




COREMO TRAILER - Community Repair Mobile

First Prototype of a Community Repair Mobile (COREMO) Trailer designed to provide repair services by means of #ASKotec (Access to Skills and Knowledge - open tech emergency case) and other tool-kits/ mobile makerspaces in remote areas with difficult road access. This prototype is currently developed in Kenya)

 Difficulty **Easy**

 Duration **7 day(s)**

 Categories **Machines & Tools, Recycling & Upcycling, Transport & Mobility**

 Cost **500 USD (\$)**

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Introduction

Repair services of all kinds provided in workshops or other fixed locations are seldom available in remote rural areas of Kenya - as well as many other remote rural areas of the Global South.

People, who are in real need of fixing their limited equipment or finding a solution to a technical problem, are stuck for lack of basic tools and materials.

This is why mobile repair services are not only a great solution, but also one that significantly reduces costs and the use of resources, while allowing people to be active and creative in the repair process.

This step-by-step tutorial serves as an Open Source set of instructions for the prototype of a **Community Repair Mobile - COREMO** (Trailer Edition) intended for remote areas that are hard to access.

COREMO Trailer will provide remote communities with access to repair services through the use of the #ASKotec (Access to Skills and Knowledge - open tech emergency case) and other mobile makerspaces/tool-kits.

COREMO is currently developed in Kenya by **Adam Abdumalik** with support from international makerspace community members.

COREMO Trailer serves as a first stage solution for future additional variations, modules and adaptations that will include:

- Use of Solar Power (Soldering, Charging, etc.) through the addition of solar panels
- Solar electric mobility
- Scaling production, decentralized and Open Source implementation

Please, share your thoughts and comments as we update the documentation. Thank you!

Materials

1. Bicycle
2. Two additional bicycle wheels
3. Steel (tubes 20mm)
4. Steel plates (1.6mm)
5. Flat bar 29mm X 6.35mm
6. Welding rods (2.0mm)
7. Plywood or metal sheet for the side panels
8. Hitch mechanism (coupling)
9. Bolts
10. Nuts
11. Washers
12. Axles
13. Screws
14. Zip ties
15. Paint
16. Sand paper p100, p80
17. Standard thinner
18. Toolkit (any)

Tools

1. Welding machine
2. Welding table
3. Tube bender
4. Angle grinder
5. Vice grips
6. Welding pliers
7. Welding clamps
8. Chipping hammer
9. Steel wire brush
10. File
11. Body filler and spreader
12. Drill
13. Wrench
14. Hand drill
15. Jig saw
16. Screwdriver
17. Paint brush
18. Pencil and paper
19. Yard stick/ Measuring tape

https://en.oho.wiki/wiki/Compact_trailer_for_bicycle

<https://askotec.openculture.agency/>

 COREMO_TRAILER_-_Community_Repair_Mobile_bike_cargo_trailer.pdf

Step 1 - Drafting the metal frame

In order to fit the bicycle selected, the frame should match typical sizes of bikes.

Step 1 includes:

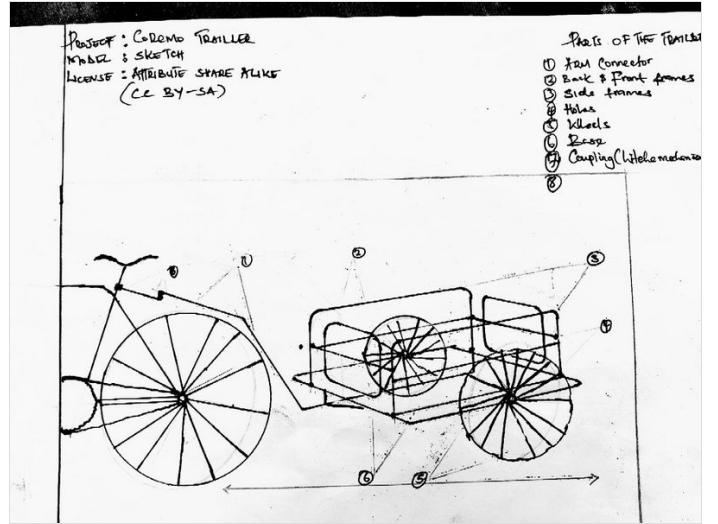
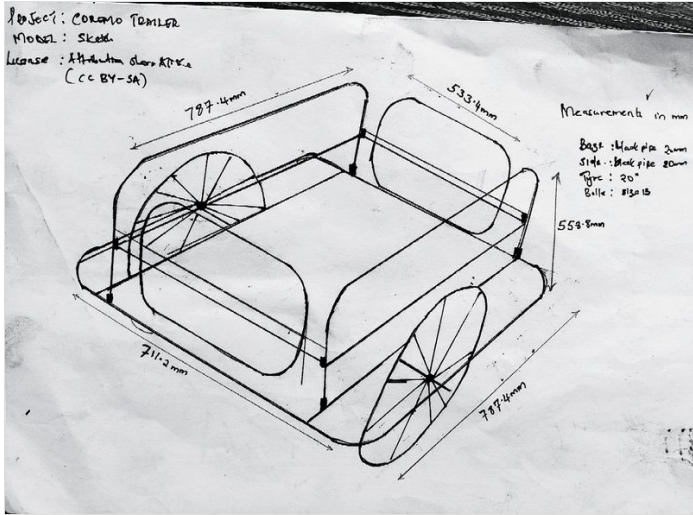
- Sketching the size
- Collecting materials
- Measuring all parts

Necessary materials:

- Steel (tubes, plates)
- Bicycle wheels
- Axles
- Bolts, nuts, and washers
- Hitch mechanism (coupling)
- Plywood or metal sheet for the base
- Side panels (if desired)
- Paint

Necessary tools:

- Paper and pencil
- Yard stick
- Angle grinder
- Tube bender
- Measuring tape
- Welding machine
- Hand drill
- Saw
- Wrenches
- Screwdriver



Step 2 - Preparing the parts for the metal frame

Step 2 includes:

- Measuring to actual sizes
- Cutting the metal to the necessary sizes
- Bending the tubes

Necessary materials:

- Steel (tubes, plates)

Necessary tools:

- Measuring tape
- Saw
- Tube bender



Step 3 - Welding the metal frame

Step 3 includes:

- Constructing the frame of the trailer using metal /wood. The frame should be sturdy and able to support the weight of the cargo. You can weld metal tubing or use wood planks to create the frame
- Welding together the different parts of the metal frame

Necessary materials:

- Steel (tubes 20mm)
- Steel plates 1.6mm
- Welding rods 2.0mm

Necessary tools:

- Welding machine
- Angle grinder
- Welding table
- Welding pliers
- Welding clamps
- Vice grips
- Chipping hammer
- Steel wire brush
- Hand File / Metal File



Step 4 - Detail: Building the hitch mechanism (coupling)

Step 4 includes:

- Building the the connection between the bicycle and the trailer by building a hitch mechanism on the trailer that will attach to your bicycle
- The hitch should be strong and secure to ensure safe towing

Necessary materials:

- Steel tube 25mm
- Steel plates 14g
- Bolts, nuts and washers

Necessary tools:

- Measuring tape
- Hand drill
- Welding machine





Step 5 - Building the side frames

Step 5 includes:

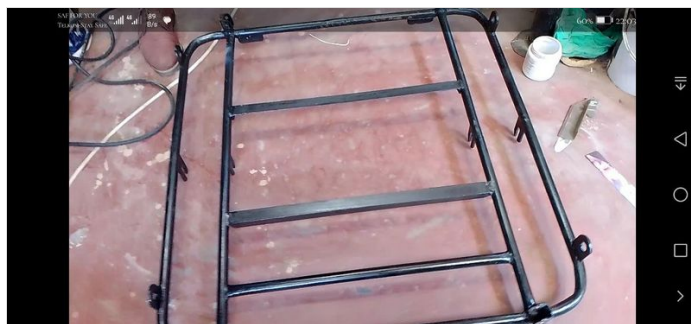
- Adding side panels to the trailer to contain the cargo and provide additional support. You can use plywood or metal sheets to create the side panels
- Selecting the metals parts needed to build the side frames
- Welding the side frames to the main frame

Necessary materials:

- Steel (tubes, plates)

Necessary tools:

- Welding machine
- Hammer



Step 6 - Cutting the wooden side panels

Step 6 includes:

- Measuring the size of the wooden panels needed for the metal frame
- Cutting them to the sizes suited for the metal frame

Necessary materials:

- Wooden plates

Necessary tools:

- Angle grinder
- Jig saw
- File
- Yard stick



Step 7 - Detail: Building all connectors for wheels and frames

Step 7 includes:

- Building the connectors for the wheels, the frames and the strap-connectors: Hitches connector, Coupler, Adopters, Axles

Necessary materials:


- Flat bar 29mm X 6.35mm
- Bolts, washers and nuts

Necessary tools:

- File
- Hand drill
- Wrenches



Step 8 - Painting the frame

 Make sure to do an assembly test for the frame before painting!

Step 8 includes:

- Painting or sealing the trailer to protect it from deterioration from weather elements
- Alternatively you can also add reflective tape or lights for increased visibility on the road

Necessary materials:

- Paint
- Standard thinner for thinning
- Sand paper p100, p80
- Body filler and spreader

Necessary tools:

- Paint brush 3"
- Spraying machine



Step 9 - Assembling the frame

Step 9 includes assembling together the frame by fitting together walls, panels and wheels

Necessary tools:

- Wrench
- Hammer



Step 10 - Attaching the wheels

Step 10 includes:

- Attaching the bicycle wheels to the frame using axles, nuts, and bolts
- Make sure the wheels are securely attached and aligned properly for smooth rolling

Necessary materials :

- 2 additional bicycle wheels
- Bolts
- Nuts
- Washers

Necessary Tools:

- Wrenches



Step 11 - Building the base

Step 11 includes:

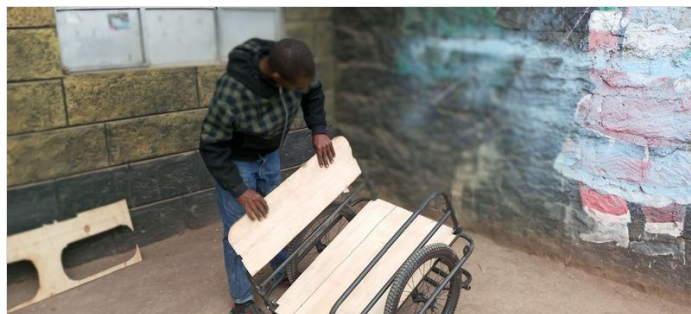
- Building a base for the cargo area using plywood or a metal sheet
- Cutting the base to fit the frame and attach it securely with screws or bolts

Necessary materials :

- Plywood/metal sheet
- Zip ties
- Screws

Necessary tools :

- Screw drivers
- Pliers



Step 12 - Finishing the side panels

Step 12 includes:

- Painting the side panels to give it some character
- Fixing the panels with zip ties
- Adding your first toolkit (e.g. #ASKotec)
- Making final touches to the frame and trailer

Necessary materials:

- Paint
- Zip ties

Necessary tools:

- Paint brush
- Wrench



Step 13 - Attaching the trailer

Step 13 includes:

- Attaching the Coupling/hitch mechanism
- Make a test ride: Once the trailer is assembled, test it out to ensure that it rolls smoothly, the hitch attaches securely to your bicycle, and the cargo area is stable
- Enjoy :)

Necessary materials:

- Bolts, nuts and washers

Necessary tools:

- Wrench
- Hammer



Notes and references

Remember to take safety precautions (wear helmets and reflective clothes while using your cargo bike trailer. Ensure that all parts are securely fastened and that the trailer is balanced and stable when loaded with cargo).

