. Their vehicles have an autonomy of around 100 and 300 km and a charging time of 6-8 hours.

# EVE MOVE

Uruguay

http://www.eve-move.com

## DESCRIPTION

Eve-Move is an SME specialized in electric vehicle (EV) chargers which offers comprehensive services including supply, installation, maintenance, and operation of EV charging stations. They provide a range of chargers suitable for different needs, from residential units to commercial and public charging stations. The installation service ensures proper setup and compliance with safety standards. Regular maintenance services maximize charger uptime and performance, while the operation service includes monitoring and managing the chargers to ensure efficient use. Their expertise supports the growing EV market, helping customers transition to sustainable transportation with reliable charging infrastructure.

## ACHIEVEMENTS

Eve-Move has successfully installed over 10 EV chargers across key locations in Montevideo, Canelones and Punta del Este, including shopping malls, office complexes, and residential areas. They partnered with local governments to equip public parking lots with fast chargers, enhancing urban mobility. Their maintenance team achieved a high uptime rate, ensuring reliable service for EV users. They also launched an innovative mobile app for real-time monitoring and booking of charging stations. Additionally, they collaborated with renewable energy providers to power chargers with green energy, reducing carbon footprints. Their efforts have significantly contributed to the city's sustainable transportation infrastructure and interoperability.

## INNOVATION

This SME stands out for its innovative solutions in the EV charging sector. They developed a proprietary smart charging technology that optimizes energy use, reducing costs and grid impact. Their chargers are equipped with advanced diagnostics for proactive maintenance, minimizing downtime. They introduced a user-friendly mobile app that not only facilitates real-time monitoring and booking of chargers but also offers personalized charging recommendations based on driving habits. The company's integration of solar panels with EV chargers demonstrates their commitment to renewable energy. These innovations position them as leaders in promoting efficient and sustainable electric vehicle infrastructure.

# FARMASOL

Cuenca

https://www.farmasol.gob.ec/

## DESCRIPTION

Farmasol is a public company from the Municipality of Cuenca which was born from a social project in the year 2004 and has maintained its legal status since 2010, through the issuance of a municipal ordinance. Currently it promotes a solidarity commitment and respect to improve the quality of life of the citizens while focusing on becoming a leadin chain of pharmacies in the offering of health products and services with a focus on sustainable and decentralized development. The commercial activity of Farmasol EP is based on providing access to medications, nutritional supplements and personal care products at solidarity prices.

## ACHIEVEMENTS

In the context of the SOLUTIONSplus project, Two electric tricycles were manufactured and provided for last mile logistics operations in the Farmasol EP company to deliver medicines and firsthand supplies to their pharmacies replacing its heavy diesel truck. The e-tricycles have a nominal load capacity of 300kg. The pilot was implemented with the collaboration of a group of partners such as Kradak, Ecotriciclos, the University of Azuay, among others.

# GREENSTAR

Uruguay

https://www.instagram.com/cargo.bike/

## DESCRIPTION

GreenStar SRL is an SME that produce electric three-wheelers composed of a steel framed chassis and a fiber glass body. The powertrain was originally acquired in China. Their markets are the local market (Uruguay) and they are also working to allocate their product in the USA.

## ACHIEVEMENTS

It was found that the vehicle adequately meets the benefits for use in urban activities. Specifically, it was found that its autonomy is sufficient for daily use (more than 80 km with one charge), while its adaptation to an urban environment is satisfactory. The vehicle responds very well to acceleration demands, and also meets the safety and regulatory requirements for this type of vehicle. It should be noted that the vehicle has no lateral windows nor lateral glasses, so it wouldn't be entirely suitable for its use in raining days. It was recommended to the designer to work on that in order to improve such handicap if it is compared to other similar urban vehicles.

Finally, it was found that its load capacity is enough for several urban work and activities (two passengers and more than 200 kg and 250 liters), what is one of the main advantages in comparison to similar urban vehicles that are sold in Montevideo city. As regards the easiness for operations, it was found that it´s easy to go in and go out to/from the vehicle, it´s easy to drive, to park and to load and download goods and merchandise.

## INNOVATION

GreenStar exprored the vehicle prototyping with Valeo powertrains. Given its sucess, they decided to go ahead with a new vehicle (4-wheeler) by using the powertrain provided by Valeo in the context of the SOLUTIONSplus project. They are now working on the first prototype which was successfully tested on a bench.

# GRUPO MIRAL

Ecuador

https://www.miral-autobuses.com/

## DESCRIPTION

Ecuadorian start-up that seeks to promote and accelerate the development of the sustainable mobility ecosystem in electric cargo bicycles in Ecuador and Latin America by supporting enterprises, small, medium and large companies and public and private sector institutions in the implementation of strategies that achieve the transfer of technologies towards the transportation of goods and merchandise through bicycle logistics.

## ACHIEVEMENTS

Bixicargo manufactured 10 e-cargo bikes of three models: 4 rear loading, 4 front loading, and 2 long johns for last mile logistic purposes in Quito. The bicycles were tested for two months with 7 logistic operators in 4 operating schemes: 1. Food distributors, 2. Restaurant, 3. Courier companies and 4. Waste pickers associations at the Historic Center of Quito. The pilot showed great results in terms of efficiency, the e-cargo bikes traveled a total of 1,071 km carried 16 tons of cargo, made 229 deliveries, collected recyclables from 134 points, and achieved an estimated reduction in emissions of 491.74 kg CO2e. The significant efficiency gains experienced by most of the participants reveal a high scale-up and replication potential. Currently the e-cargo bikes are still working in the city, the vehicles were granted in permanent custody to the logistic operators who showed the best results during the pilot.

## INNOVATION

Bixicargo has innovated in the incorporation of electric motor assistance to the pedal, control displays, and other technical features to their vehicles. They also seek to generate social innovation, which means, to focus the design of the e-cargo bikes to the needs of vulnerable groups or social and circular economy enterprises that seek efficiency and sustainable growth in the delivery of their services or products. In the context of the SOLUTIONSplus project, they have also received support from PEM Motion to improve its designs.

# LOGYCA

Colombia

https://logyca.com/

## DESCRIPTION

Logyca focuses on generating solutions that seek to add value to companies for their growth and development, strengthen collaboration as a best business practice, and promote logistics efficiency and innovation in specialised training and research programmes. Its starting point is data analysis and management for a better exchange and decision making, optimising processes in value and logistics networks. They generate applicable knowledge in the management of value networks, promote education and training in logistics and value networks through training programmes and the creation of knowledge centres in the region.

## ACHIEVEMENTS

In the context of SOLUTONSplus, three types of electric vehicles (3 e-tricycles, 2 e-motorcycles, and 2 e-vans) were manufactured and tested for three months in last mile logistics operations, reaching almost 15.000 deliveries that included packaged food, e-commerce deliveries and cross-docking operations. The pilots were implemented in collaboration with local logistics operators such as Grupo Nutresa, Ecotriciclos and Lola te Mueve in five cities of Colombia: Bogota, Barranquilla, Baranoa, Sabanalarga and Medellín.

## INNOVATION

It promotes the creation of collaborative business and operational models to improve transport logistics while reducing carbon emissions by introducing electric vehicles. In addition, it facilitates the performance analysis and evaluation and supports decision-making with the introduction of a dashboard as a tool for visualizing the pilot results.

# SIDERTECH

Ecuador

https://sidertech.com/

## DESCRIPTION

Sidertech is a creative and innovative company that is dedicated to the development and manufacturing of industrial plant and equipment projects in the steel and cement area, with the focus of satisfying customer requirements based on our experience to provide personalized and quality solutions, with competent personnel, infrastructure and technology, promoting a culture of quality and service focused on continuous improvement and compliance with applicable requirements.

## ACHIEVEMENTS

The company is manufacturing 4 e-quadricycles with seed funding from the SOLUTIONSplus project. The prototype is called Phoenix, they have received VALEO powertrains to incorporate to the vehicles.

## INNOVATION

Phoenix is an electric vehicle totally designed and manufactured in Ecuador, which looks different from other vehicles because its design with several folds is similar to the one used in aeronautics. The engineering applied to Phoenix was implemented on the workbench and was taken to a 3D model that allowed to improve and correct the design with simulations and calculations, all this led to a prototype that meets the expectation of a light-duty vehicle suitable for transit on the streets of Ecuador. Now enhanced with state-of-the-art technology that meets the objective of transporting cargo, not polluting the environment and complying with coexistence standards.

Phoenix is also a mix between the comfort and stability of a single-person car and the easy and intuitive driving of a motorcycle, with measures that do not exceed those of a bicycle lane, it will be a friendly vehicle capable of carrying light loads from one place to another within the city without any problem.

SERO ELECTRIC

# SERO ELECTRIC

Argentina

https://www.seroelectric.com/en/

## DESCRIPTION

Sero Electric is an Argentine national manufacturer of electric vehicles, with the commitment to innovation and sustainability in the automotive sector. Their operations started in 2010, developing different models after several studies and tests. Among their capacity is the local manufacturing and development of spare parts for the e-vehicles. Their vision and objective for the future is to produce cutting-edge electric vehicles, with more extensive autonomies and to insert them in the market as an innovative option.

## ACHIEVEMENTS

Two electric vans were manufactured with funding of the SOLUTIONSplus project for a pilot of last mile logistics operations. The pilot consisted on the delivery of packages from Correo Argentino. As a result, the load capacity increased compared to the previous vehicles used in the distribution of packages, improving the logistics operation while reducing emissions.

## INNOVATION

Sero electric has the capacity for mass production and have a 2000 square metre plant for the production of electric vehicles in Buenos Aires. In their catalogue they have different models for both cargo, passenger transport and special models for logistics operations.

tembici

# TEMBICI

Colombia

https://tembici.com.co/en/

## DESCRIPTION

Tembici is one of Latin America's most relevant and leading micromobility companies, responsible for operating docked bike-sharing systems in more than 14 cities within Brazil, Chile, Argentina, and Colombia. Since its inception, Tembici has achieved more than 70 million bike rides and has avoided more than 26 thousand tons of CO2 emissions. Tembici is implementing the first Shared Bicycle System (SBS) in Bogotá. The Shared Bike System is located in Bogotá's city-expanded center, allowing easy connection to the city's Public Transport System. It has 3,300 bicycles, of which 1,500 are pedal-assisted and 1,500 are mechanical. In addition, it has 150 box bicycles or cargo bikes that are used to transport goods by users and 150 handcycles for people with physical disabilities, such as users of wheelchairs.

## ACHIEVEMENTS

With funding from the SOLUTIONSplus project, electric engines were incorporated into mechanical handcycles that are already part of Bogotá's Shared Bicycle System to improve mobility access for People With Disabilities (PWD). A total of five handcycle were modified to incorporate an electric motor, battery, and other additional adjustments, such as an enhanced braking system, transforming the Tembici mechanical model into an electrically assisted handcycle. Two models of e-handcycles were developed based on tests part of a pilot implemented in collaboration with Despacio. During the tests, the original model was improved according to the feedback from a group of people who are wheelchair users who drove the handcycles in three opportunities.

## INNOVATION

Tembici's main innovation is the effort in offering new alternatives and more sustainable transportation options for People With Disabilities and restricted mobility through the inclusion of e-handcycles into urban bike-sharing systems.

# WHEELE

Montevideo, Uruguay

https://wheele.com.uy/

## DESCRIPTION

WHEELE is a brand of sustainable electric mobility products represented by Cataloa SA for recreational, personal and work use. It specializes in electric bicycles, electric motorcycles, electric scooters, electric skateboards and electric tricycles.

## ACHIEVEMENTS

The pilot identified key areas for improvement. Riders need specific training due to the vehicles' size, weight, and electric propulsion. Montevideo's lack of proper bike infrastructure and poor pavement conditions hinder cargo bike use. Additionally, PedidosYa's point-to-point delivery model doesn't leverage cargo bikes' strengths. Consolidation would optimize operations for suitable goods.

In conclusion, cargo bikes can be viable for Montevideo's urban logistics only with:

- Trained riders
- Business models utilizing goods consolidation
- Improved e-bike infrastructure

## INNOVATION

The particularity of Wheele is related to the characteristic that it combines affordable prices and very diverse products (electric bicycles of very different types). The business model that Wheele manages adapts very well to the local and regional market and they have concrete expansion plans and actions both in Uruguay and in the region. For these purposes, they have recently opened an office in Chile, where they are beginning to place their products.

# AFRICA

# AFRICROOZE

Tanzania

https://africrooze.com/

## DESCRIPTION

AfricroozE GmbH was formed by the Germany-based NGO EURIST e.V. to boost e-bicycle adoption in Africa, after six years of successful e-bicycle pilot projects promoting socio-economic development in African nations, implemented in partnership with the First African Bicycle Information Organisation (FABIO) based in Jinja, Uganda. Africrooze is currently present in Tanzania, Uganda, Namibia, Burkina Faso, and Benin.

## ACHIEVEMENTS

Within SOLUTIONSplus, Africrooze provided 16 pedal-assist electric bicycles and 5 additional batteries. The e-bicycles are jointly designed by EURIST, Hero India and the German company HNF Nicolai. They were assembled at the Dar es Salaam Institute of Technology Company Limited (DIT) by DIT staff, students, and users of the e-bicycles, after a dedicated three-day training provided by EURIST and FABIO. The electric bicycles are used for urban deliveries and the transport of medical supplies by the FASTA Cycling Cooperative, which has been equipped with a booking application and 10 smartphones.

## INNOVATION

Before the pilot, pedal-assist electric bicycles were not present in the Tanzanian market. The Africrooze long-tail e-bicycles were designed with a sturdy frame and 100 kg carrying capacity on the large rear carrier to carry loads or passengers. The design ensures that most spare parts can be found on the East African market and balances quality delivery and low prices. As of June 2024, Africrooze had deployed 532 e-bicycles on the African continent, catering to the growing e-bicycle market in urban and rural Africa for a variety of use cases including deliveries, e-bicycles as ambulances, transport of water bottles, etc. The e-bicycles facilitate access to economic activities and services such as education, water, farming, and the health system, and enable a reduction in transport costs as compared to larger vehicles previously used

MIRAL MOBILITY

# AMPERSAND

Rwanda, Kenya

https://www.ampersand.solar/

## DESCRIPTION

Founded in Kigali – Rwanda, Ampersand builds affordable electric motorcycles and battery swapping systems to help Africa leapfrog towards a zero-carbon future.

## ACHIEVEMENTS

Ampersand's model makes it cheaper to buy and operate an e-moto than a petrol motorcycle: instead of refilling their tanks, e-moto drivers can just swap the empty battery for a charged one at one of Ampersand's battery charging stations. Reducing recharging times and costs, Ampersand's vehicles emit 95% less carbon than petrol motorcycles with zero tailpipe emissions and save drivers around 35% compared to fuel and oil changes. Next to the e-motos and the batteries, Ampersand develops its battery fleet management with the AmperOps online and mobile platforms, which allow seamless management of battery packs, smart maintenance and repairs-alert system.
Since Ampersand was founded in 2016 in Rwanda, Ampersand has grown its fleet to a current 1,350 vehicles, has expanded to Kenya, and now employs more than 300 staff.

## INNOVATION

Through SOLUTIONSplus support, Ampersand focused on improving gender inclusion, providing 24 Ampersand electric motos to women having been trained and successfully passed the driving examination in 2022. The collaborative project involving the City of Kigali, UN-Habitat, the University of Rwanda, UEMI, the Wuppertal Institute, GIZ and Jali Finance, enabled an unprecedent success rate at the driving exam and the identification of key principles for gender-inclusive electric mobility projects. A second cohort was supported in 2024, integrating learnings gathered through the first cohort.

Ampersand also distinguishes itself with its R&D to develop a locally designed and assembled battery. The SOLUTIONSplus pilot supported this critical dimension with technical support on the battery design and the company's industrialization strategy.

AUTOTRUCK EA

# AUTO TRUCK & DIT

Tanzania

https://www.autotruckea.com/

## DESCRIPTION

Auto Truck seeks to mitigate climate change effects through the introduction of electric three-wheelers and pushcarts for light transportation in major towns and cities in East Africa. They want to increase the share of electric vehicles in cities to 30%.

## ACHIEVEMENTS

Auto Truck has assembled two electric three-wheelers and retrofitted one ICE three-wheeler. Auto Truck is also in the process of setting up a charging station and a fleet management system. The company has identified a secure, accessible location and secured the shipment for the electric vehicle charging kit.

The pilot was enabled through the partnership with the Dar es Salaam Institute of Technology (DIT) which provides technicians and a facility where the manufacturing and the assembly is done. DIT is becoming an EV Center central to the assembly of vehicles from various providers in Dar es Salaam, spanning from electric three-wheelers to pedal-assist electric bicycles.

## INNOVATION

Auto Truck has successfully commissioned three functional prototypes which are in the process of testing for commercialization both locally and internationally. Their innovative, green-technology products have received numerous awards including one from the Royal Academy of Engineering in London.

# BASIGO

Rwanda, Kenya

https://www.basi-go.com/


This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No. 875041

## DESCRIPTION

BasiGo's mission is to create the future of clean, electric public transport in Africa. Launched in Nairobi, Kenya, BasiGo has made impressive debuts and expanded to Kigali.

## ACHIEVEMENTS

In March 2022, BasiGo launched the first ever electric buses into pilot passenger operation in Nairobi, Kenya. The company has grown its fleet to 19 electric buses deployed with 6 different private bus operators in Nairobi. BasiGo electric buses in Kenya have traveled over 1 million kilometers, carried over 1.2 million passengers, mitigated ~500 tonnes of CO2 emissions, and avoided over 190,000 litres of diesel consumption since beginning operations.

Within SOLUTIONSplus, BasiGo launched the first electric buses in Kigali in December 2023 with a pilot of four electric buses, operated by two separate public transport operators beginning in December 2023. The purpose of the pilot is to test and analyse the technical, economic, and operational performance of electric buses in the Kigali public transport operating environment. Results from the project will help inform the development strategy and financing model for scaling electric buses and charging infrastructure in Kigali, as part of the SOLUTIONSplus-supported E-Bus Master Plan.

## INNOVATION

BasiGo's key innovation is the Pay-As-You-Drive financing platform which eliminates the high upfront cost of an Electric Bus for private operators, while offering convenient and reliable charging and maintenance services. The original Pay-As-You-Drive model let bus operators in Kenya purchase an electric bus for the same upfront cost as equivalent diesel buses. BasiGo achieved this by excluding the expensive lithium-ion battery from the value of the bus. Instead, the battery was leased to operators through BasiGo's mileage-based Pay-As-You-Drive lease.


kisii smart community
Powered by TMF

# EAST AFRICAN RURAL MOBILITY AND SMART VILLAGES

Kenya

https://www.kisiisc.org/

## DESCRIPTION

EASVRM has developed a rural e-mobility solution to address first-and-last-mile logistics while also promoting access to modern energy for the Kisii Smart Community ("KSC"). It has done this by implementing a logistics platform to serve small scale farm producers, local offtakers, agro-processors, and retailers such as women with small street stalls selling foodstuff (Mama Mbogas) by them with a fleet of electric three-wheelers (eTrikes).

## ACHIEVEMENTS

EAVSRM has a fleet of 14 vehicles serving over 400 local beneficiaries each day. Kisii town's economy is largely driven by the informal sector. To address this, KSC developed a logistics platform that serves producers and women vendors by providing first and last mile logistics through a fleet of electric three-wheelers. They partnered with Aceleron, a lithium-ion battery manufacturer designing the battery packs to be refurbishable and recyclable, thereby extending the life of batteries, supporting the circular economy, and promoting local content and capacity building.

As part of SOLUTIONSplus, EAVSRM the procured and provided 5 additional eTrikes to recruited local women entrepreneurs and women-led community-based organisations on a rental or lease-to-own basis. Additionally, they provide training and business support to the female drivers for them to participate in the logistics platform.

## INNOVATION

The introduction of light electric vehicles, in combination with an USSD logistics-on-demand mobile app has the potential to improve the quality of life and livelihoods of peri-urban communities, especially women. By leveraging their solar powered battery swapping network to support the electrification of productive use appliance for post-harvest processing, the company reduces spoilage and increases access to markets.

# EKOGLOBE

Tanzania

https://ekoglobe.co.tz/

## DESCRIPTION

EKOglobe is a cleantech company operating at the intersection of green mobility, solar rooftop installations and capacity building. Operating in Dar es Salaam, Dodoma and Iringa, the company design and assemble electric three-wheelers for a variety of applications including passenger taxi deliveries, on-demand delivery services, garbage collection, mobile solar water pumps and milk chilling, all powered by 100% green energy. Emerging in 2020 from the work of the ELICO non-profit foundation testing renewable energy applications, EKOglobe transformed in 2022 into a limited liability company.

## ACHIEVEMENTS

EKOglobe embarked on electric mobility projects in 2022 by testing out electric tricycles mounted with solar refrigerators, while studying the market of taxi services with three-wheelers (bajajs). By January 2023, the company started manufacturing some components locally while importing others, assembled and testes a total of 10 units.

As part SOLUTIONSplus, EKOglobe assembled 12 electric three-wheelers for passenger services, and trained 12 drivers. These batteries are dispatched to the 10 drivers offering taxi services, who access the vehicles on a lease-to-own basis with daily mobile money payments and battery exchange fees.

## INNOVATION

By using two three-wheelers as mobile battery dispatching units, EKOglobe tests an innovative recharging solution, tested in India but not in East Africa yet. The technical specifications and the route selected for the pilot are based on the 2023 SOLUTIONSplus feasibility study to electrify existing three-wheelers near BRT stations.

# GURARIDE

Rwanda

## DESCRIPTION

GURARIDE, founded in 2017, is a Green E-mobility public bike-share (PBS) transport system company committed to the sustainability of micro-mobility in Rwanda. Its goal is the migration of transportation, using innovative technology, from fossil fuel-based vehicles to other non-pollutant means of transport.

## ACHIEVEMENTS

In partnership with the City of Kigali, GURARIDE started its operations in two of Kigali's cycling lane corridors and, as cycling infrastructure and road safety measures are put in place by the city authorities. The bracketed corridors are mainly the Central Business District (CBD) and the Remera-Kimironko corridor along KG 17 Ave known for their bustling commercial activities and sports hub respectively.

As part of SOLUTIONSplus, Guraride has deployed 80 smart bicycles in the bike share system, along two corridors including cycling lanes. Guraride prepared for the introduction of pedal-assist electric bicycles through SOUTIONSplus support on e-bikeshare systems, charging options, and fleet redistribution strategies.

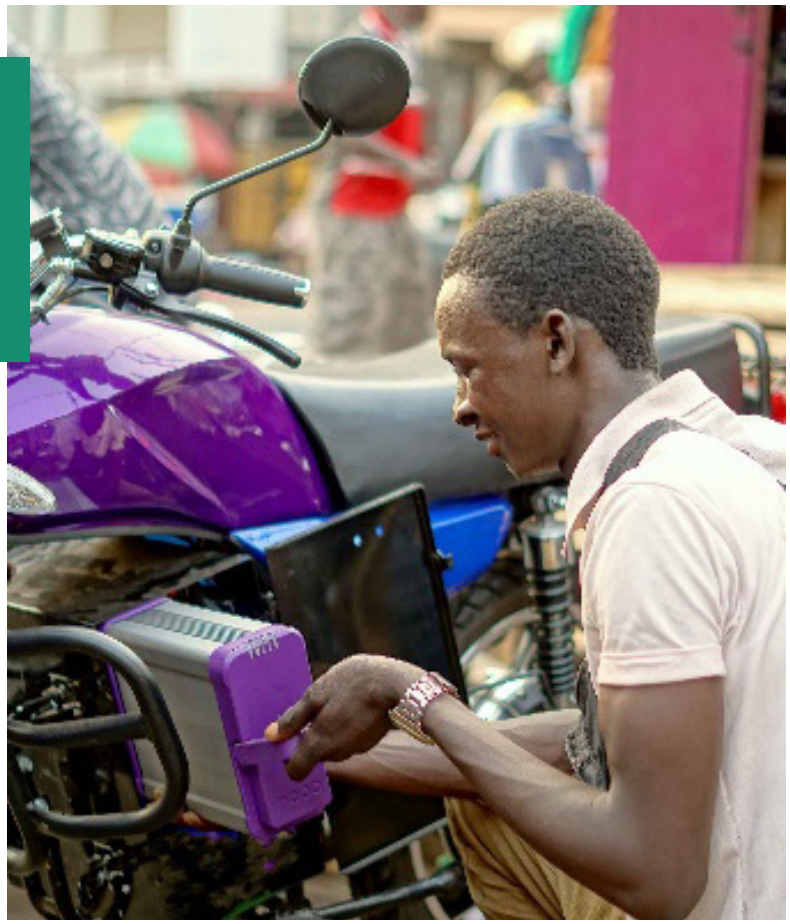
## INNOVATION

Given the harsh terrains and geographic realities of Africa, cycling is hindered by hilly and rough landscapes that not only make it very hard to ride conventional bicycles, but also makes it unbearable for the asset due to high wear & tear. Thus, e-bicycles adapted to the highlighted realities provide convenience for users while making a strong business case for innovators.

# MOBILE POWER

Sierra Leone

https://www.mobilepower.co/



## DESCRIPTION

Mobile Power has designed a battery-swap solution for the operation, management & maintenance electric 2- and 3-wheelers, locally assembled in Sierra Leone. Mobile Power is headquartered in the UK and has subsidiaries in Sierra Leone, Liberia, Nigeria and DRC.

## ACHIEVEMENTS

Mobile Power has been running e-mobility trials in Freetown for the last 2 years. Initially these trials used off-the-shelf batteries to power electric-motorbikes called MOPO EVs and then switched to early prototype MOPOMax Batteries to power the MOPO EVs. The MOPO Batteries are designed to be used on a rental basis that is needed to work with commercial motorbike riders called Okada riders. Battery-swap is the only viable model for Okada riders in weak-grid/off-grid markets as they cannot charge at home reliably and cannot wait hours to re-charge their e-motorbike's batteries on generators.

As part of SOLUTIONSplus, 55 additional MOPO EVs and solar charging infrastructure for 6 battery-swap hubs will be deployed in Freetown.

## INNOVATION

In collaboration with the Ministry of Youth Affairs these battery swapping stations will be connected to car washes which are run by local Youth. The roofs are large enough to have sufficient solar and means MP does not need to purchase land or buildings to put the solar on. MP will train youth to fix the MOPO EVs and oversee the battery-swaps. The aim is to prove that these car washes will create a sufficient number of solar battery-swap stations (MOPO Hubs) so that the riders can transport passengers to the whole of Freetown and be able to swap a battery in any part of the city.

# NEEV SALONE

Sierra Leone

https://neevsalone.com/

## DESCRIPTION

The New Energy Electrical Vehicles Sierra Leone (NEEV Salone) is Sierra Leone's first eco- friendly lineup of electric and solar vehicles. NEEV Salone is a start-up e-mobility company that has trained mechanics to assemble its wide range of e-mobility in Freetown.

## ACHIEVEMENTS

Thirty-four tricycles have been assembled in Freetown creating employment opportunity for young people and ten electronic kekehs (e-kekehs) are already plying the streets of Freetown (mostly the urban center) at cheaper cost. Two among these ten riders are women. All the e-vehicles provided by NEEV Salone are equipped with lithium-ion or sodium batteries to support daily running distances from 80 -200 km.

As part of SOLUTIONSplus, NEEV Salone deploys battery swapping stations in Freetown, and shared data on battery swapping costs, number of swaps, number of users by gender, revenue and electricity usage. In addition, NEEV Salone conducts training of trainers on the installation and maintenance of these charging stations, and develops a mobile app for battery-swapping service access.

## INNOVATION

NEEV Salone aims at upscaling e-kekehs services in Sierra Leone by providing a sustainable and environmentally friendly transportation option for urban communities. Electric tricycles offer a cost-effective, efficient, and clean alternative to traditional gasoline-powered vehicles, addressing the country's transportation challenges and promoting sustainable mobility. NEEV Salone e-tricycles are equipped with a rooftop solar PV panel, comfortable seating, safety features, and environmentally friendly electric motors. The aim is to allow customers to able to book rides through a mobile app, call center, or designated pick-up points at affordable prices and with ease.

# SESCOM

Tanzania

https://www.sescom.co.tz/

## DESCRIPTION

Sustainable Energy Service Company (SESCOM) Limited is a company that is focused on the efficient production and use of electricity in Tanzania.

## ACHIEVEMENTS

SESCOM has developed electric three-wheelers by retrofitting three ICE three-wheelers, which can be charged at their solar-powered charging stations. Technical operational testing is underway for the retrofitted electric three-wheelers, and areas of improvement have been identified and are being worked on. SESCOM finalized a retrofitting manual drawing lessons from PEM-Motion, IDIADA, Dar es salaam Institute of Technology (DIT), and Auto-Truck. The company identified a supplier of tracking systems for monitoring the electric three-wheelers. The company enabled raised awareness and initiated market development to a wide range of stakeholders in Tanzania.

## INNOVATION

SESCOM has developed electric three-wheelers through the process of retrofitting that are equipped with rechargeable storage batteries and adapted for both cargo and passenger transport. Their electric three-wheelers have a driving range of 90-100km per charge, which is comparable to the average number of trips conducted by an ICE three-wheeler.

# STIMA MOBILITY

Kenya

https://stimaboda.com/

## DESCRIPTION

Stima is a French-Kenyan company founded in 2020 with the objective of creating the energy infrastructure solution to enable the 15 million moto-taxi riders in Sub-Saharan Africa to switch to electric motorbikes. Stima developed a technology suite and license it to companies in Africa to help them deploy battery swapping infrastructure for electric 2&3 wheelers that are scalable and financially viable.

## ACHIEVEMENTS

After more than 4 years of R&D, together with their strategic partner OneElectric they have developed a motorcycle with a 3.7 kWh battery providing a range of 80km, built a network of 6 battery swapping stations in the city to provide battery swapping service to the riders. Switching from fuel to electric motorcycles, saves riders about 40% on energy cost and 75% on maintenance expenses, increasing their daily net profit by about 40%.

As part of SOLUTIONSplus, STIMA is targeting to support 20 women in acquiring an electric motorcycle and carry out food/grocery deliveries. Women interested to purchase the Stima Boda will have access to subsidized lease-to-own payment plans provided by a local financing partner.

## INNOVATION

As a technology company, Stima focuses on building the integrated technology of battery swapping tailored for African moto-taxis. By separating the battery cost from the motorbike and offer a 'pay-as-you-go' service, they enable moto-taxi riders to acquire affordable high-end electric motorcycles without bearing the high up-front cost of batteries. Their technology is based on IoT systems embedded in batteries, that collects data from each battery using a software suite composed of a battery and station monitoring platform, a Rider App and a Swapper App.

# TRI

Tanzania

https://www.growtri.io/

## DESCRIPTION

Stima is a French-Kenyan company founded in 2020 with the objective of creating the energy infrastructure solution to enable the 15 million moto-taxi riders in Sub-Saharan Africa to switch to electric motorbikes. Stima developed a technology suite and license it to companies in Africa to help them deploy battery swapping infrastructure for electric 2&3 wheelers that are scalable and financially viable.

## ACHIEVEMENTS

As of October 2023, TRí supplied vehicles to 33 customers in a lease-to-own or retail scheme. Providing electric three-wheelers to drivers enabled them to increase their daily profits by up to two times, and to lower entry barriers to asset ownership. TRí is also partnering with the digital platform BOLT to recruit drivers.
After designing a first model, TRí has put priority on integrating feedback and preferences of drivers. This resulted in the development of a second model with mechanical and battery changes, and full availability of spare parts locally.
As part of SOLUTIONSplus, TRí deployed 20 electric three-wheelers of the first model in Dar es Salaam and will deploy 5 further vehicles of the second model. TRí will be in charge of installing chargers near BRT stations and depots to support feeder connectivity.

## INNOVATION

TRí is the largest provider of electric three-wheelers in Dar es Salaam and will establish a local assembly line in early 2024, bringing significant change from previous import of fully assembled ICE three-wheelers. TRí has been instrumental in raising awareness within the government on electric mobility and securing exemption from import duties.

# ZEMBO

Uganda

https://www.zem.bo/

## DESCRIPTION

Zembo is a Ugandan e-mobility company providing motorcycle-taxi drivers with locally assembled electric motorcycles as a rent-to-own asset. Zembo provides a battery swapping service to its clients, enabling to drive continuously and swap at any of the stations. They provide affordable electric two-wheelers to low-income self-employed motorcycle taxi drivers to help them increase their revenue and protect the environment.

## ACHIEVEMENTS

Zembo has been selling and recharging electric motorcycle taxis (boda-boda) in Kampala since 2018. Drivers become owner of their bike after 2 years, instead of usually renting their motorcycle. In addition, Zembo provides a battery swap service (drivers swap a discharged battery against a recharged one) in their network of solar hybrid recharge stations in Kampala.

As part of SOLUTIONSplus, ZEMBO empowered 25 women by giving them an electric motorcycle on a subsidized lease to own basis and trained them to become electric motorcycle-taxi/delivery drivers. They also provided gender awareness, financial literacy, first aid training to all Zembo electric motorcycle taxi-drivers. The project is designed to provide skills to electric motorcycle drivers by addressing gender inequalities and empower women to be financially independent by providing them with a means of livelihood and improve working conditions and livelihoods of all drivers.

## INNOVATION

Zembo is the largest provider of electric motorcycles and battery swapping stations in Uganda. Their business model for supplying and maintaining the equipment has a focus on affordability, reliability, and longevity of the electric motorcycles. The partnership between Zembo and local mechanics or workshops provides a comprehensive approach to equipment maintenance and repair.

# WAHU MOBILITY

Togo, Ghana

https://wahu.me/

## DESCRIPTION

Wahu Mobility promotes sustainable and inclusive mobility through the Wahu electric bicycle, designed and built in Ghana. The e-bike has been specifically developed to empower gig economy workers and commuters, especially women.

## ACHIEVEMENTS

Wahu offers the e-bikes to riders via affordable, comprehensive subscription plans (work-to-own) and a connected Wahu app, supporting them with delivery demand, bike analytics, real-time active tracking, maintenance, safety essentials (helmet, lock, gloves, etc.), EV and related education and insurance. In addition, Wahu helps e-commerce platforms scale their fleets sustainably by connecting them to gig economy riders for efficient last-mile delivery and reduced CO2 emissions. Wahu has deployed 75 e-bikes so far in Accra's roads and partnered with several delivery service providers including Bolt Food, Bolt Send, Glovo, and Menufinder. This corresponds to more than 5,000 deliveries avoiding 7t C02, and enabled to double the riders' potential income compared to previous earning potential. A local production site was established in Ghana. In the context of SOLUTIONSplus, Wahu deployed the 'Women Delivers' Pilot in Lome (Togo), which builds a fleet of 20 female riders and equips them with skills and experience to participate in the delivery value chain via the e-bikes. This project contributes to gender equality, economic development, and sustainable transportation.

## INNOVATION

By manufacturing locally, Wahu creates bicycles tailored for the African market, ensuring better performance, durability, and affordability than imports. Wahu's user-focused design includes features such as fat tires for diverse road conditions, five levels of pedal assistance, a dual battery system to reduce range anxiety, and a lower standover height for easy mounting and dismounting, especially for women riders. At the local production site, Wahu is establishing a team of African engineers with the capabilities to continually iterate and maintain EVs in Ghana.

# ASIA

# CLEAN ENERGY INTERNATIONAL

Nepal

https://www.autoyas.com/

## DESCRIPTION

Clean energy International is a Nepali e-mobility company providing electric two-wheeler and locally manufactured/assembled electric three- wheeler. CEI has also been remodeling electric three-wheelers. They have been providing affordable electric two-wheelers to high range electric two wheelers in the Nepalese market.

## ACHIEVEMENTS

CEI has been assembling and selling electric 2-wheelers and 3-wheelers in Nepal since 2014. CEI is among the one of the first organization in Nepal to introduce electric bicycles and electric ricksaws in Nepal. The CEO of CEI, Mr. Bharat Poudel has been also working as Secretary of Electric Vehicle Manufacturers and Importers Associations (EVMIAN) for a long time. CEI has worked with different government projects for penetrating electric three wheelers in Nepal.

CEI was awarded with SME project under solutionsplus Project for remodeling Safa Tempo into passenger safa Tempo, a cargo Tempo and an electric conversion of TATA ACE mini pick up. Through this project they will be saving approximately 21 metric tons of emissions annually.

## INNOVATION

CEI has recently established themselves as the multinational brand distributors of electric three-wheelers in Nepal. They have recently launched an electric scooter with a range of 200 km with double battery facility. They have been recognized for supplying the spare parts and maintaining the equipment focuses on affordability, reliability, and longevity of the electric 2-wheelers and the same for 3-wheelers. They are working with different operators to scale up the remodeling projects.

# LOCA COMPANY LIMITED

Laos

https://www.loca.la

## DESCRIPTION

LOCA Mobility Ecosystem is revolutionizing transportation in Laos and Mekong region. Its platform offers an eco-friendly electric vehicle (EV) fleet, supported by a comprehensive EV infrastructure, significantly reducing carbon emissions, and promoting sustainability.

## ACHIEVEMENTS

LOCA Mobility Ecosystem is making significant strides in transforming Laos's transportation landscape. As a leader in eco-friendly mobility, LOCA and its strategic partners – E-sarn Technical College (ETC) in Thailand and Sustainable Design of Urban Mobility in Middle-Sized Metropolitan Regions in ASEAN (SMMR) are committed to expanding its reach and reducing environmental impacts in the region. Key achievements and future goals include:

- Current EV Fleet: 370 electric vehicles (and growing) in Laos.
- Expansion Goal: Aiming for 2,500 EVs by 2030.
- EV Mileage: Over 1,500,000 km served to more than 50,000 customers via EVs.
- EV Driver Mileage: Almost 3,000,000 km driven total.
- CO2 Emissions Reduction: More than 350,000 kg of CO2 saved.
- Electric 3-Wheelers: Integration of LOCA app with e3W service in Udon Thani under the SOLUTIONSplus project.
- Projected Impact by 2030: Estimated reduction of 3,000,000 kg of CO2 annually.

## INNOVATION

LOCA Mobility Ecosystem stands out for its self-sufficient approach. They built their own payment system, invested in EV infrastructure and financing, and even developed unique electric vehicles. This creates a seamless user experience and positions LOCA as a leader in sustainable mobility. Their expansion plans aim to reach millions across the Mekong Region by 2030, making a significant impact on ASEAN's sustainable transportation landscape.

# MBI MOTORS

Vietnam

https://mbisharing.vn/

## DESCRIPTION

MBI Motors (MBI), a Korean tech company with over 25 years of experience in engines and electric vehicles, leveraged its expertise to launch MBI Sharing in Vietnam. Recognizing the need for green transportation, MBI Sharing aims to combat air pollution and promote eco-friendly options.

## ACHIEVEMENTS

MBI Sharing, launched in Vietnam in 2020, has established itself as a major player in the country's shared e-bike market. Starting small with 500 e-bikes in Ecopark, the company has grown significantly by focusing on affordability, convenience, and user-friendliness. This approach has resonated with Vietnamese riders, leading to a user base exceeding 60,000 and total mileage surpassing 900,000 kilometers. MBI Sharing's success extends beyond ridership; partnerships with leading developers like Vin Group have expanded service coverage to major cities and tourist areas. This growth has demonstrably contributed to a greener Vietnam, with MBI Sharing credited with reducing CO2 emissions by nearly 57 tons.

## INNOVATION

MBI Sharing prioritizes innovation for a seamless user experience. Recognizing the Vietnamese climate and user preferences, they opted for e-bikes over traditional bicycles. Their robust e-bikes, designed with shared service demands in mind, have seen high usage rates. The user-friendly app is equally innovative. Featuring a simple interface and streamlined processes like phone number verification, it caters to Vietnamese users, including first-timers, and integrates with local online payment options. Confident in their success, MBI Sharing plans further expansion, targeting major cities like Hanoi and Ho Chi Minh City. A pilot project with SOLUTIONSplus in Hanoi paves the way for this growth, solidifying MBI Sharing's position as a leader in Vietnamese e-mobility.

# QIQ

Hanoi, Vietnam

https://www.elevate-mobility.com/

## DESCRIPTION

QIQ (pronunciation: “KIK”) has a mission: to build a green, sustainable, shared transportation system for Vietnam. QIQ aims to support cities and relieve overburdened public transport systems all around the world by deploying green last-mile shared mobility solutions more accessible to the masses.

QIQ’s uniqueness lies in its rapid charging solution for electric personal mobility: its vehicles come with a docking system, charge in minutes, and can provide 24/7 efficient and convenient travel for all. The batteries are fully recyclable, safe and are not based on today’s Lithium technology. With over 50,000 duty cycles, QIQ vehicles are designed to outlast many of today’s electric bicycles and scooters. In its demo site in Hanoi, QIQ has already deployed its own electric bicycles, QIQ Vehicle Communication/IOT unit for shared e-scooters, and its fleet management software system.

QIQ is rebranding itself into Elevate Mobility.

## ACHIEVEMENTS

In late 2019, QIQ has formed a partnership with Ecopark (a 500ha urban township on the outskirts of Hanoi – Vietnam) to deploy the QIQ e-bike sharing system. QIQ has installed 6 docking stations with 40 electric bikes, each with a tether charger to charge the electric bikes. With 40 e-bikes deployed, QIQ system was able to serve 189 trips in one day (average 5 trips/vehicle/day).

In 2020, QIQ also launched our system in Hoi An city of Vietnam with 200 mechanical bikes and 50 electric bikes, partnered with GIZ and Healthbridge.


# SHREE-ECO VISIONARY

Nepal

https://sevgroup.com.np/

## DESCRIPTION

Shree Eco Visionary Pvt. Ltd (SEV) was established in 2003 with a mission to carry out research, development and policy advocacy work on electric vehicles to increase its number and application. SEV aims to promote electric vehicles in Nepal as electric vehicles are environment friendly transport means fueled by domestic clean hydro power.

## ACHIEVEMENTS

SEV has been actively involved in research and development activities since its establishment to introduce newer technology and improve existing EV technology to make EV industry technically sound and perfect.
SEV was awarded with SME project under solutionsplus Project for design and fabrication of electric three-wheeler passenger vehicle and cargo vehicle along with 4-wheeler passenger and waste collection vehicle through this project they will be saving approximately 35 metric tons of emissions annually.

## INNOVATION

In 2004, SEV started assembling Three-Wheeler Electric vehicle with upgraded Technology AC (Alternative Current) drive and carried out various R & D work on conversions and easy repair maintenance. SEV successfully converted its first IC engine 1982 model Van into Electric.

SEV has been working on app based electric taxi service from last year, and with the project under solutionsplus project, SEV will be working on development of 4-wheeler waste collecting vehicle that has high potential of design optimization and scale up project.

STALLIONS

# STL GROUP HOLDINGS COMPANY LIMITED (STALLIONS)

Thailand

https://www.stlgh.com/

## DESCRIPTION

STL Group Holdings Co., Ltd is a local startup, developer, and manufacturer of Thai motorcycle and e-scooter brand "STALLIONS" (www.stallionsmotor.com) and an exclusive distributor of international electric motorcycles brands. STALLIONS solutions are designed to accelerate the EV adoption toward zero emission society: enriching Win Motorcycle Taxi and fleet riders' financial and quality of life with more sustainable lifestyle.

## ACHIEVEMENTS

STALLIONS has invested and contributed almost 90% of its resources now toward electric mobility R&D, customer training, and after sales support. With many launched projects and the contribution from all partners such as UN, SOLUTIONSplus, ENTEC, EGAT, Swap& Go, TailG, and Chula University, almost 1,000 units of electric motorcycles has deployed to the customers around Thailand for both business and personal use. Especially Win motorcycle taxi riders who has contributed as an early E2wheeler adopter in Thailand, connecting seamlessly the first and last mile transportation. STALLIONS motorbike's battery can be easily swap with battery swapping station, unlocking the range anxiety while reducing air and noise pollution. Some riders are already exceeding 200,000 km of motorbike usage; proving its durability and quality.

## INNOVATION

TL Group leads a 23,000 square meter facility where we bring the latest technological innovations to the EV scene. It is our mission to provide high-performance electric motorcycles without sacrificing safety and sustainability, providing a unique riding experience for consumers. Further accelerating our role in the industry, STL Group is actively in partnership with leading brands as the Original Equipment Manufacturer (OEM) and Original Design Manufacturer (ODM) at both domestic and international frontiers.

SWAP&GO

# SWAP & GO

Thailand

https://en.swapandgo.co/

## DESCRIPTION

Swap & Go, a wholly-owned subsidiary of PTT, stands at the forefront of revolutionizing the electric mobility landscape with its pioneering battery swapping services for two-wheeler. Established with a commitment to sustainable urban transportation, Swap & Go has emerged as a trailblazer in the industry, reshaping the way people perceive and embrace electric mobility.

## ACHIEVEMENTS

As of today, Swap & Go proudly operates 30 strategically located battery swapping stations, serving to communities of over 100 riders who have embraced the convenience and efficiency of our services. The expansion of our battery station network reflects our unwavering dedication to providing accessible and reliable electric mobility solutions.

Swap & Go has joined hands with a variety of different high technology models of electric motorcycle for all usage application, i.e., the Stallions, I-Motor etc. The provided services include electric motorcycle rental, battery swapping packages those are supported with their mobile application.

With our 100 riders, Swap & Go helps reduce greenhouse gas emission approximately 76.5 MTonCO2,eq per year (annual driving length 15,000 km, GHG different between ICE-2w and e2w is 51 kgCO2,eq).

## INNOVATION

Swap & Go pioneered Thailand's first universal battery system for electric motorcycles. This innovation, along with partnerships with OEMs, aims to not only transform mobility but also empower local businesses and create a robust electric two-wheeler ecosystem.  Swap & Go even offers battery swapping packages with reduced upfront costs through the SOLUTIONSplus project.

# TOJO MOTORS

Pasig, Philippines

https://www.tojomotors.com/

## DESCRIPTION

Tojo Motors, a fully Filipino-owned company, is a leading force in the Philippines' electric vehicle (EV) industry. Established in 2014, they've been at the forefront of developing modern EV technology, operating after-sales facilities, and promoting green transportation solutions. Accredited by the Land Transportation Office (LTO) as a manufacturer, assembler, importer, and dealer (MAID), Tojo Motors offers a diverse range of over 10 EV models to cater to various needs.

## ACHIEVEMENTS

Tojo Motors has a proven track record in addressing urban mobility challenges through innovative electric vehicle (EV) solutions. They've successfully rolled out over 200 electric trikes in Pasig City, Philippines, demonstrating the effectiveness of EVs in congested urban environments. Addressing the limitations in existing technology, particularly battery range and charging infrastructure, Tojo Motors developed a comprehensive E-Mobility system. This system integrates smart vehicles, a ride and cargo sharing platform, and a smart charging network. Further, they developed a versatile multi-purpose quadricycle customizable for cargo, passenger, and utility tasks, addressing diverse urban transportation needs. This commitment to innovation positions Tojo Motors as a leader in the Philippines' transition towards a sustainable future.

## INNOVATION

Tojo Motors leads sustainable urban mobility innovation. Their versatile, multi-purpose quadricycle tackles diverse transportation needs. Additionally, their E-Mobility system integrates smart vehicles, ride-sharing, and a smart charging network, offering a seamless user experience and optimized operations. By promoting EVs and partnering with SolutionsPlus and De La Salle University, Tojo Motors is a leader in the Philippines' shift to a sustainable future, reducing traffic congestion, improving air quality, and mitigating greenhouse gas emissions.


solutions
plus