NLAS

ANNUAL REPORT 2022

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Raja Murad

Last Update:

31.01.2023 13:25

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Preface

This report contains details of the NLAS Institute project that we carried out for the year 2022.

The Project presented is the E-TRACTUK

An electric tractor based on a TukTuk Chassis.

Introduction

Solar Cell Tuk Tuk have clean driving power, without any pollution, saving environment, for comfortable transportation and with more features for your convenience. Wider space for passengers than general Tuk Tuk.Easy for maintenance, just charge the battery and check the battery acid level.Turning controlled by steering, make it easier in controlling than the conventional Tuk Tuk. More space for driver, without engine, heat and noise.

Project 1: Electric TukTuk Testing Rig

1.1. Requirments

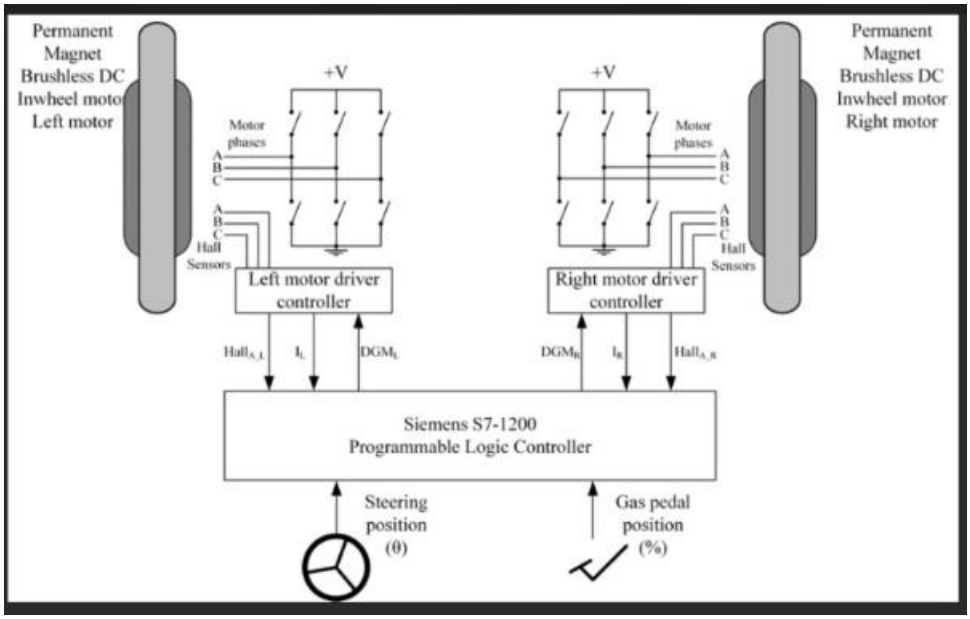
Work on this project has started in 17 October 2022

- This is a list of system requirments

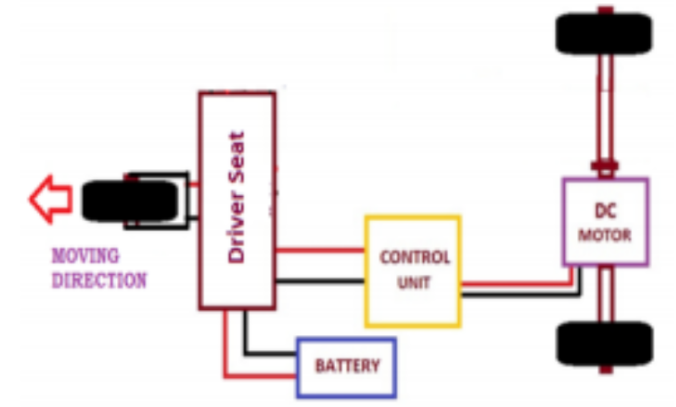
Wheels nb	3 wheels
Speed	70 km/h max
Climbing Ability	20 - 30 degree
Nb of passangers	2
Max Load	350 kg (changable)
Budget	1500$
Nb of operation Hr	6
Solar rechargeable	yes
Reverse gear	yes
Water resist	yes
Operation Temp	-10 to +50 degree Celsius

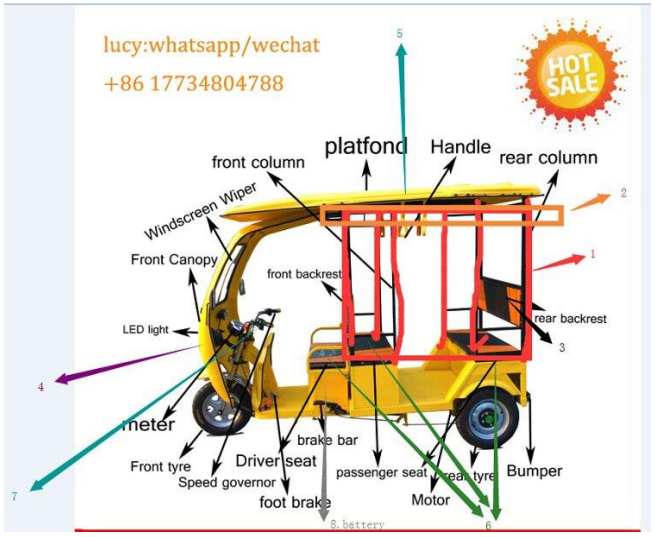
Lifetime	3 years/100.000 km
pedal type or throtle	pedal
Material	Metal
Charging hours	6 h
Breaking	Front and Rear oil drum brake
Lighting	LED
Seats material	Leather

- Power/drive Train and parts::

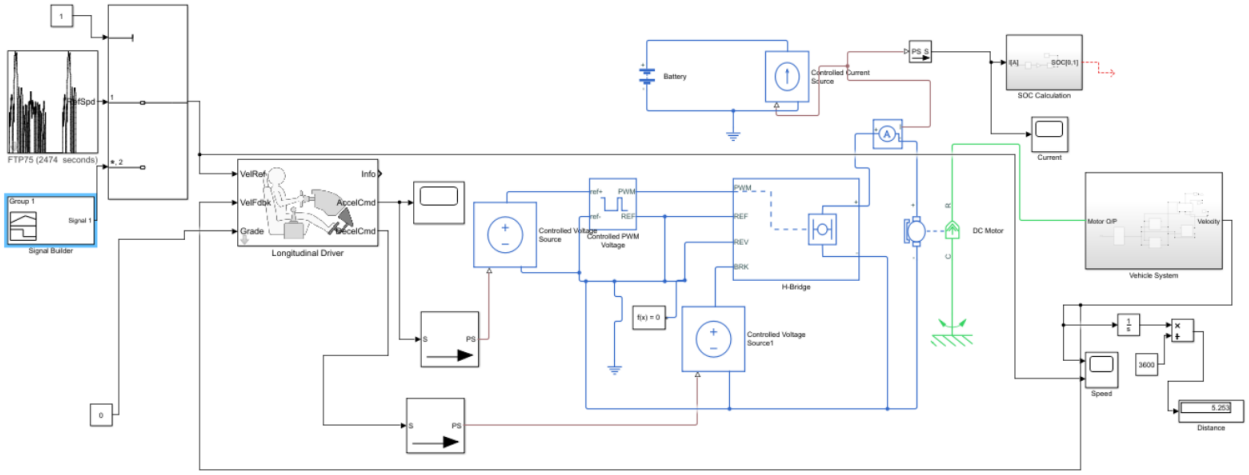


The Basic Electric Rickshaw Drivetrain :



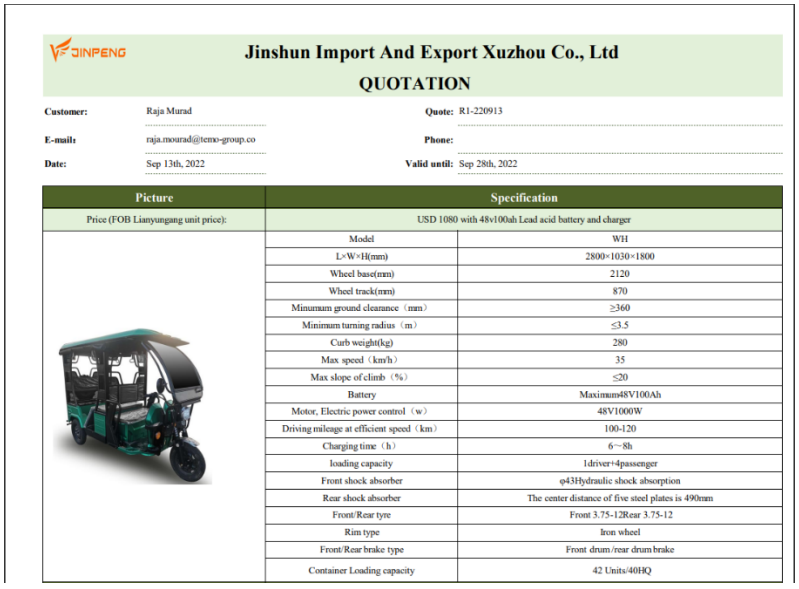


Simulink Model of the Electric Rickshaw using DC motor :



https://skill-lync.com/student-projects/electric-rickshaw-modelling-2

- Similar products



JINPENG

Jinshun Import And Export Xuzhou Co., Ltd

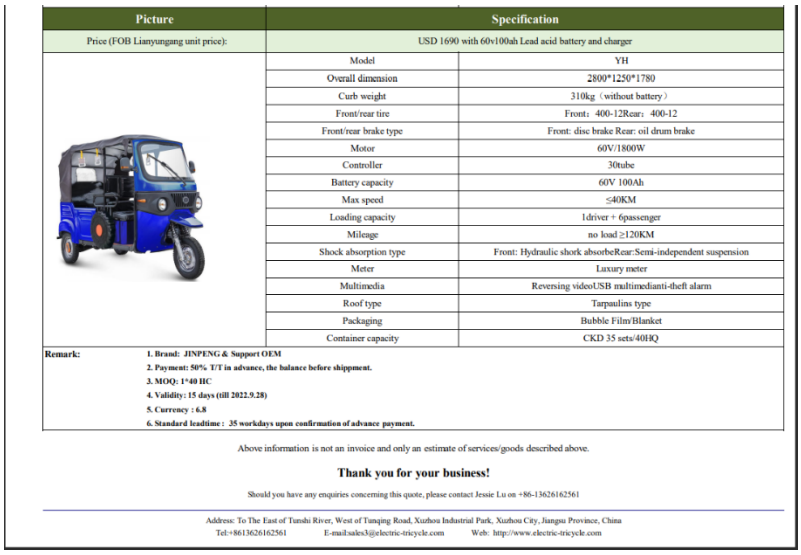
QUOTATION

Customer: Raja Murad — **Quote:** R1-220913

E-mail: raja.mourad@temo-group.co — **Phone:**

Date: Sep 13th, 2022 — **Valid until:** Sep 28th, 2022

Picture	Specification	
Price (FOB Lianyungang unit price):	USD 1080 with 48v100ah Lead acid battery and charger	
	Model	WH
	L×W×H(mm)	2800×1030×1800
	Wheel base(mm)	2120
	Wheel track(mm)	870
	Minumum ground clearance（mm）	≥360
	Minimum turning radius（m）	≤3.5
	Curb weight(kg)	280
	Max speed（km/h）	35
	Max slope of climb（%）	≤20
	Battery	Maximum48V100Ah
	Motor, Electric power control（w）	48V1000W
	Driving mileage at efficient speed（km）	100-120
	Charging time（h）	6~8h
	loading capacity	1driver+4passenger
	Front shock absorber	φ43Hydraulic shock absorption
	Rear shock absorber	The center distance of five steel plates is 490mm
	Front/Rear tyre	Front 3.75-12Rear 3.75-12
	Rim type	Iron wheel
	Front/Rear brake type	Front drum /rear drum brake
	Container Loading capacity	42 Units/40HQ



Picture	Specification	
Price (FOB Lianyungang unit price):	USD 1690 with 60v100ah Lead acid battery and charger	
	Model	YH
	Overall dimension	2800*1250*1780
	Curb weight	310kg（without battery）
	Front/rear tire	Front：400-12Rear：400-12
	Front/rear brake type	Front: disc brake Rear: oil drum brake
	Motor	60V/1800W
	Controller	30tube
	Battery capacity	60V 100Ah
	Max speed	≤40KM
	Loading capacity	1driver + 6passenger
	Mileage	no load ≥120KM
	Shock absorption type	Front: Hydraulic shork absorbeRear:Semi-independent suspension
	Meter	Luxury meter
	Multimedia	Reversing videoUSB multimedianti-theft alarm
	Roof type	Tarpaulins type
	Packaging	Bubble Film/Blanket
	Container capacity	CKD 35 sets/40HQ

Remark:

1. **Brand: JINPENG & Support OEM**
2. **Payment: 50% T/T in advance, the balance before shippment.**
3. **MOQ: 1*40 HC**
4. **Validity: 15 days (till 2022.9.28)**
5. **Currency : 6.8**
6. **Standard leadtime : 35 workdays upon confirmation of advance payment.**

Above information is not an invoice and only an estimate of services/goods described above.

Thank you for your business!

Should you have any enquiries concerning this quote, please contact Jessie Lu on +86-13626162561

Address: To The East of Tunshi River, West of Tunqing Road, Xuzhou Industrial Park, Xuzhou City, Jiangsu Province, China
Tel:+8613626162561 E-mail:sales3@electric-tricycle.com Web: http://www.electric-tricycle.com

Al halabi E-BIKE Tripoli, Koura square

مثل هيك تكتك لنقل البضاعة و يمكن ان يعدل لنقل الركاب
بسعر ١٥٠٠-١٦٠٠$
سرعة ٦٠ كم/س
يمشي مسافة ٤٠-٥٠ كم
تشريج ٥ ل٨ ساعات
محرك ١٠٠٠ وات
٤ بطاريات
يمكنه ان يصعد طلعة الهيكلية لان لديه GearBox من فراش واحد

الحلبي لديه كل ما يتعلق بالتكتك من محركات لميكانيك للcontrollers ...

عرض اسعار القطع

المجموع	السعر	العدد	الوحدة	الشرح
6.00	3.00	2		اشارات-تكتاك-امامي-جذب
10.00	10.00	1		اشارات-تكتاك-خلفي
408.00	68.00	6		بطارية-XUPAI-12V 52A
20.00	20.00	1		تي-ملفط-تكتاك
40.00	20.00	2		جنط-12"-تكتاك-خلفي-فارغ
10.00	5.00	2		جوانتي-475.12-
350.00	350.00	1		خلمة-ديفرانسيال-كامل
5.00	5.00	1		رولمون-تكتاك-ص
35.00	35.00	1		سرسيون تكتاك-موديل جديد-كامل
5.00	1.00	5		شريط بطارية-حراري-
2.50	2.50	1		علبة توصيل-5 برغي-
12.00	12.00	1		فسات-تكتاك-طقم
95.00	95.00	1		كف كهربا-BRSH-60/72V 1500W
44.00	22.00	2		كرشوك-XM-400X 12-
15.00	15.00	1		كيدون-تكتاك-جديد
6.00	6.00	1		مسكة سرعة-تكتاك-018
40.00	40.00	1		ملفط-تكتاك-33MM-
120.00	120.00	1		موتير تكتاك-72V 1500W-
1,223.50				المجموع :

- **SmarTuk**

https://www.tuvie.com/smartuk-modular-electric-tuktuk-design-for-cambodia/

Designed by Vincent Chan and Andy Lee, SmarTuk features modern design with better functionality that help to create better image on the street. No more dirty vehicles moving around the street, polluting environment.

Here are some advantages of SmarTuk design:

- Modular loading bay for selling different types of goods
- Improved water resistance as flood is common in Cambodia
- Customer can order or locate specific types of goods anytime
- GPS radio so the vehicle could be tracked real time
- Security box features

- **AM Electric Bike (lebanon)**

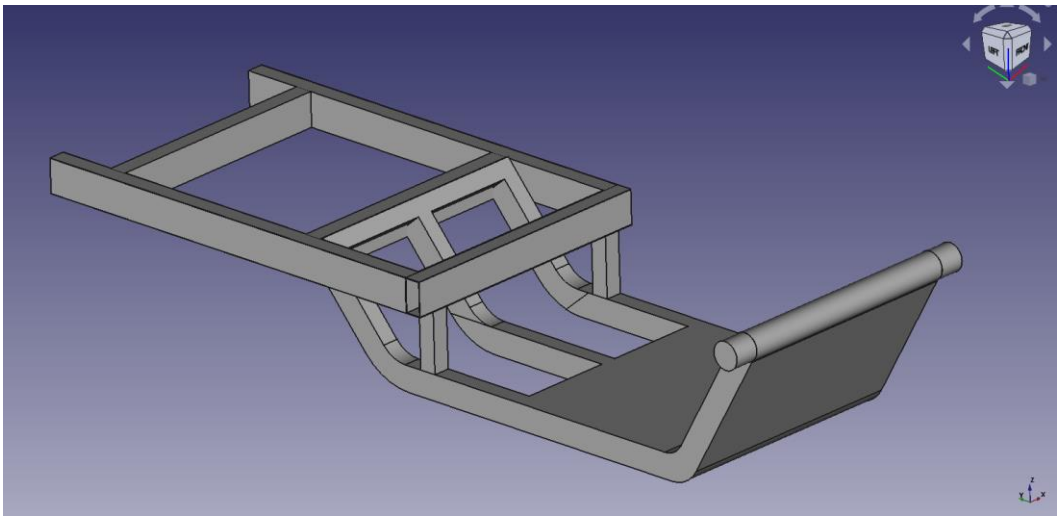
https://amebike.business.site/?utm_source=gmb&utm_medium=referral

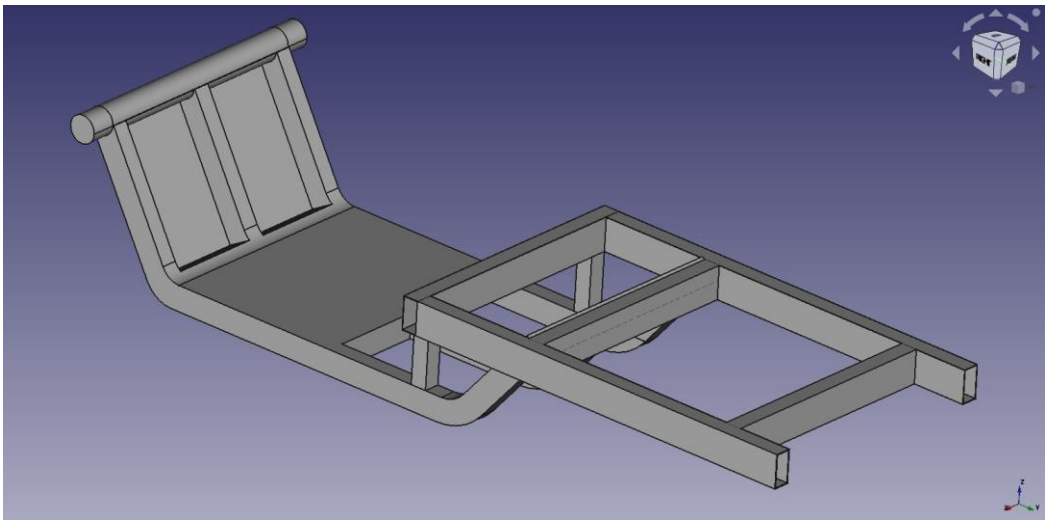
- **- Solar Panels:**

https://www.alibaba.com/product-detail/Bluesun-ETFE-solar-flexible-160w-170w_1600281712498.html?

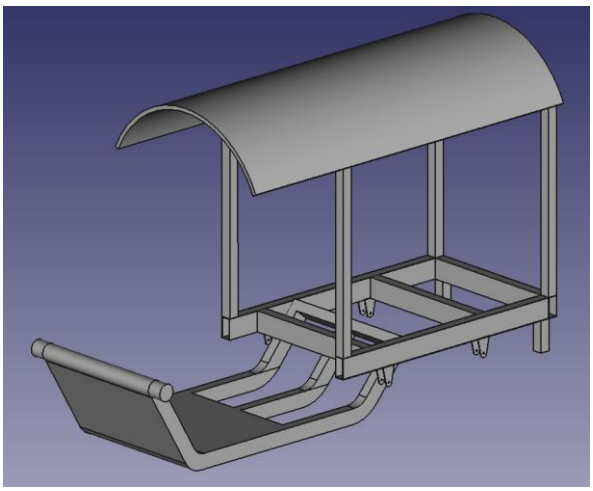
1.2. Mechanical design

In this paragraph we will present the mechanical design of TukTuk chassis





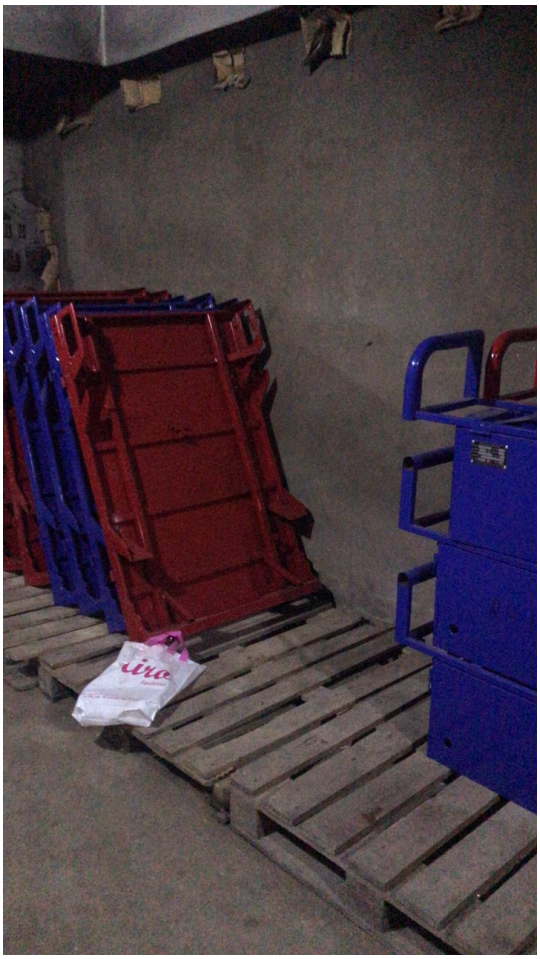
24-10-22
E-TukTuk.FCStd



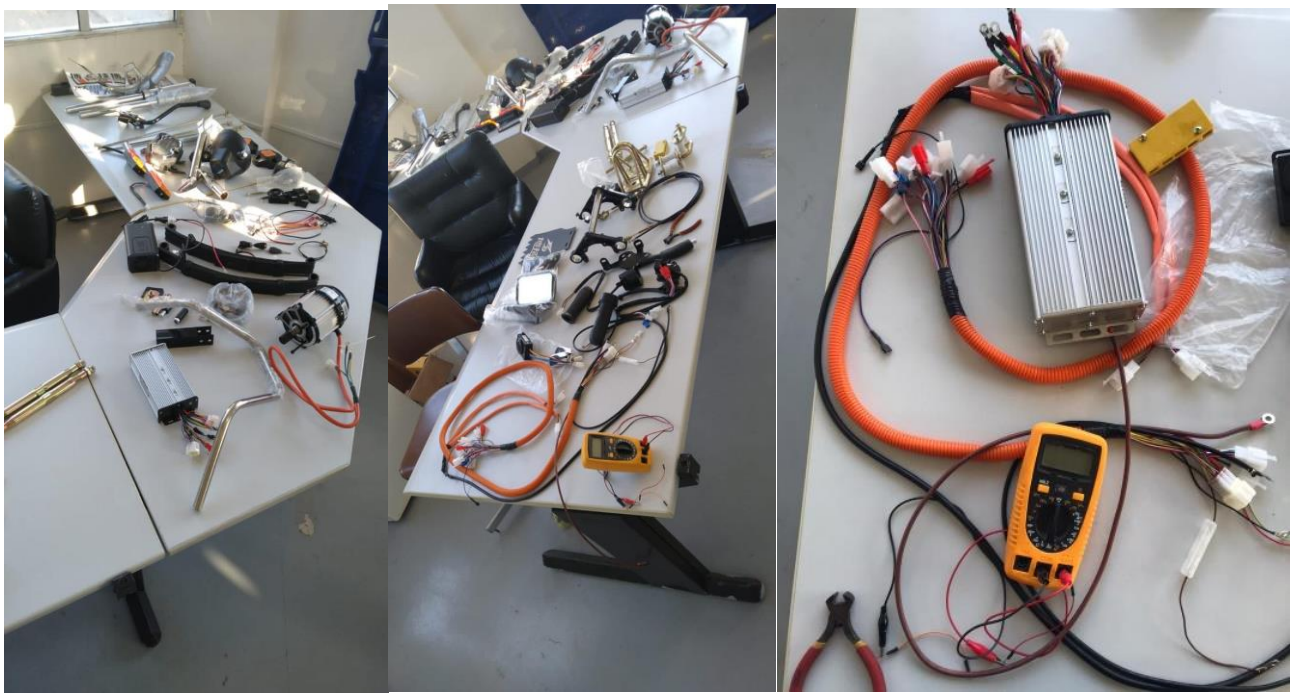
1.3 Mechanical Realization

Assembling the TukTuk

TukTuk Chassis



1000w controller

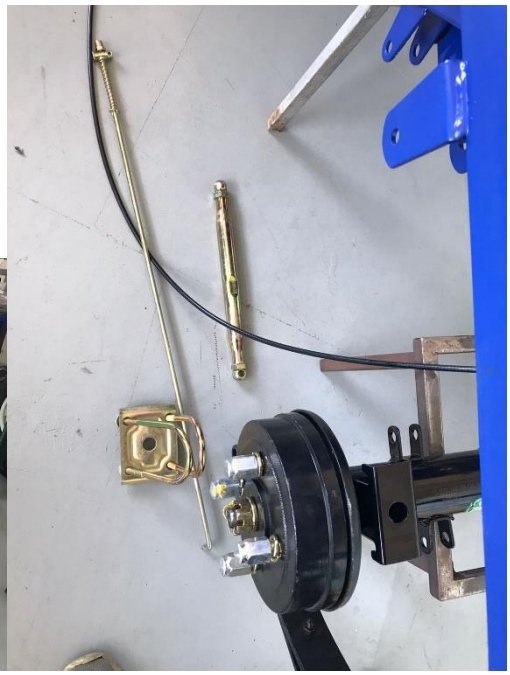


1000w controller and connecting wires

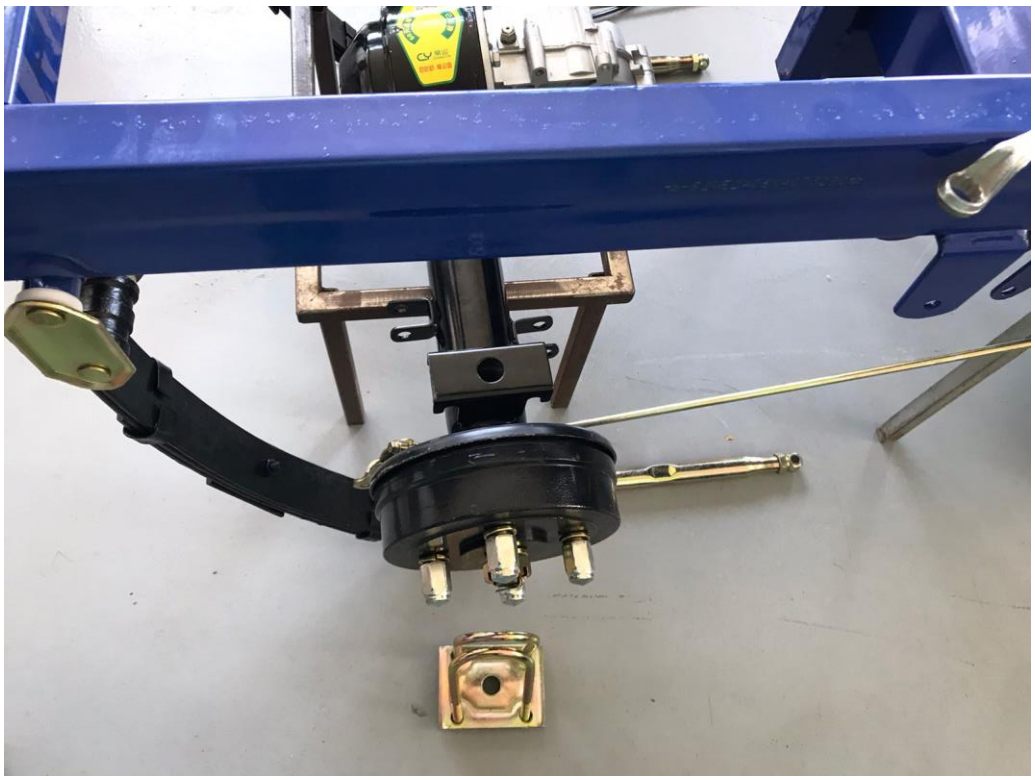
Throtle handelbar and speed controller

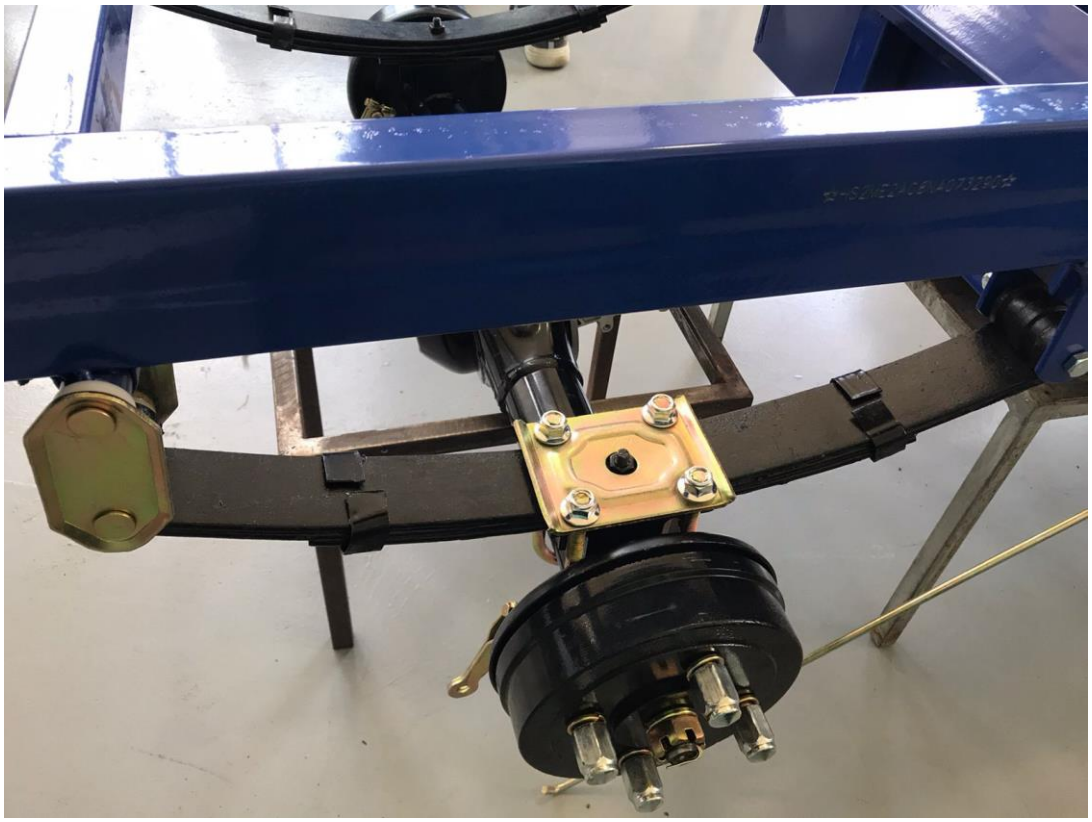
Brakes wires

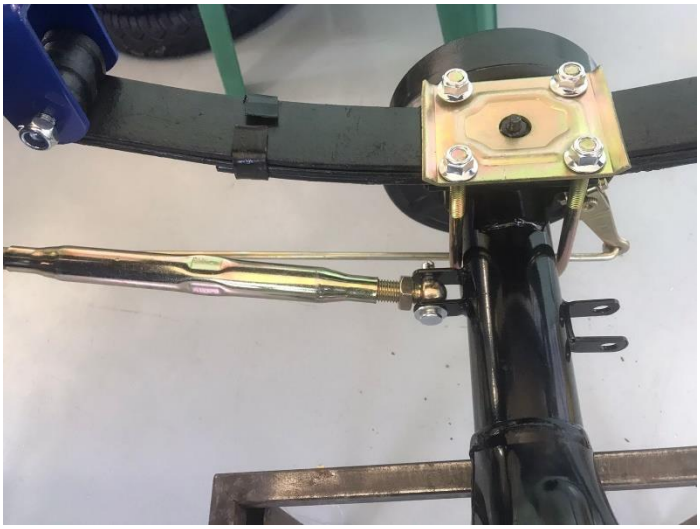
5 12v batteries and charger

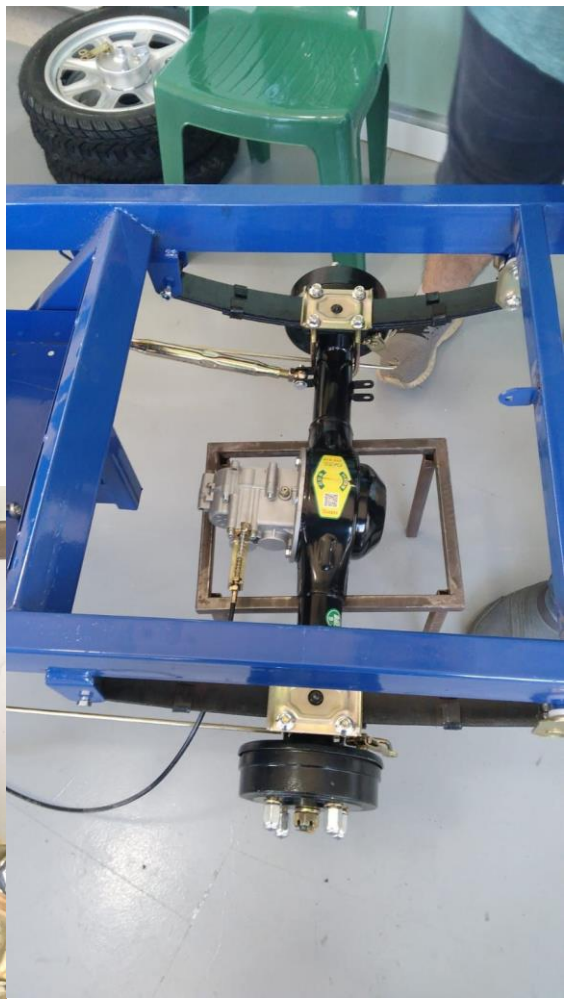


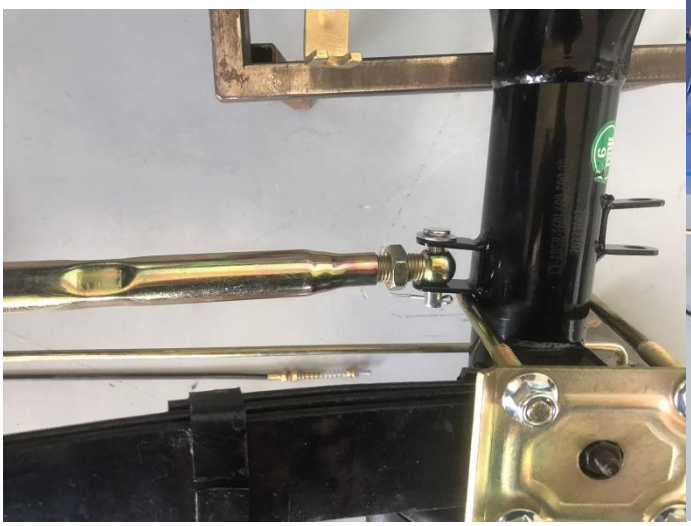
Rear suspension, shock absorber, and brake drum









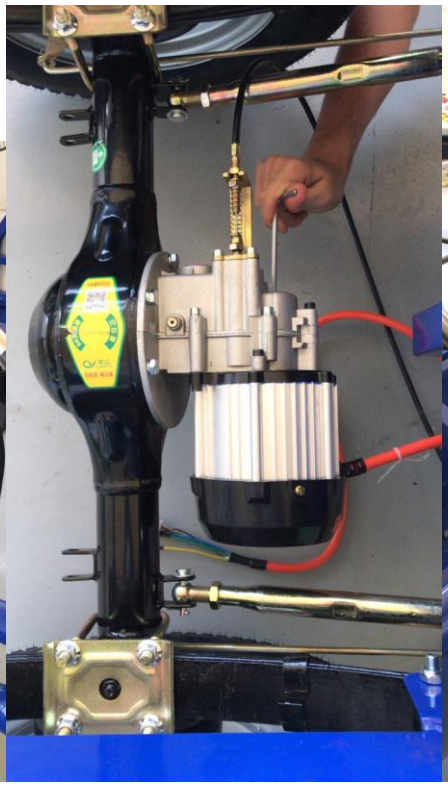


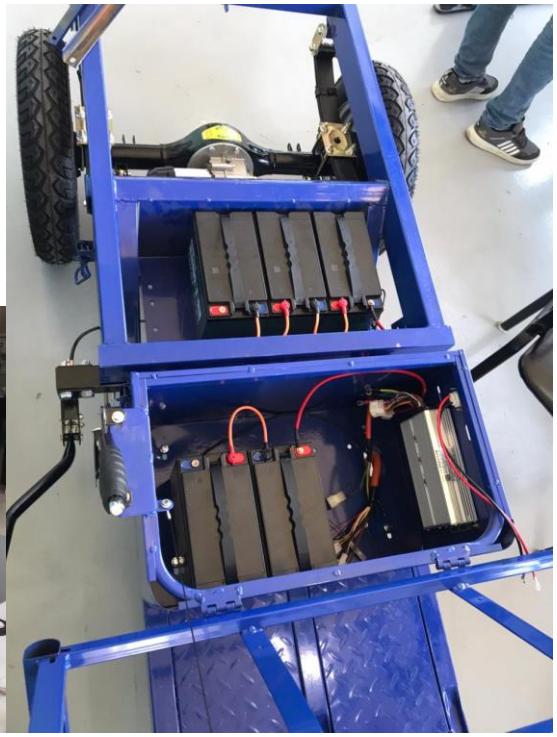
GearBox shifter

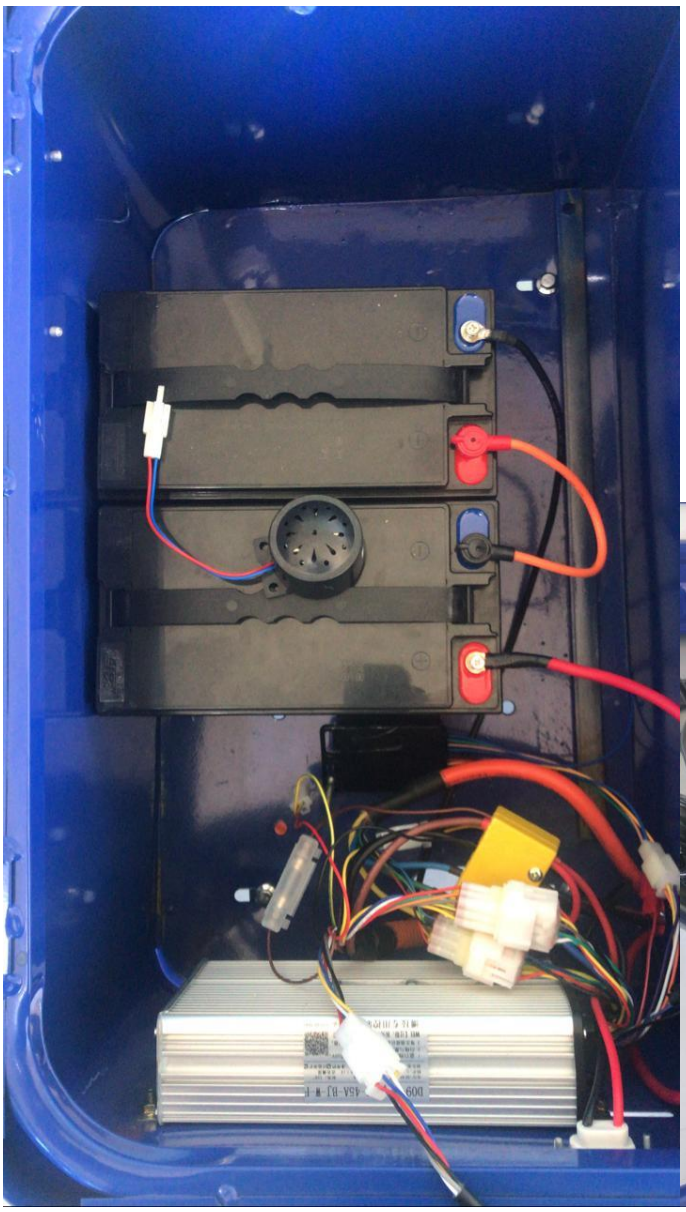

adidas

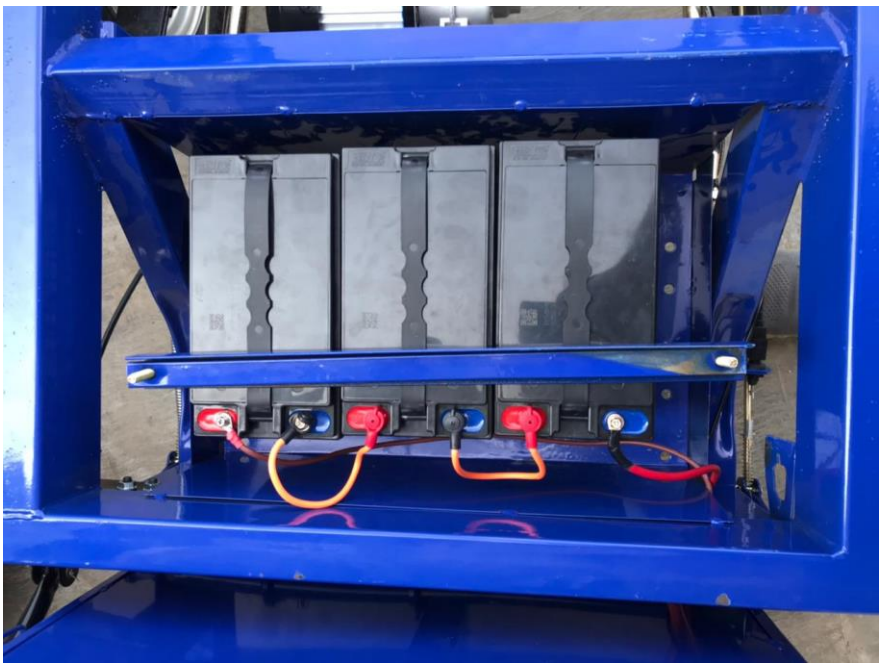

U Bolts
Front suspension axe
Rigid tension bar
Clamps


唐博车间 百年传承
禁止注油









1.4 System test:

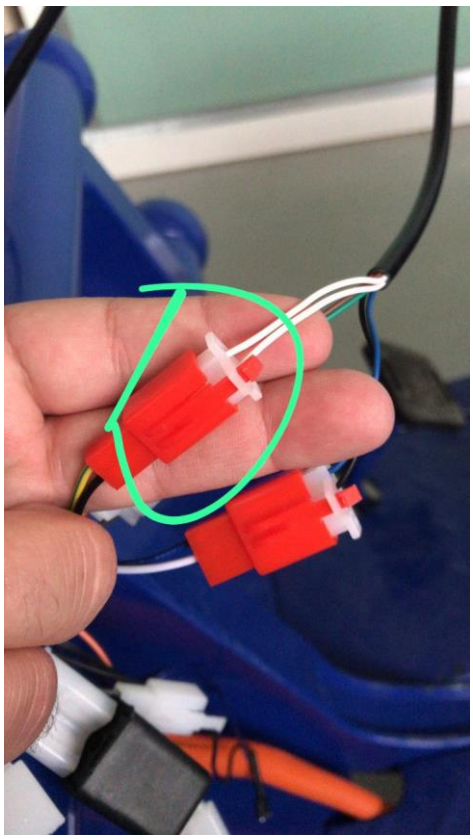
1- Test 20-10-22:

All wires were connected to the controller.

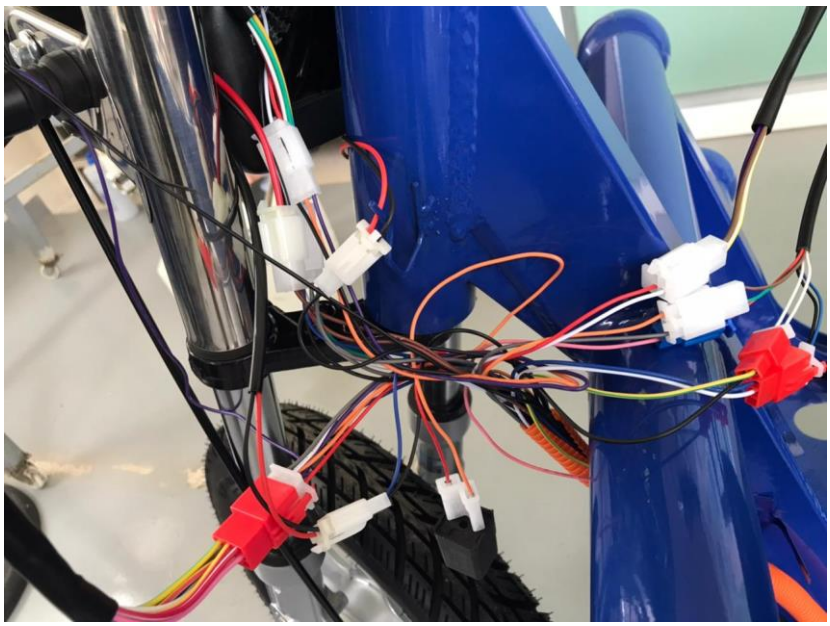
The tuktuk starts to go forward but the dashboard, lighting and flashers were not working.

The main power cable of the dashboard, lighting and flashers was not connected to the 60v batteries, after connecting it, everything starts to work normally but the TukTuk went just backward.

The Flashers coil failed.



Throtle plug



2- Test 26-10-22:

Recheck for all the Throttle handlebar and Forward/Reverse wires.

The TukTuk starts to work normally forward and reverse.

The Forward/Reverse wires were connected incorrectly and switched with the flasher wires.

Videos on CD:

Testing Forward/Reverse switch video

Testing the three speed levels videos(Low,Medium,High)

3- Test 27-10-22:

After changing the flashers coil and the flashers were working well.

the E-TukTuk was tested with load in the inclined round of Haykal emergency entrance:

- in low/medium and high speed, the tuktuk climbed the inclined round but slowly and difficultly

- using the gear box it climbed the slop easily but also slowly

2 Videos on CD

After assembling all the cabin the tuktuk is tested with the load of the cabin and 4 persons in back and the driver and the tuktuk goes smoothly without facing any problem

Project 2: Electric TukTuk Testing 1 Rig

1) Requirements

1- Agriculture Electric Real Size Tractors Products in market:

1-https://www.pinterest.com/pin/284641638921221021/

2- https://www.motherearthnews.com/sustainable-living/green-transportation/our-solar-powered-tractor-zbcz1307/

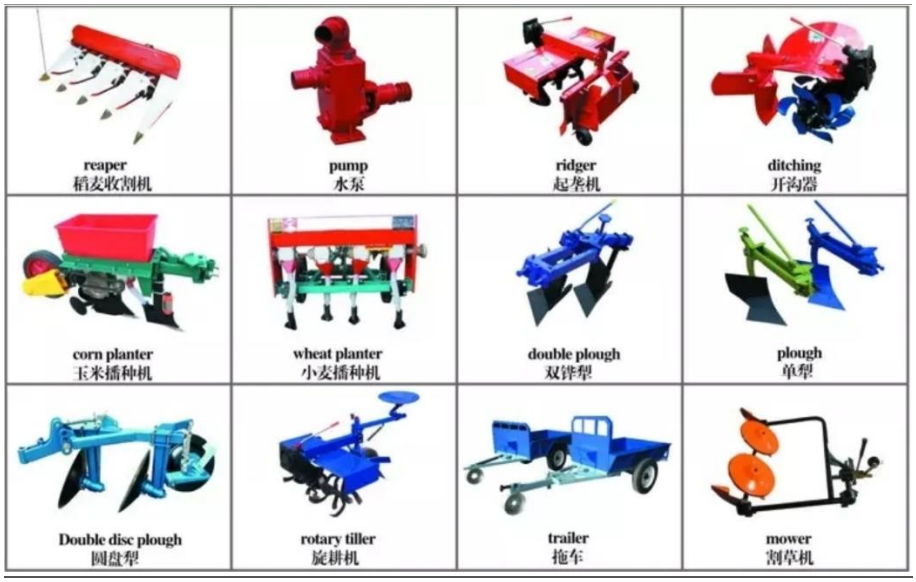
3- https://solarimpulse.com/solutions-explorer/solectrac-electric-tractors

Mini agriculture TukTuk products:

1- https://www.indiamart.com/proddetail/shakti-three-wheels-mini-tractor-16757725962.html

2- https://kishankart.com/product/mini-tractor-tractbull/

2- Agriculture Machines:

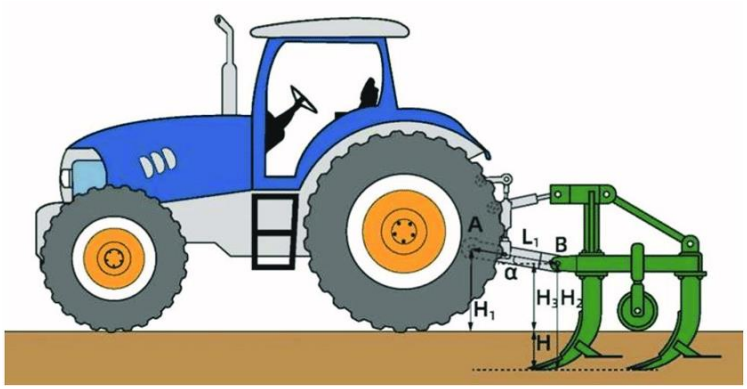


Irish Potatoes and Onion Harvester


Top 5 Subsoiler Implements Used In Agriculture
Brillion


3 point, Category 1 with lift pins and top link
TITAN


TITAN



- Wheel chains for dirt roads can be used:

- Front and rear wheels can be replaced by this type and size of tires but the rear ones should fit the wheel cover space and drum width

-Rear wheels from Jamal And Chaaban for 90$:

- Simplest Hitch design:


US Stock
Heavy Duty Steel

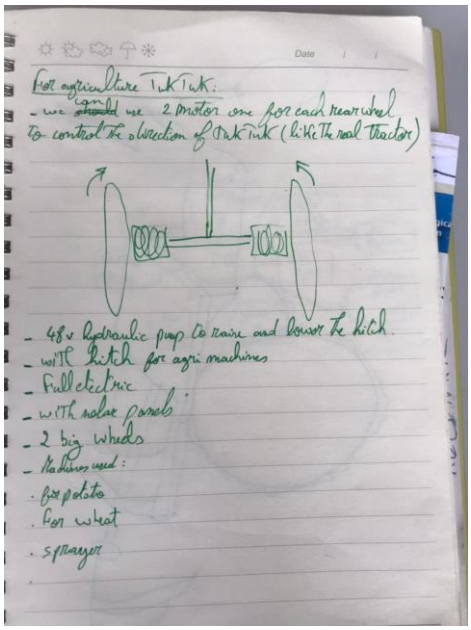

DIY 3pt
Receiver
Hitch

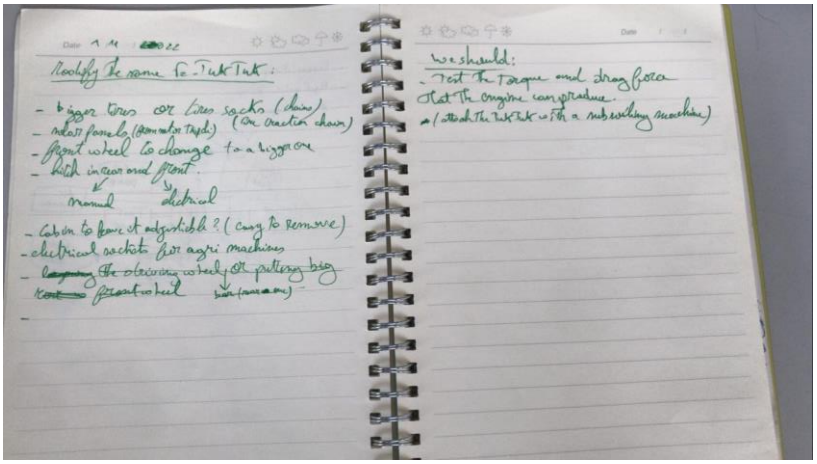

One-pass water drain system

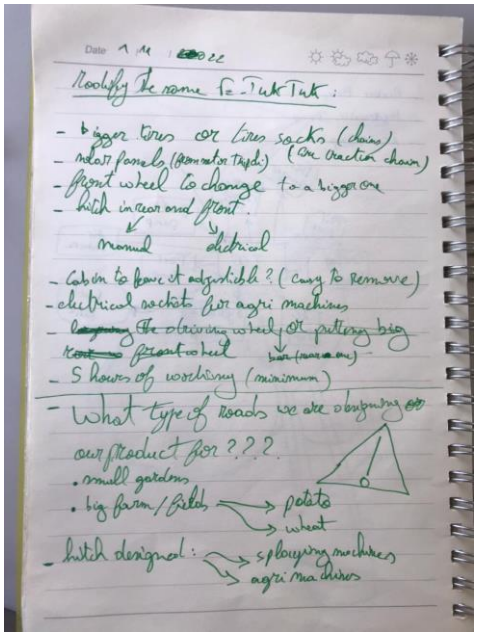

Strong steel arm and shank allow you to break through tough ground

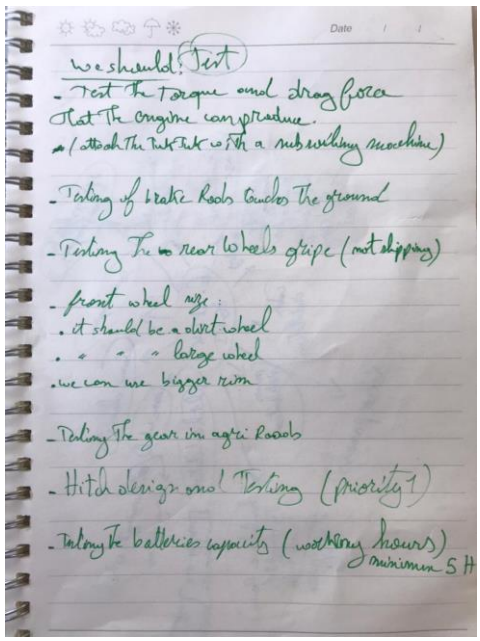
- Solar panels used:

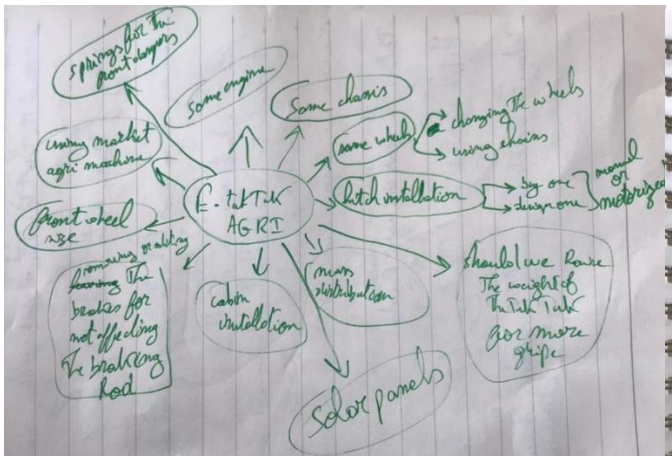
- Overview, Requirements lists:

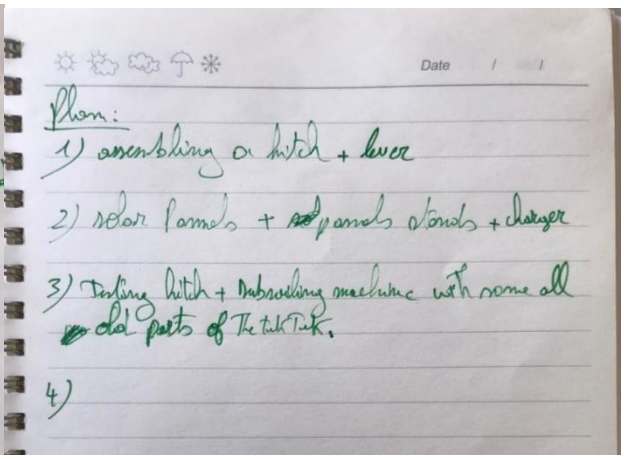










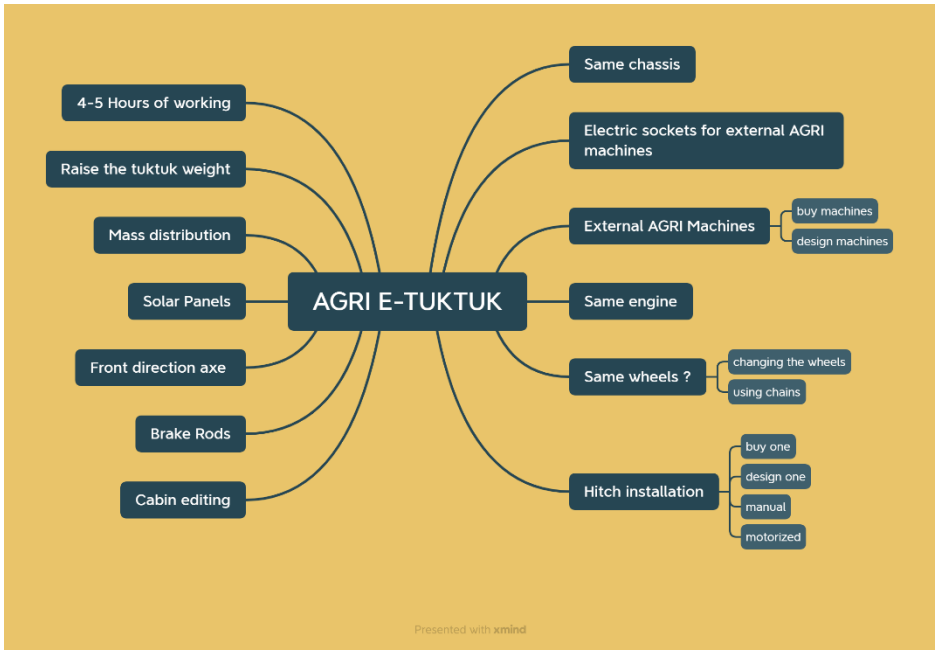


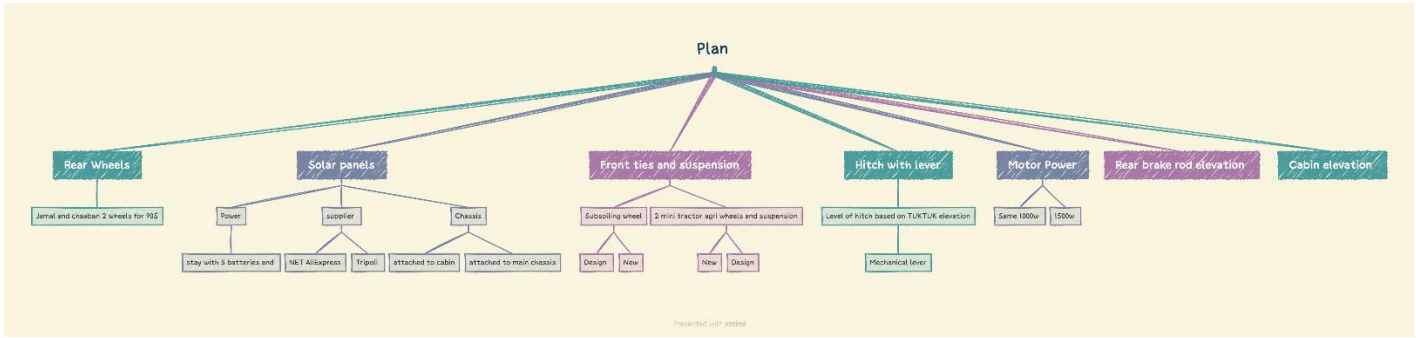
Project Planning :

Project presentation:

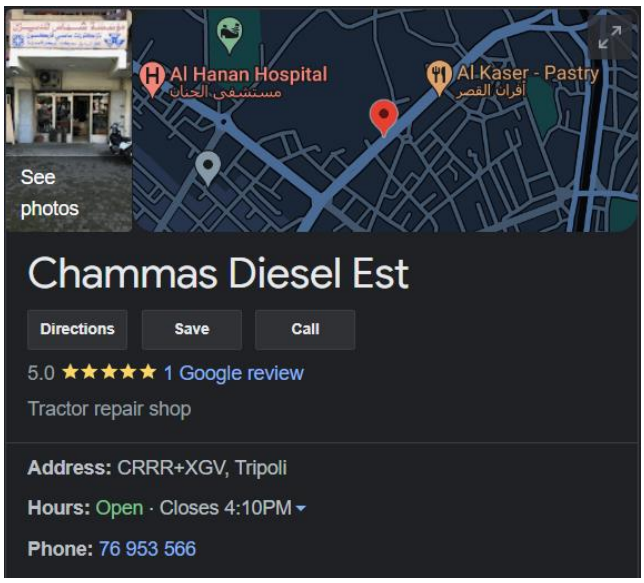
Plan

AGRI
E-TUKTUK.xmind





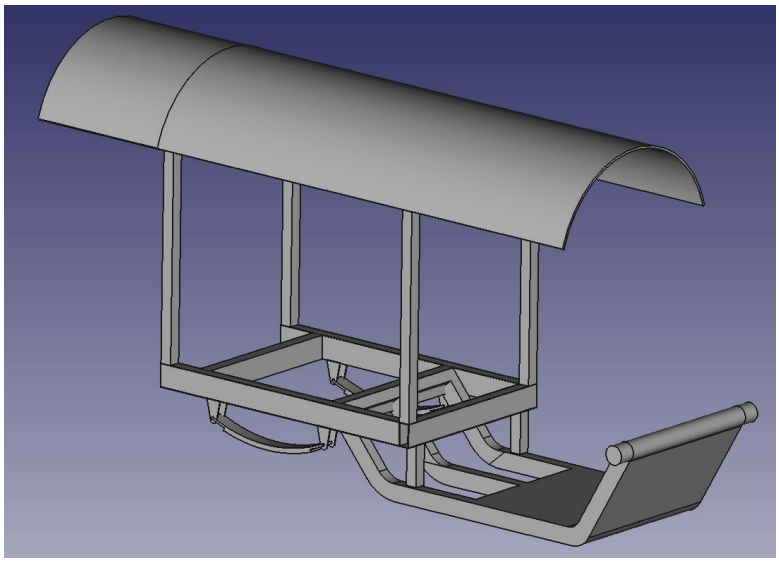
- Supplier for Tractor parts in tripoli:



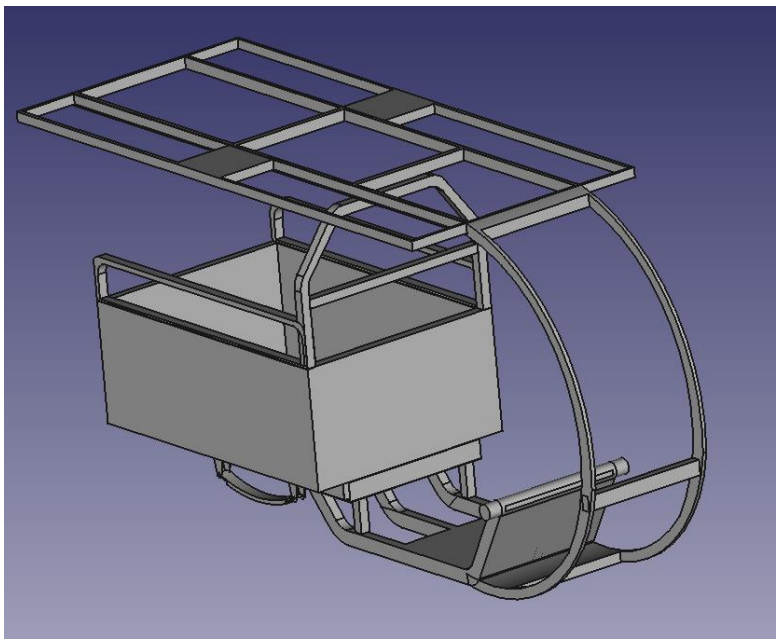
2 Mechanical design:

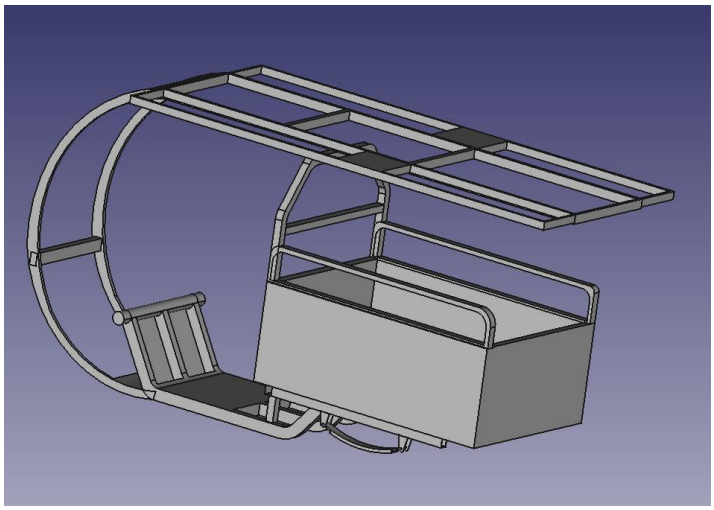
FreeCAD design of the agriculture tuktuk

17-22-2022 drawing:

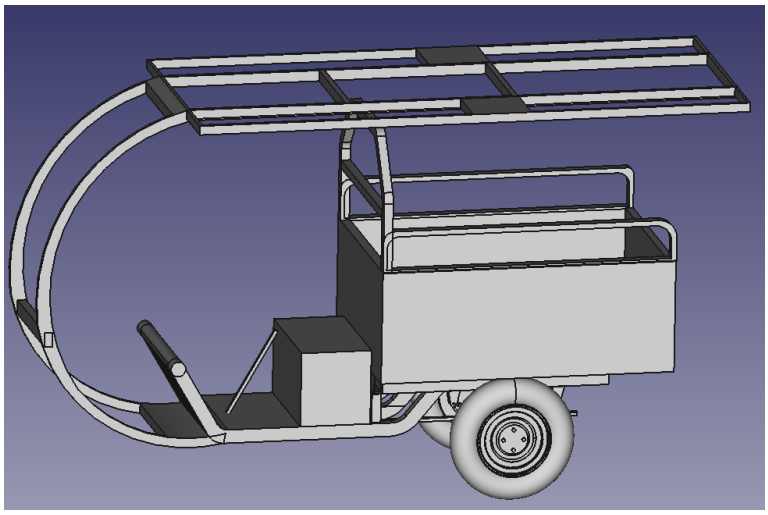


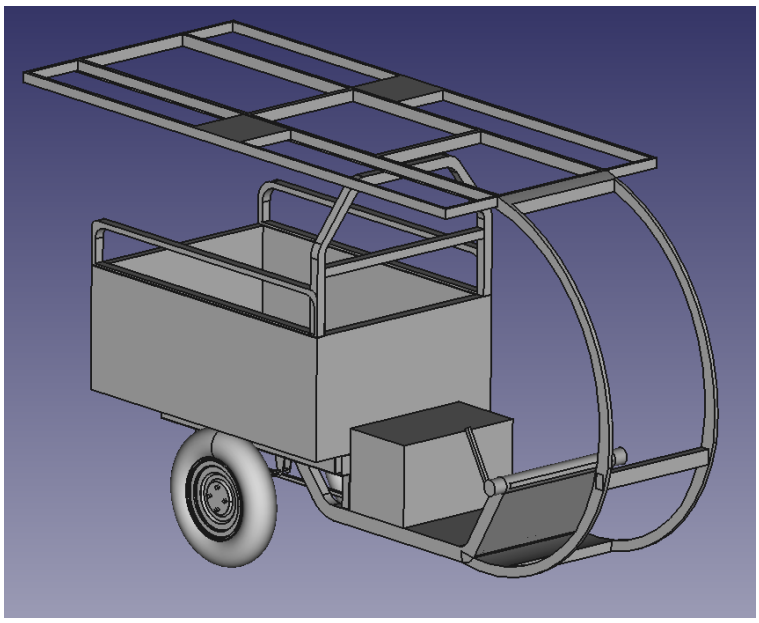
28-11-22 E_TukTuk with solar panel stand:





30-11-22 E_TukTuk with solar panel stand and hitch handle:





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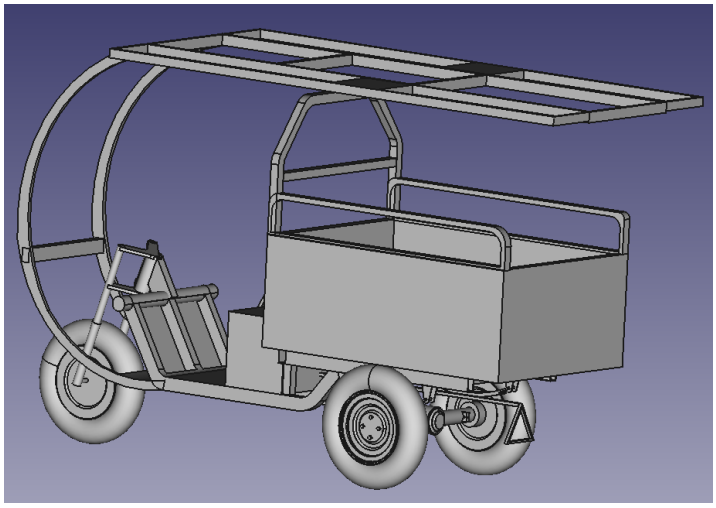

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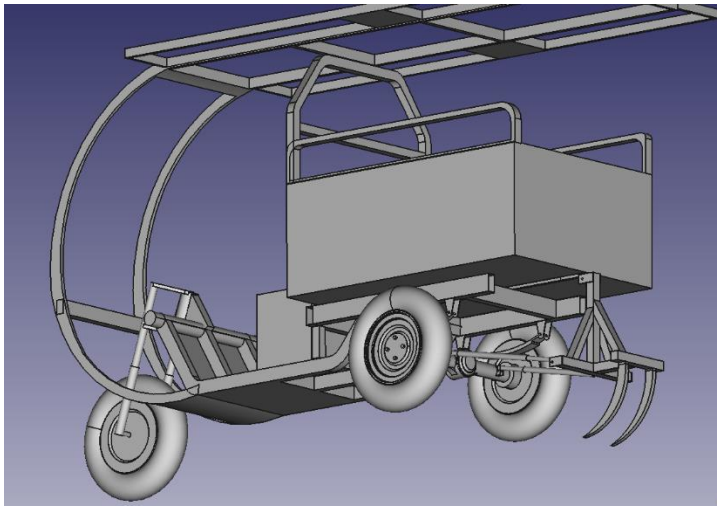
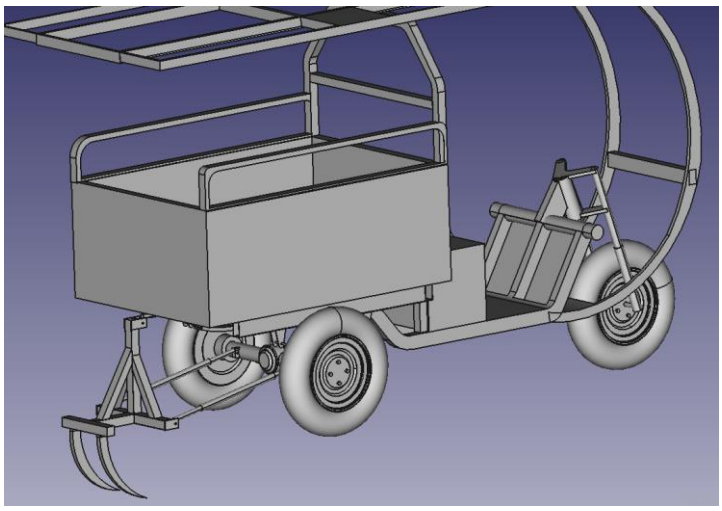
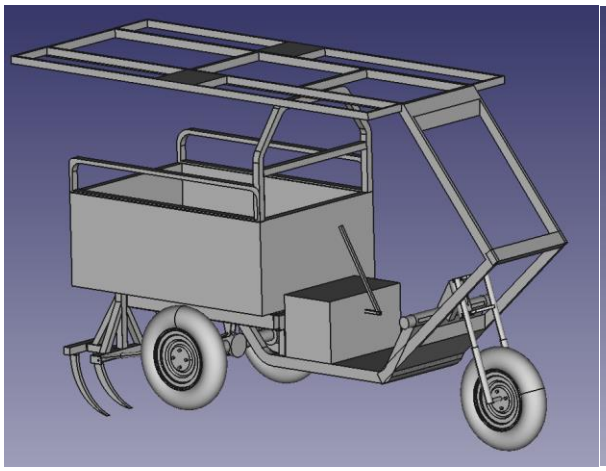
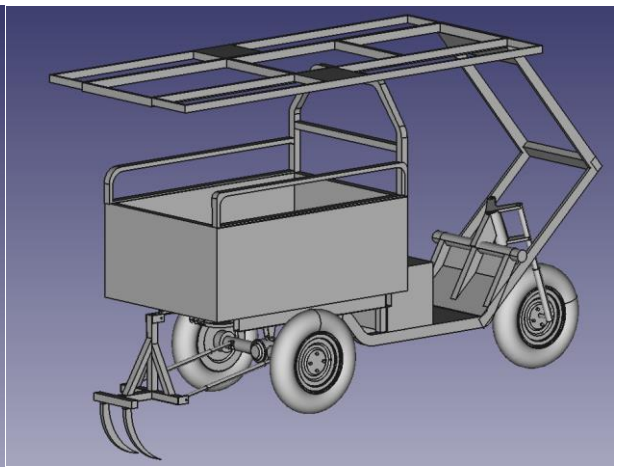
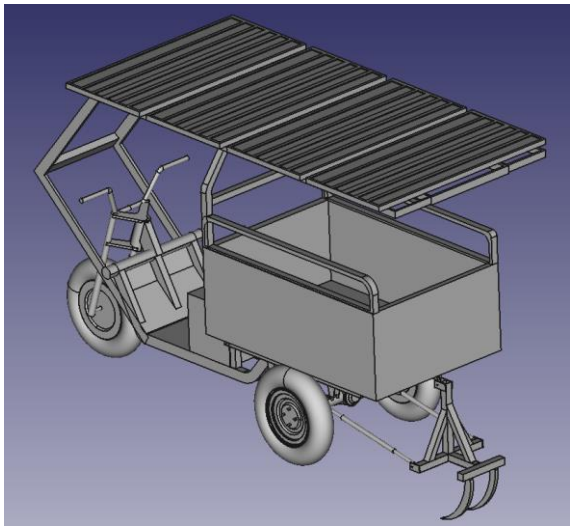


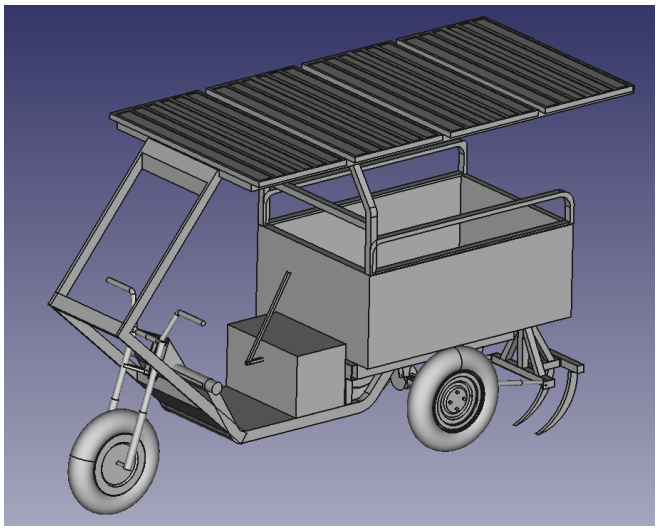


19-12-22 E_TukTuk with solar panel stand:





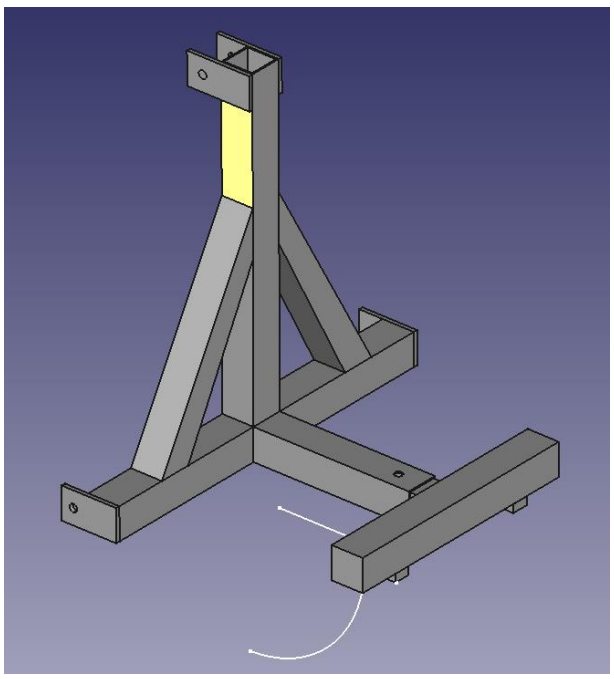


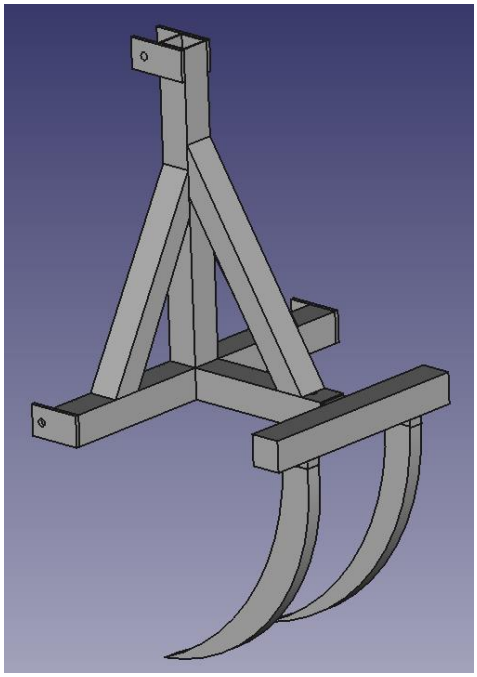


E_TukTuk with solar panel stand:

19-12-22 E_TukTuk with solar panel stand

Hitch Design

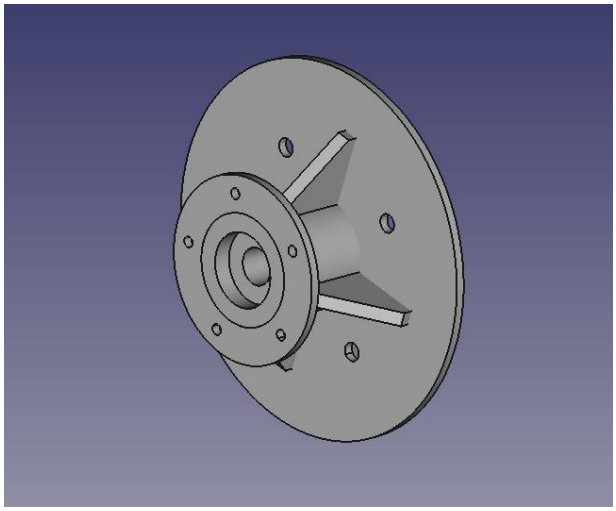


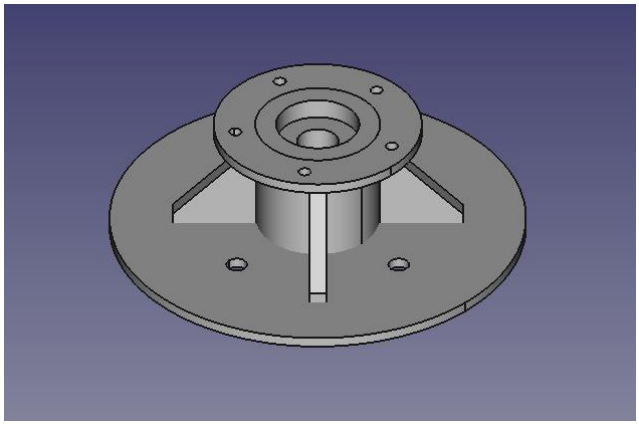


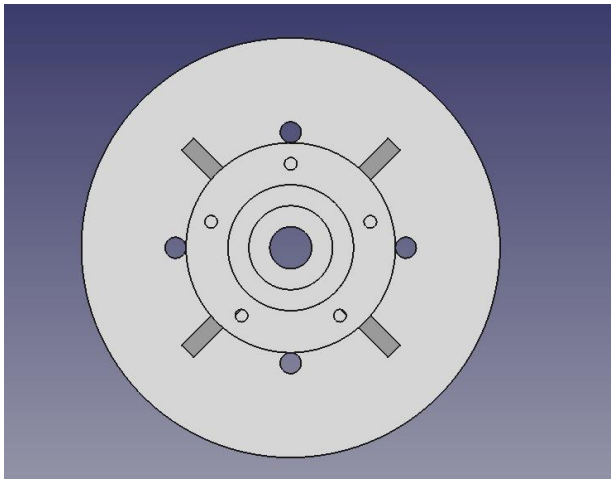
16-12-22 Hitch design.FCStd

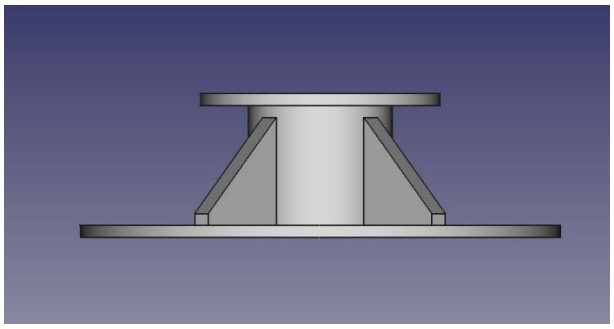
Front wheel rim disc design:

This disk is designed to fit the agriculture front rim







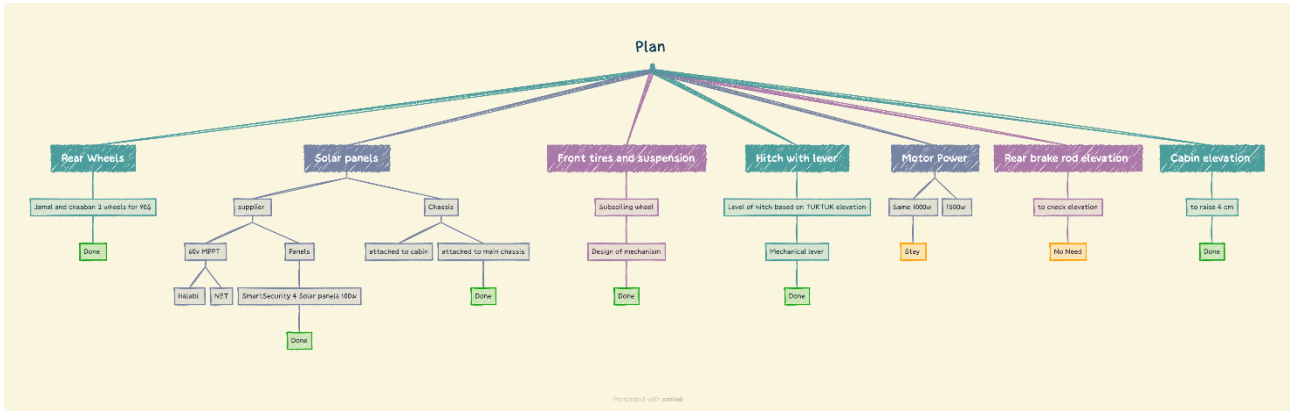


3 Mechanical Realization:

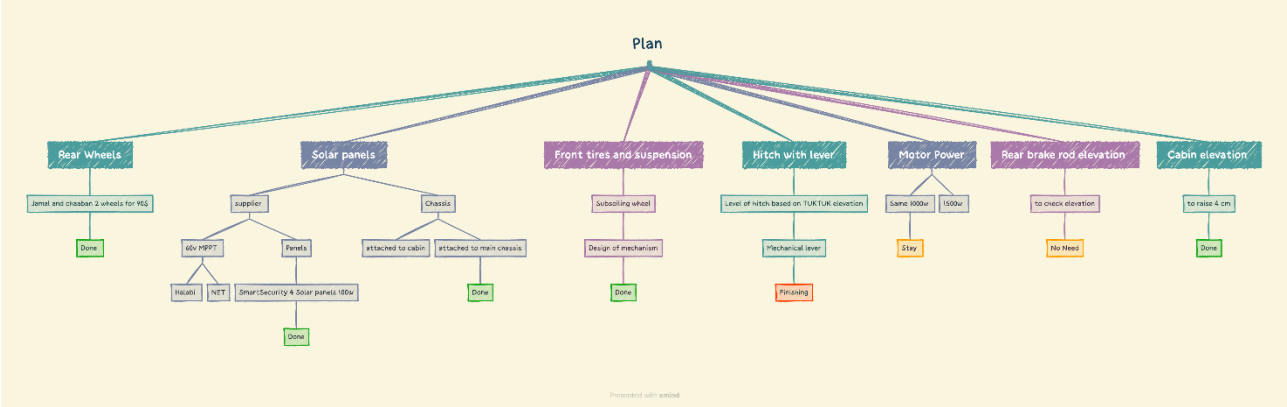
1 Testing stand:

2) Work Plan Update :

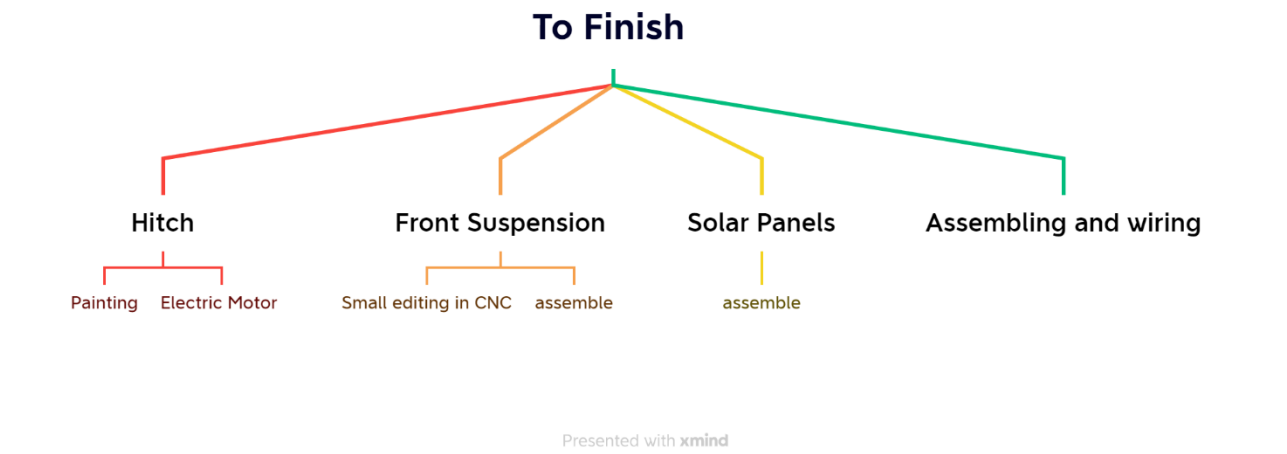
2-1-2023

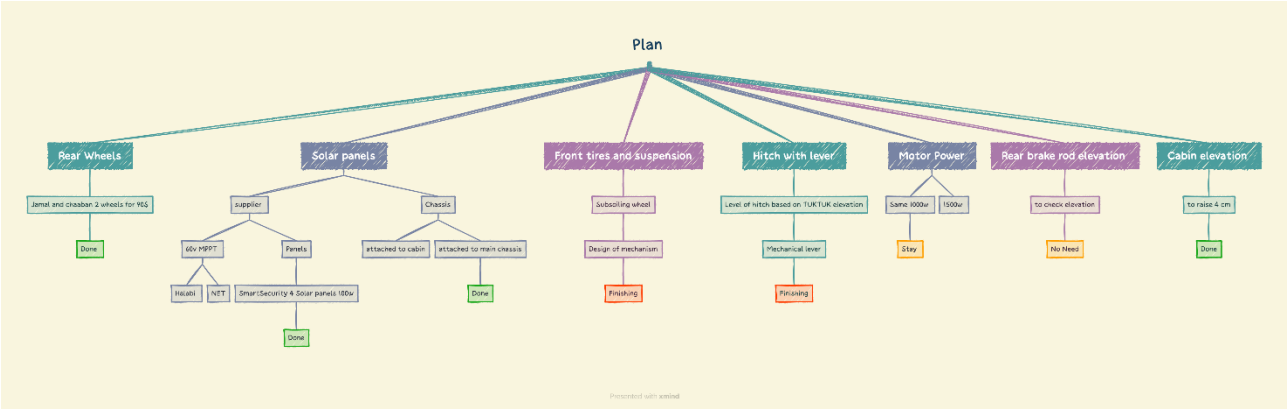


29-12-2022

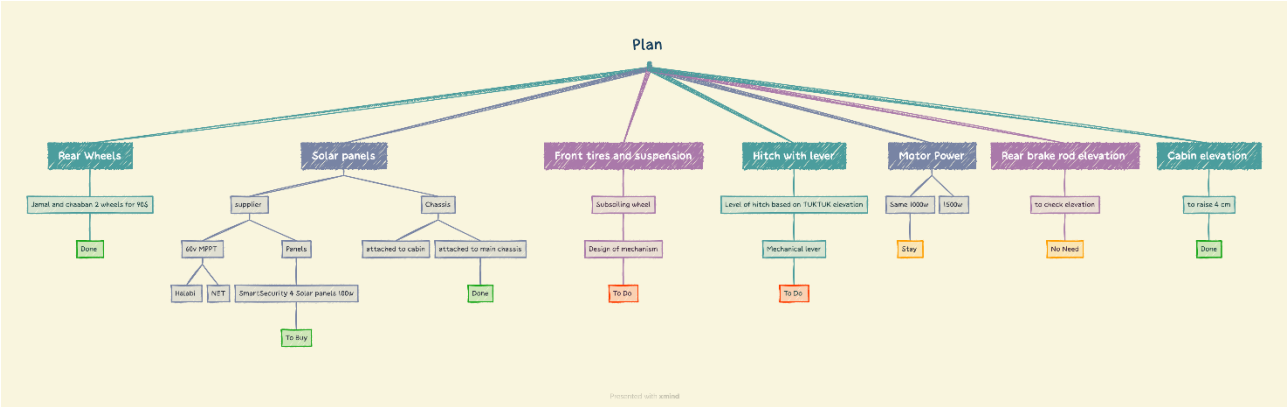


28-12-2022

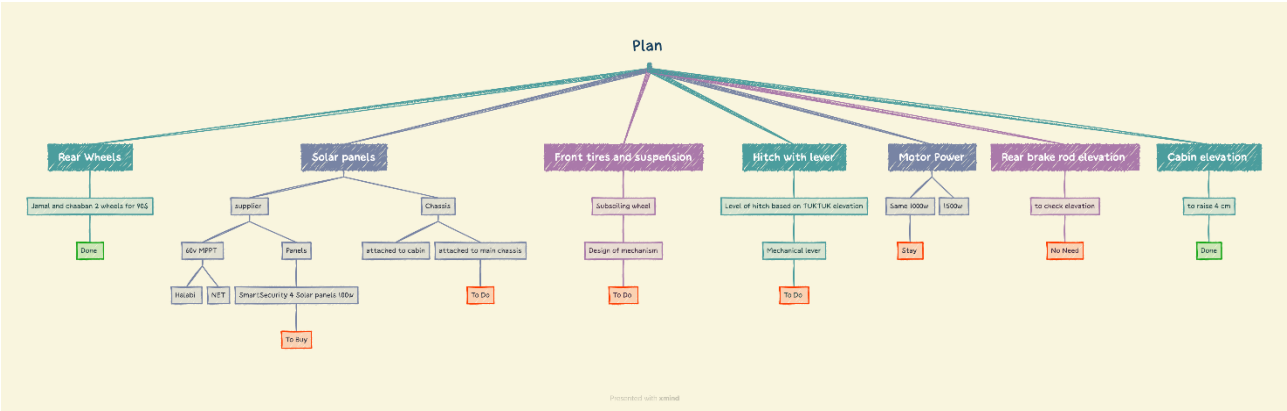




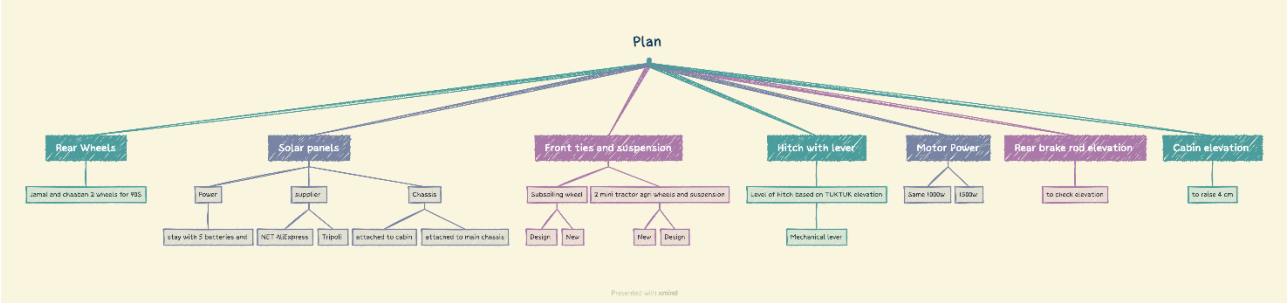
13-12-2022



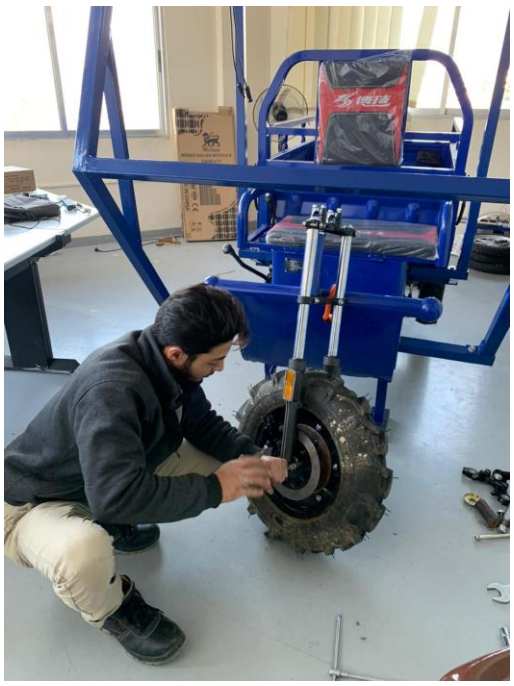
8-12-2022



26-11-2022



1 Taking apart all the Front suspension mechanism:

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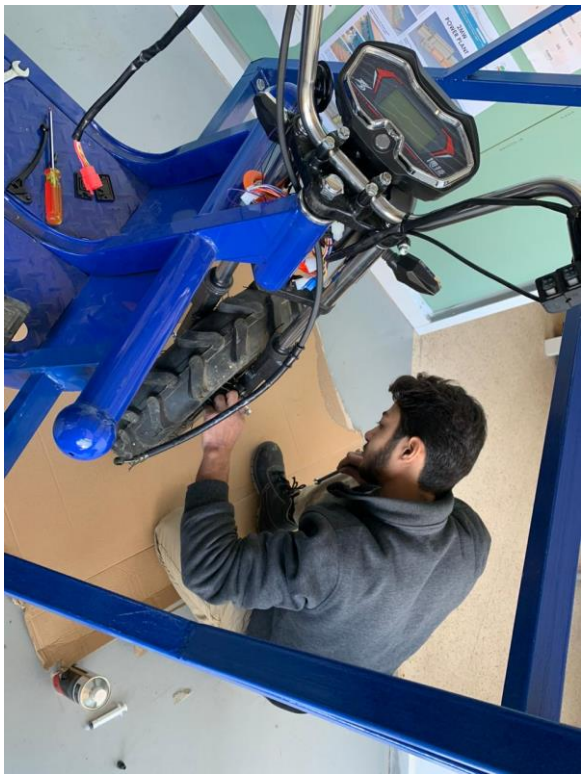
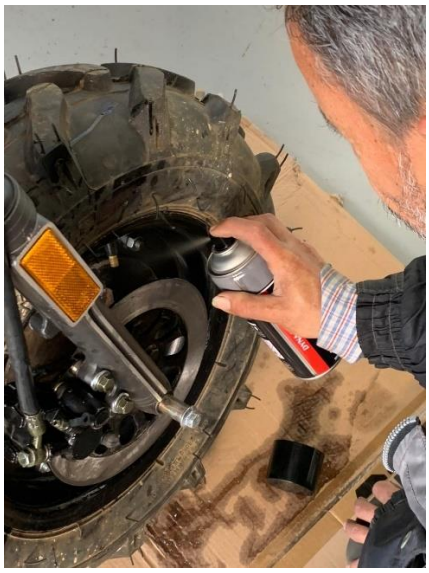
2 Brake oil tank filling



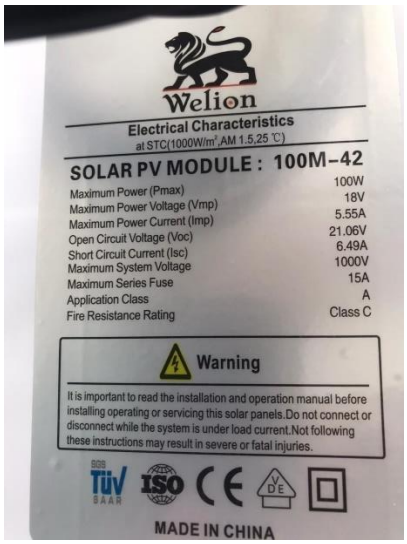


3 Changing the Rear Tires with dirt agriculture tires:


4 Lifting the Cabin 4 cm:

5 Solar Panels:



6 Solar Panels Stand:

The stand is adjustable and can be modified

it can hold up to 5 solar panels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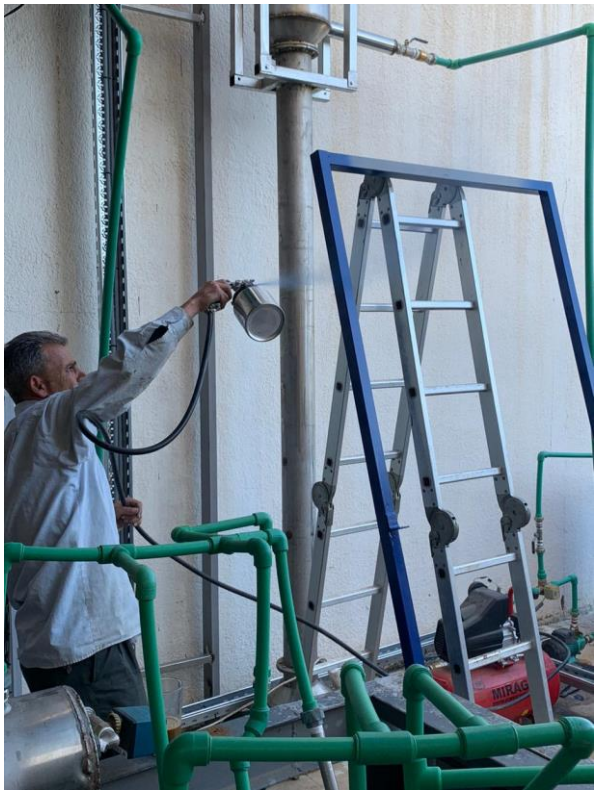
7 Stand painting: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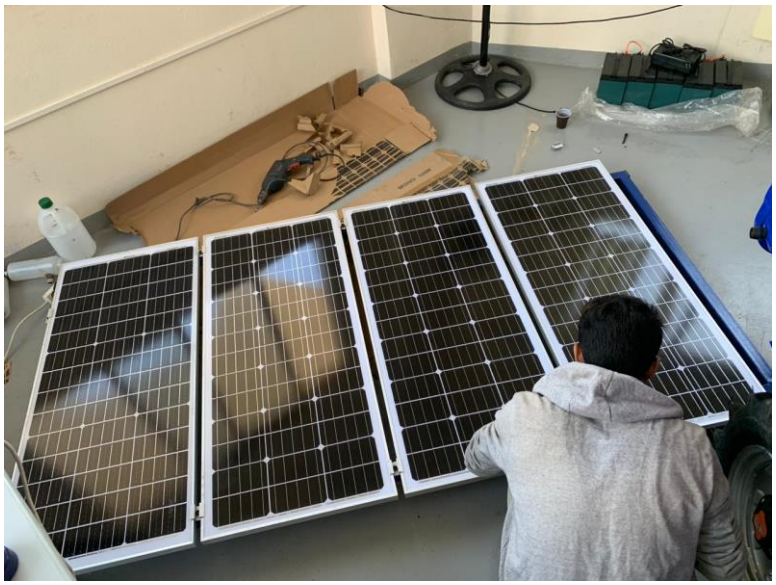


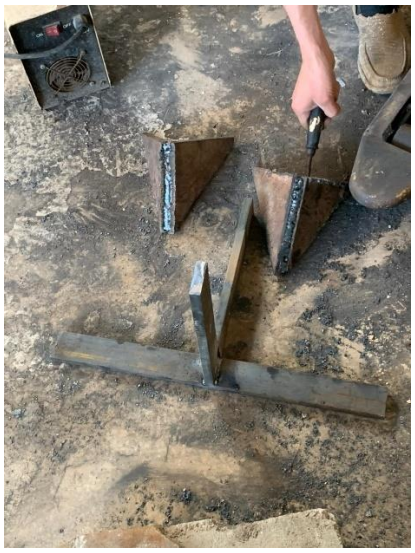
8 Front wheel mechanism:

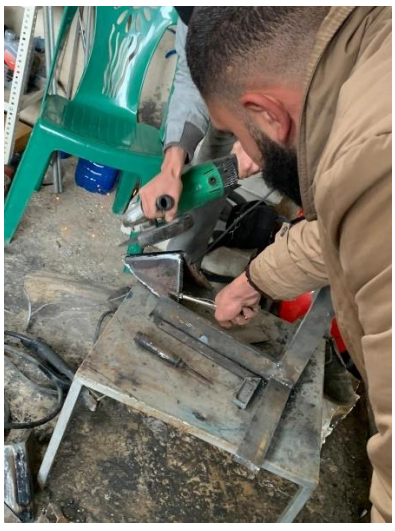
The goal is to install a large suspension to use the same large dirt tire used in the rear suspension,

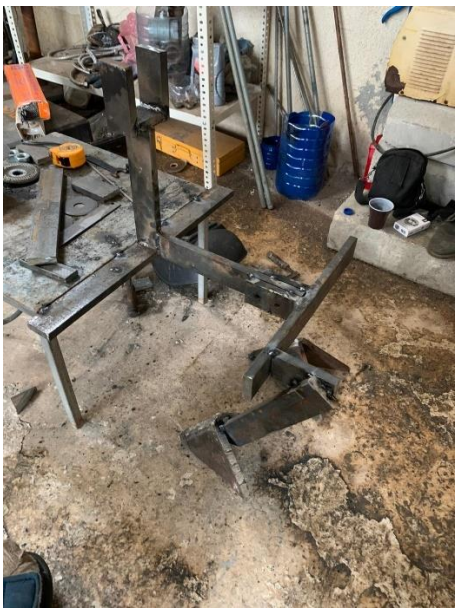
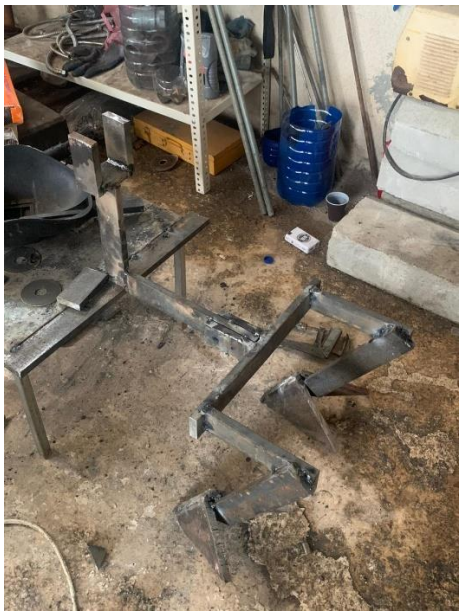
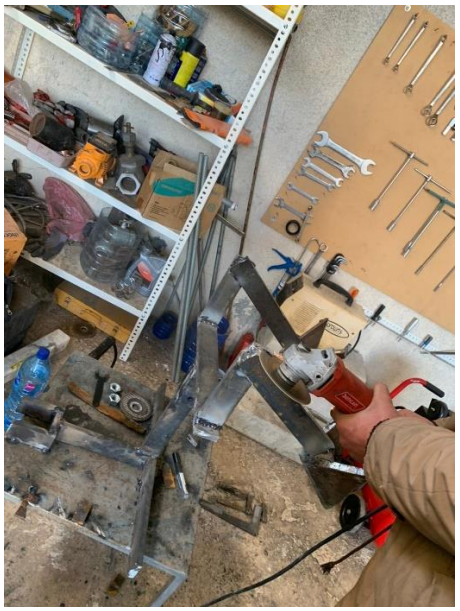
we design a new drum and rim:

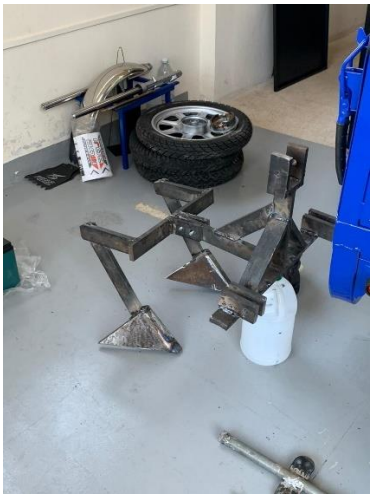
9 Hitch assemble










博技


Project 3: Electric TukTuk 2

1 Requirments and planning:

14-1-2023:

12-1-2023

COST estimated: 2000$

- tuktuk chassis with parts: 1350$

(aL HALABI E-BIKE tripoli koura square 76905031)

with 1500w motor and controller

- Steel for solar panels stand and hitch : 80$

(SHENDER STEEL Tripoli Al Zahiriye 03230994)

- 4 Solar panels: 148$

(SMART SECURITY Tripoli bahsas 71061010)

- MPPT : 150$

(AL HALABI Tripoli zehriye bolevare)

- Front suspension with rim and rear tires : 150$

(AL HALABI Tripoli zehriye bolevare)

Rear tires (JAMAL AND SHAABAN Tripoli 200 square 06424752)

- welder`s work : 80$

(Ahmad Bizre 76525575)

- hitch lever: 20$

...

2 design a new agriculture machine :

Water Sprayer

3 Mechanical Realization:

Buying the tuktuk`s parts without:

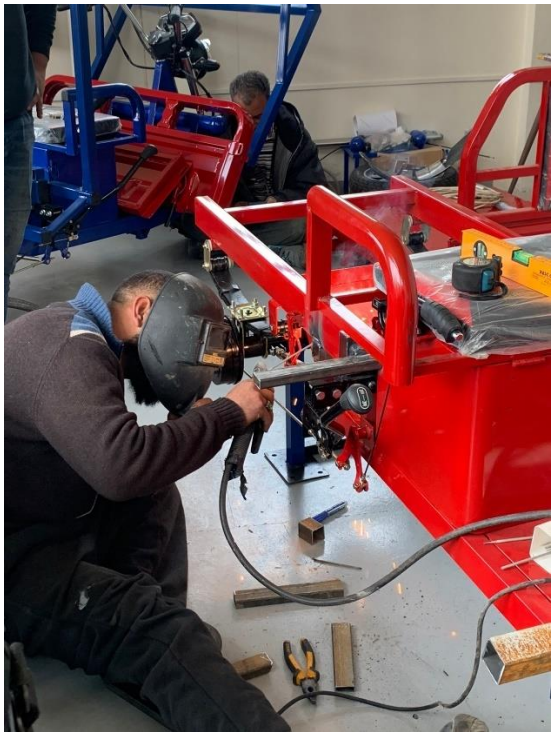
-The front suspension

-Rear tires

4 Assembling the TUKTUK:

5 Lifting the cabin 4 cm:

6 Solar panels stand installation:



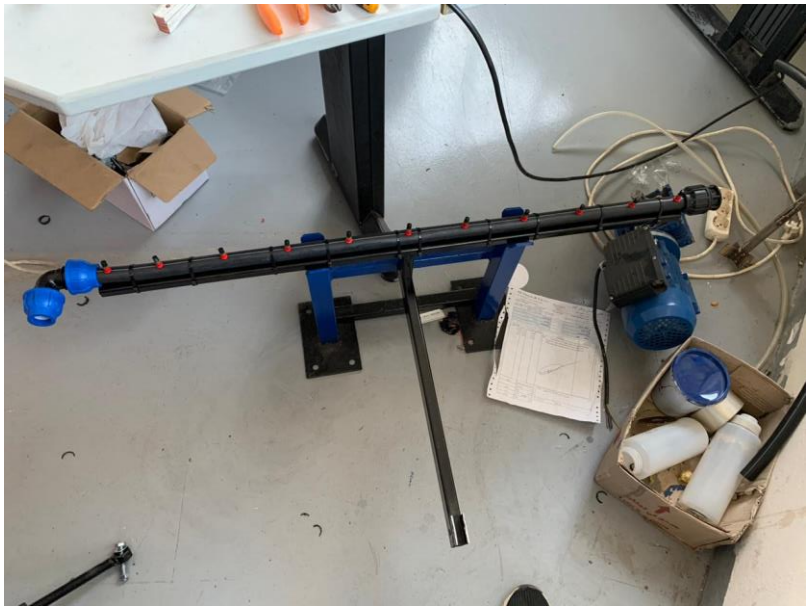

IN CHINA

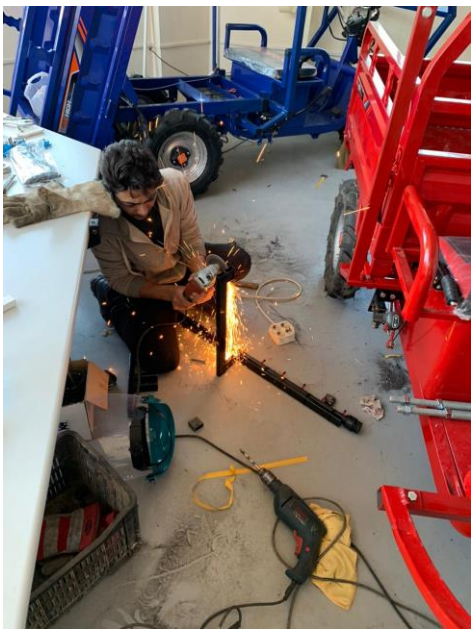

NLAS

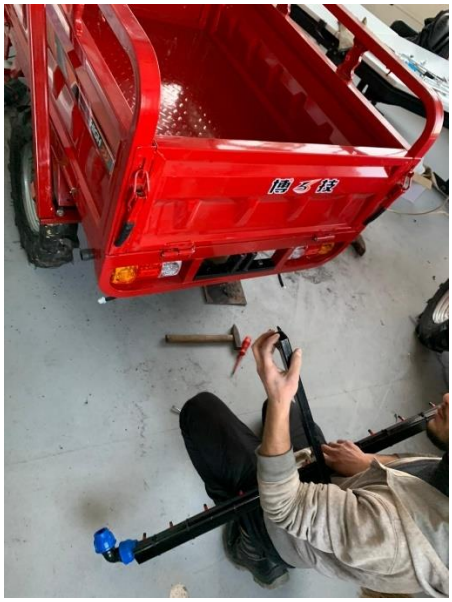

7 Agriculture water sprayer machine:



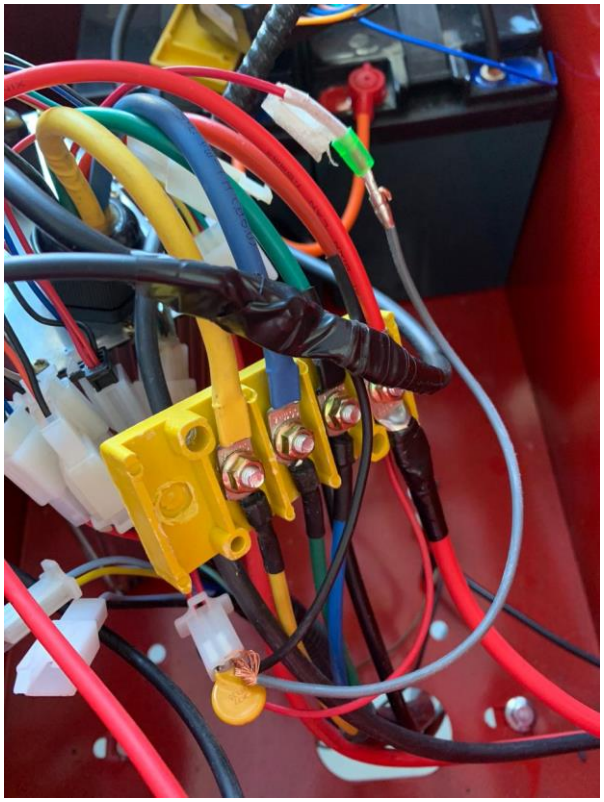


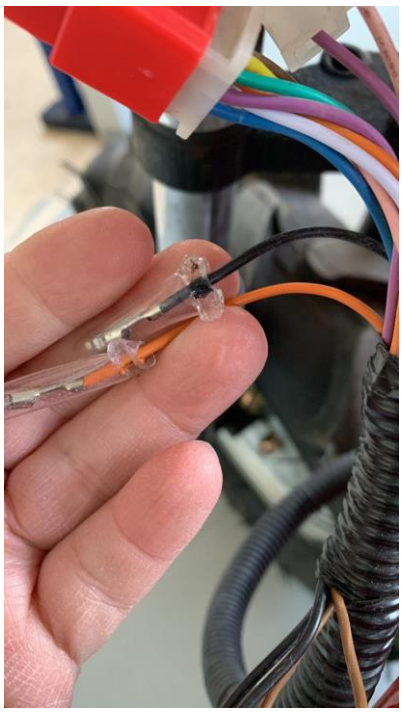



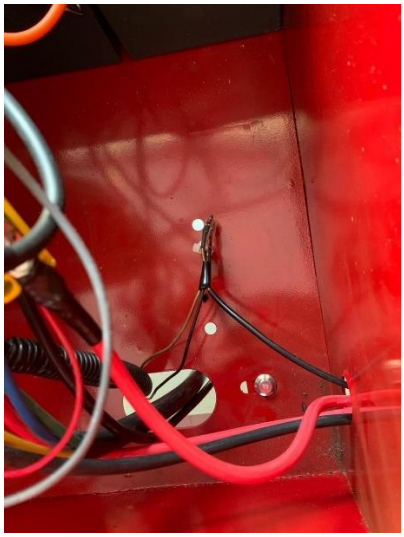
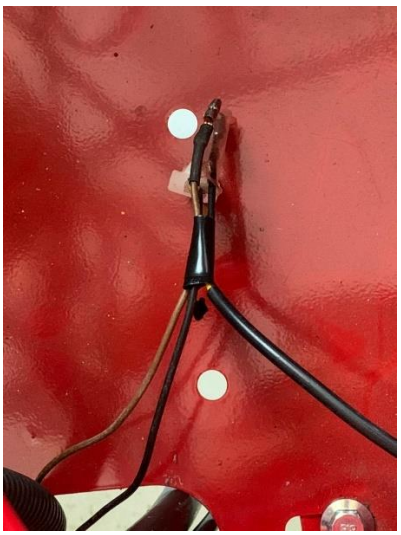
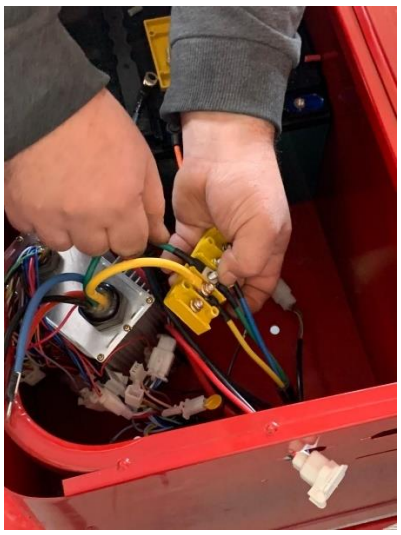


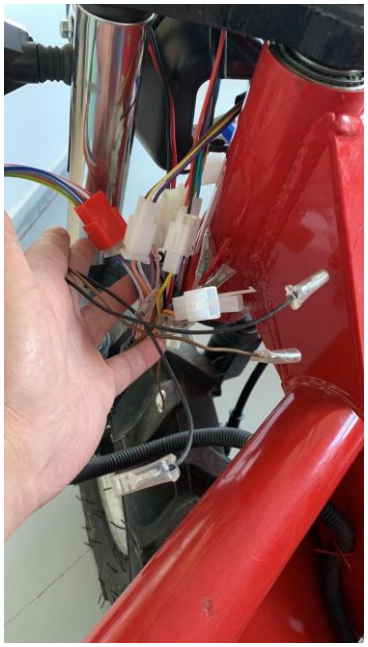
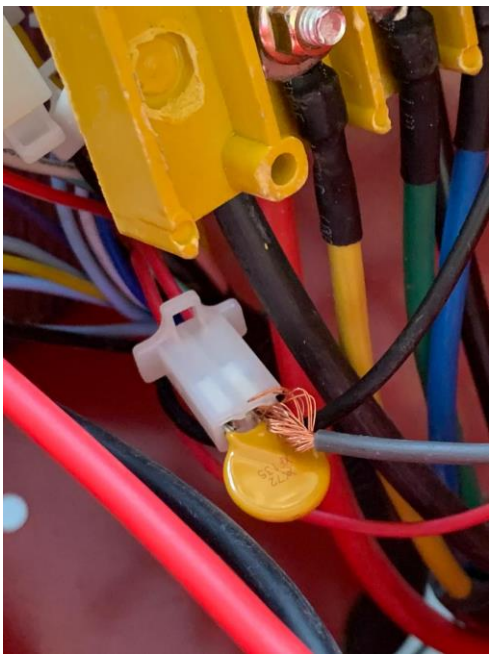


8 1500 w motor and wires:






References