Solar eCycles
Empowering People

Strathmore University
Energy Research Centre

Try.Ke
Information Memorandum v2

March 2021

One-Pager

Strathmore University
Energy Research Centre

Sustainable mobility & renewable energy

Kenya

$5 million

- Polluting, expensive and imported urban transport vehicles
- Hawkers held in poverty by ineffective last mile delivery systems

- Try.Ke, Kenyan innovation 35kph, carries 300kg, 100 km range and generates 1.5kWh off-grid green energy daily
- Enables Hawkers value creation

- Kenya: Pioneering new technologies, increase share of manufacturing and participation in the formal economy
- Hawkers: Job opportunity, increased disposable income

Vision

Leader in the solar powered mobility as a service space

Mission

Solar powered mobility to increase disposable income for Kenyan youth through new capacity building business models and innovations in last mile delivery

Current Transport Methods

* Kenya
**Nairobi

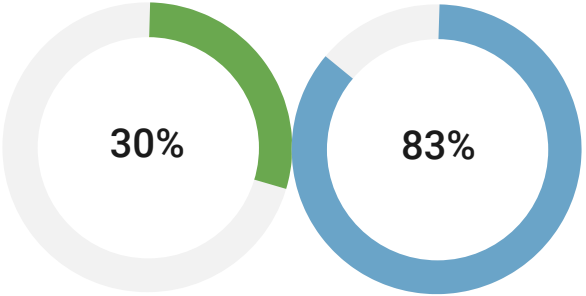
Sources
Motorbikes
Tuk Tuk
Cars
Hand Carts

	Problem	Try.Ke
Motorbikes	50 kg load , 0,2m3, Air & noise pollution	300 kg load, 1m3, Silent & non polluting
Tuk Tuk	Air & noise pollution	Silent & non polluting
Cars	Expensive & polluting	Cheaper and non polluting
Handcarts	Slow and dangerous	Electrical and quicker

Opportunities

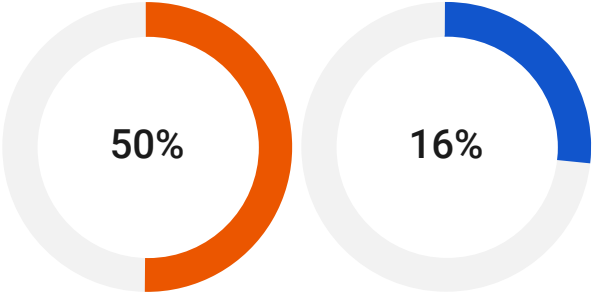
Solar Panels

Costs decreased by 30% in the past 2 years



Battery

Costs decreased by 50% in the past 3 years



Informal Sector

83% employed informally

PayGo

16% of Kenya pop. (8m customers)

Sources
(1)Drop in solar panel costs
(2)Decrease in Battery Costs
(3) Informal Sector
(4) Paygo

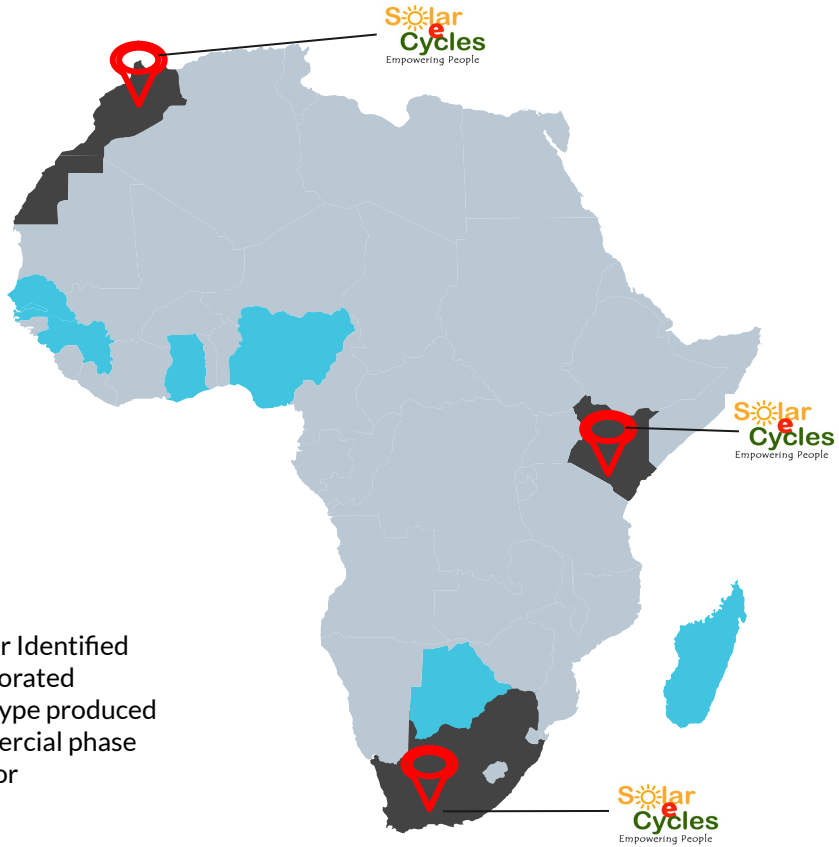
Solar-E-Cycles is a Pioneer Start-up

1. ...in the Solar Powered E-Mobility Industry capable of attracting major players
2. Passion & Experience in empowering the bottom of the pyramid
3. Disruptive approach to internal combustion engine mobility

Kenya takes top honors in the 2018 Valeo Innovation Challenge

1. Valeo
2. Solar Impulse Link
3. Mission Innovation
4. Energy Environment Partnership

Significant Geographical Footprint



Phase:
1- Partner Identified
2- Incorporated
3- Prototype produced
4- Commercial phase
5- Investor

Legal Entities (Phase)

1. Kenya (5) 2015
2. South Africa (3) 2018
3. Morocco (4) 2014

Prospects

1. Ghana - 20-100,000 units (0)
2. Zimbabwe - 10,000 units (1)
3. Madagascar - Solid waste pilot (0)
4. Nigeria - Training centers (1)
5. Guinea - Rural project (1)
6. Senegal - Youth programs (1)

Our Resilient Journey

2015-16

- €200,000 grant from EEP
- SERC

2017

- Proof of concept prototypes
- Diversification - SHS

2018

- €100,000 grant from VALEO Innovation Challenge

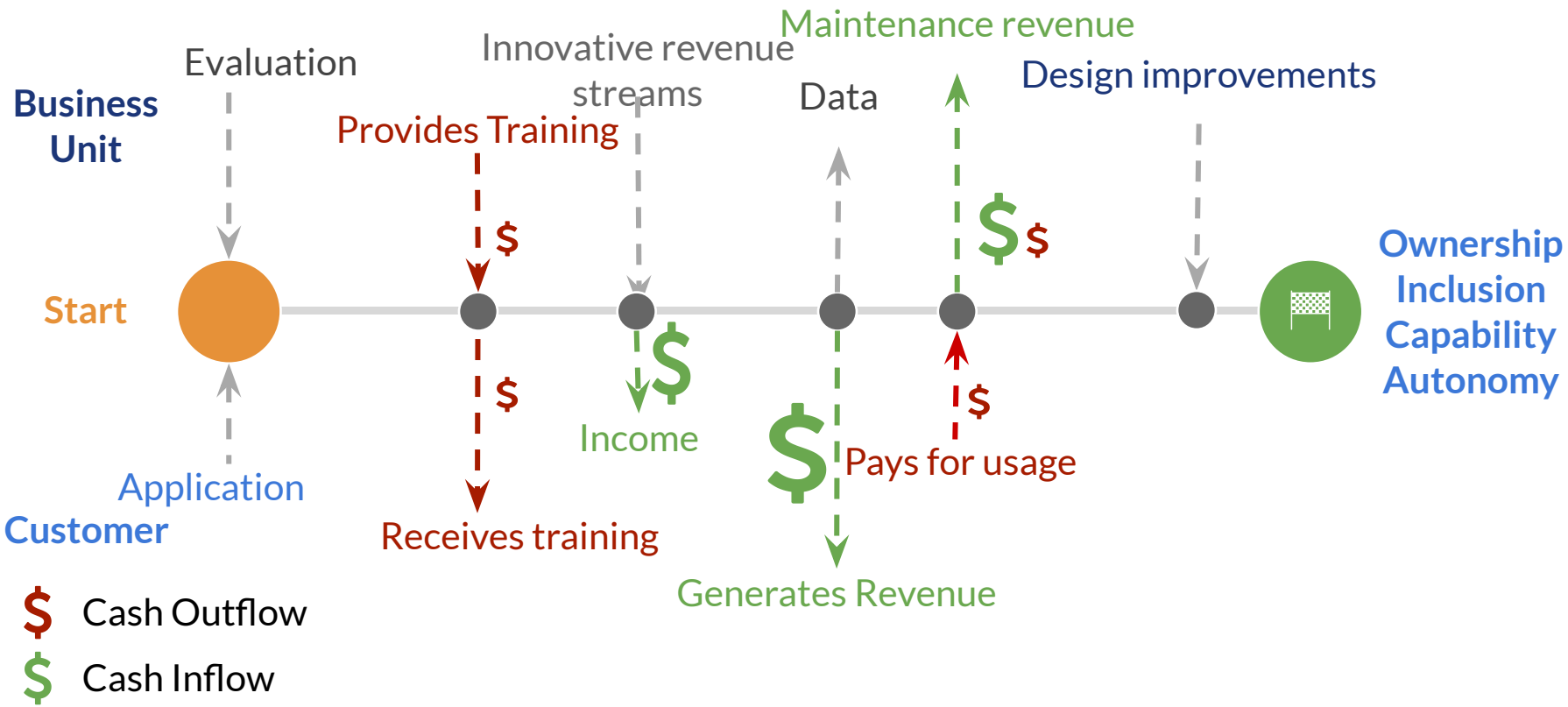
2019

- Nairobi to Mombasa Test Drive
- Toyota Mobility Foundation

2020

- Solar impulse 1000 Efficient solutions label
- Mission Innovation Champions
- ENGIE pilot

Revenue Generation Flow



Our Customers

Public Institutions

County Government of Kiambu
Posta Mail
Kenya Power
KAA Kenya Airports Authority
Safaricom

Private Business

Jumia
Twiga
Glovo
Kwanza Tukule
Sendy
DHL

Vendors



Financial Value Added

Savings	$2 Transport	$5 Rental	$3 Petrol
Revenue streams	$15 Revenue	$0.5 Electricity	$? Other (Adv.)

Try.Ke Features

35kph — Speed

100km — Range

200kg — GVW

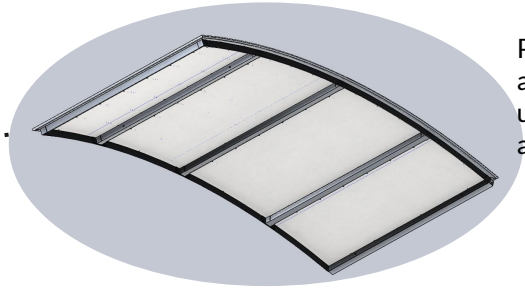
1.6kWh — Energy

- Auxiliary power 240V AC with Lithium
- Connected (GPS, GSM, GPRS, WIFI…)
- Hydraulic dual disc brakes
- Step through frame for emancipation

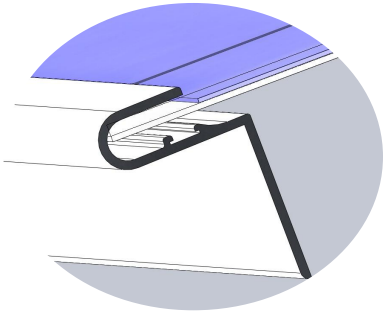
Roof Features

Lightweight braced aluminium roof structure for resilience under constant flexing

Bolted for ease of repair and removal

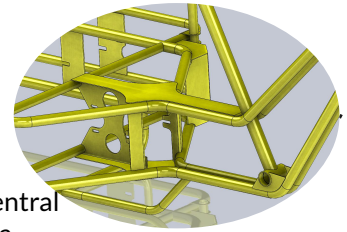


Panel is curved and cross braced underneath to avoid puddling

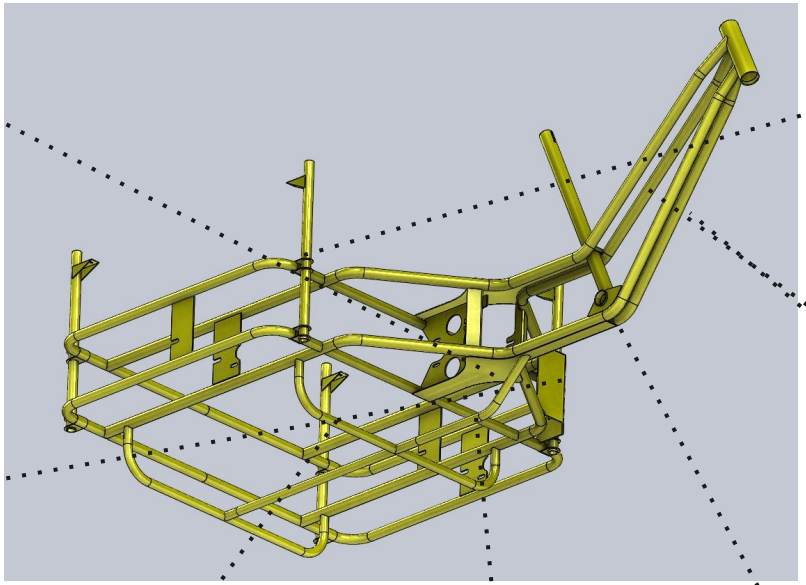


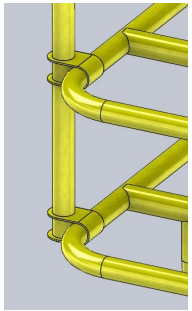
Solar panel retained gently to allow for thermal expansion. Edges protected against impact and ingress of water

Frame Features and Benefits

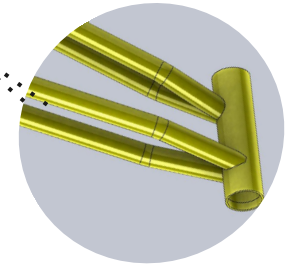


Reinforced central area to avoid a weak ‘wasp waist’

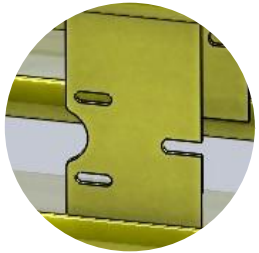




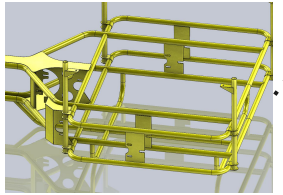
Saddle connexions of roof posts to provide highly flex-resistant mountings for the roof structure



Quadruple down tubes for a high lateral stability

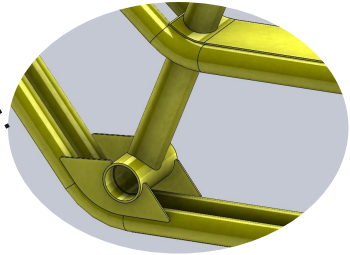


Slots for chain tensioning and transmission adjustment



Load carried as low as possible, below the rear wheel axles for stability

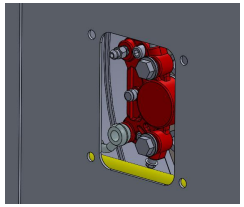
Central bottom tube provides support to deck area and extra longitudinal stiffness

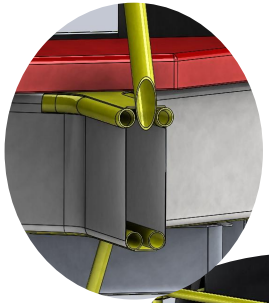


Bottom bracket uninterrupted tubes with extra gussets for a very stiff structure

Other General Features

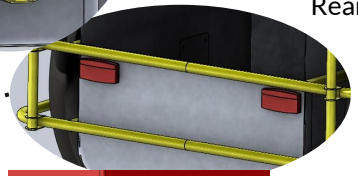
Access to rear brake

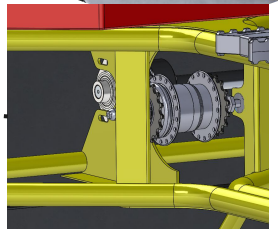




Space for electronics etc. behind panel

Rear lights

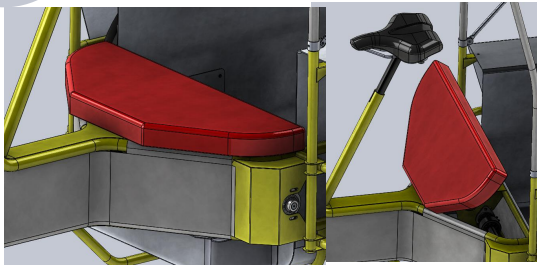




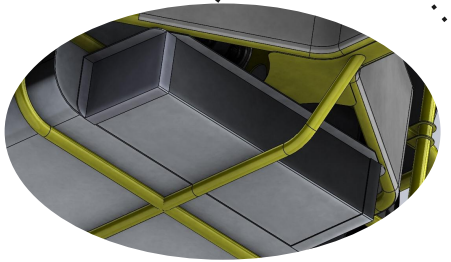
2 speed automatic inter transmission

Front lights and mudguard

Fat off-road tires,



Occasional seat – hinges forward to access the transmission and storage



battery box - low centre of gravity

Laser cut logo

Try.Ke - Technical Details

Technical Detail	Try.ke
Legal homologation	Pedelec, electric assist when pedaling, no throttle
Motor Power Continuous	2 x 350W
Max Speed (Motor Support)	35kph - Limited to 25kph
Walk assistance (Start-up help)	6 kph
Vehicle Width	1000mm
Vehicle Length	2050mm
Vehicle Height	1560mm
Cargo box (bottom section)	600mm x 700mm x 500mm (210l)
Cargo box (top section)	800mm x 750mm x 1000mm (600l)
Cargo volume (Behind driver)	1 m3
Motors (2, optional 3)	BAFANG RM G020.350.D
Controller	CR S207.1000.SN. Dual drive, front/rear light
Tires	KENDA K1167 20*4.0
Rims	P73D 20"*14G*36H A/V

Try.Ke - Technical Details

Technical Detail	Try.ke
Display	C01DP
Torque sensor	SR PA211.32.ST
Gear hub	2 speed automatic gear hub IG-2S20
Front brake	EB4D T6 Hydraulic Disc Brake Assy 203mm disc
Rear brake	One brake lever with two calipers 203mm disc
MPPT	Victron 100-20 48V
PV & Inverter	300 W, 48V DC - 240V AC 50hz - 12V - USB 1000W
Battery	Lithium-ion 20Ah to 50Ah 48V 1000Wh - 2500Wh
BMS	TBD
Passenger	1 - seated.
Ground clearance	200mm
Driving position	Upright.
Saddle	Adjustable
GVW	300kg

Try.Ke - Technology (1)

1. **ELECTRIC VEHICLE TECHNOLOGY:** Brushless motors (geared and non-geared); E-bike; Mountain Bike systems; Pedelec system (torque sensing, cadence, PAS); Delta design. Battery swapping;

2. **SOLAR TECHNOLOGY:** Flexible photovoltaic panels with EFTE(PV); Multipoint Power Tracking (MPPT); Inverters, Chargers; Solar home system possibilities; Batteries (Lithium-LiFePO4), or Lead-acid (PbSO4-Deep Cycle; VRLA and Gel);

3. **COMMUNICATIONS TECHNOLOGY**: connected to the Internet of things (IoT); Global positioning system (GPS); Global System for Mobile Communications (GSM); General Packet Radio Service (GPRS); Wireless networking technologies (WiFi); Satellite communication (Iridium, Global Star, Inmarsat);

Try.Ke - Technology (2)

1. **FINTECH**: Micro-finance (MF); Mobile money (M'Kopa); Pay-as-you-go (PAYGO)
2. **IOT TECHNOLOGY**: Mini computers; memory cards, Canbus, Video on board, On-board data and power management and transmission; Tracking devices; Fleet management and tracking software;
3. **ELECTRICAL TECHNOLOGY**: Low voltage, Direct current (DC) 5V, 12V & 48V; Alternating current (AC) 110/220/240V, AC-DC transformation;
4. **MECHANICAL DESIGN**: Uses materials and equipment available locally. Dual hydraulic disc brake systems, 4" fat bike tires for sand and mud. Cruise control electric assist in hill climbing. Easy step in frame. See above.

Try.Ke - Awards (1)

- Developed an On-board power and data management and transmission system and is testing version 3.5 with IoT Lab at iBiz, Strathmore University.
- Derived extensive experience from a SunTrek expedition from Nairobi to Mombasa in 2019 (600km, two tricycles) and incorporated all the improvements into the new design presently being tested.
- Proved to several last mile delivery companies that Try.Ke can reduce their transportation costs by 30% and increase their sales by 500%.
- Was awarded €200,000 grant during the CFP9 of EEP Africa (joint funding venture between Finland, Austria and UK) in 2015.