

BRINGING SUSTAINABLE MOBILITY TO PERSONS LIVING WITH DISABILITY IN RURAL WEST AFRICA

Alex Mantsevich and Helen Wiley

Partner

Françoise Pedeau and the Center for the Advancement of the Handicapped in Fada, Burkina Faso

Vision: For all individuals to have access to a means of mobility in order to contribute to their household and society so that they and their families recognize their incredible self-worth as a child of God.

Françoise Pedeau is a missionary serving in Fada, Burkina Faso. She is originally from France but has served in Burkina for about 33 years. She has a heart to help persons living with disabilities, especially children. She has been a constant partner and support for the Sustainable Mobility project since it has been formed in 1999.



Françoise with Souhoua, one of the clients who received a trike.

Further Information

For more information about the Sustainable Mobility Project, please contact:

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Our Mission

The Sustainable Mobility Project empowers people living with a disability in the developing world to fully participate in family and community life, and makes possible the pursuit of educational and work opportunities.

Background

Persons living with disabilities, especially in developing countries, are at major disadvantages. They may experience difficulties performing everyday tasks, in which case this is a burden on the family as well. Opportunities such as going to school and pursuing a career may not be an option for those with disabilities. The team aims to provide access to mobility so that persons living with disability may live more of life to the fullest.



Françoise with Elizabeth, one of the clients who received a trike.

When this project was created, the target community was persons living with disability in Mahadaga, Burkina Faso. When our partner, Françoise, started a new handicap center in Fada, Burkina Faso, our target community also expanded.

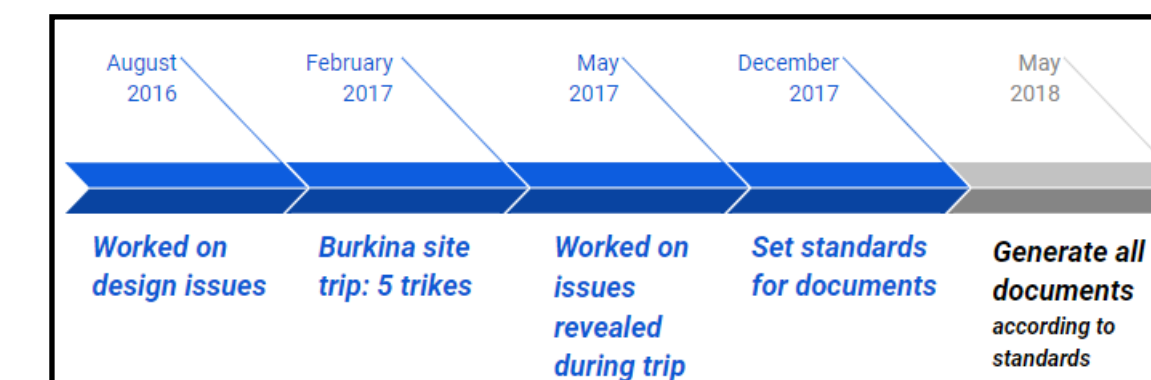
The Mobility Tricycle Project originated in 1999 with hand powered tricycle design for people with limited mobility in Mahadaga, Burkina Faso. The first electric powered trike was fabricated in 2004.

A recent electric powered tricycle.



The Sustainable Mobility team began in 2016 with a new goal of making the manufacturing process of an electric trike more accessible, efficient and sustainable.

Progress This Year



High level timeline of this Past's Year's Work

After the most recent site team trip, the major goal for the team is to create build-ready documents.

Integration Documents	Frame	Motor Mounts	Thin Tube Cutting List
Control System Assembly Documents	Frame Welding	Control System	Control System Template
Subsystem Assembly Documents	Rear Axle Supports	Head Tube	Head Tube Cutting List
	Head Tube	Steering Handle	Steering Handle Template
	Special/Working Control Box	Special/Working Control Box	Special/Working Control Box Template
	Power/Wire Rear Control Box	Power/Wire Rear Control Box	Power/Wire Rear Control Box Template
	Battery Box	Battery Box	Battery Box Template
	Speed Reducer	Speed Reducer	Speed Reducer Template
	Rear Wheel Drive	Rear Wheel Drive	Rear Wheel Drive Template
		Rear Axle Retaining Washers	Rear Axle Retaining Washers Template
		Rear Wheel Hub Adapter Plates	Rear Wheel Hub Adapter Plates Template
		Motor Mounts	Motor Mounts Template
		Frame Welding Fixture	Frame Welding Fixture Template
		Rear Axle Support Welding Fixture	Rear Axle Support Welding Fixture Template
		Motor Mount Welding Fixture	Motor Mount Welding Fixture Template
		Head Tube Welding Fixture	Head Tube Welding Fixture Template
		Head Tube Angle Cutting List	Head Tube Angle Cutting List Template
		Control System	Control System Template

All of the documents required for building a trike are listed. In total there are 32.

All documents for the trike are in either the Drivetrain, Controls, or Frame subsystem. Each subsystem is comprised of fabrication, assembly, and fixture documents.

We created a spreadsheet to track document creation and progress editing documents. A row in the spreadsheet represents a document, and a column represents a step in our refinement process. Cells in are color coded to track progress. This year we completed all documents in the Controls subsystem and made good progress in other assembly and fixture documents.

Point Person	Version	Process Narrative	Bill of Materials	Photos and Illustrations	Engineering Drawings	Integrated Process and Graphics	Document Review	Revision (Build Ready)	Review by Build (English)	Final Version (English)	Draft (Local Language)	Review by Build (Local Language)	Final Version (Local Language)
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Created a spreadsheet to assess and track document progress through the major phases of completeness

Document Name	Version	Process Narrative	Bill of Materials	Photos and Illustrations	Engineering Drawings	Integrated Process and Graphics	Document Review	Revision (Build Ready)	Review by Build (English)	Final Version (English)	Draft (Local Language)	Review by Build (Local Language)	Final Version (Local Language)
Control System	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Frame	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Motor Mounts	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Head Tube	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Steering Handle	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Special/Working Control Box	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Power/Wire Rear Control Box	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Battery Box	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Speed Reducer	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Rear Wheel Drive	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Rear Axle Retaining Washers	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Rear Wheel Hub Adapter Plates	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Motor Mounts	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Frame Welding Fixture	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Rear Axle Support Welding Fixture	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Motor Mount Welding Fixture	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Head Tube Welding Fixture	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Head Tube Angle Cutting List	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Control System	1.0	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete

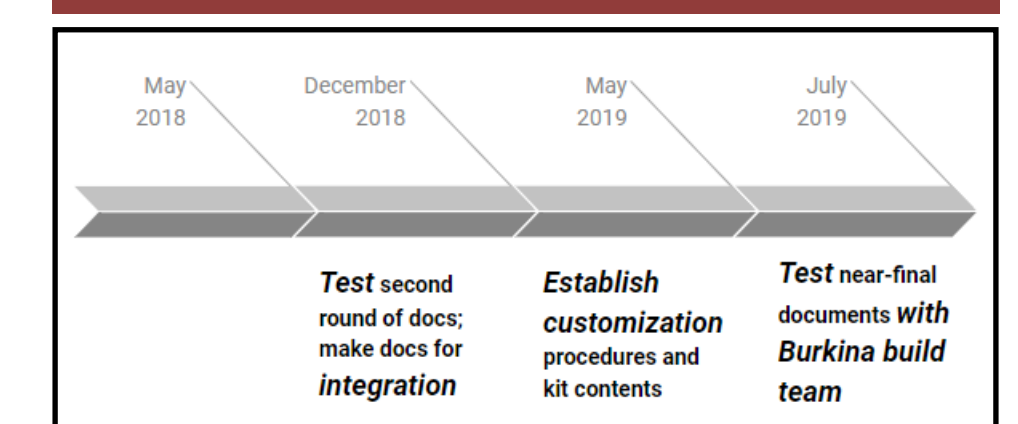
Before this Year depiction of the spreadsheet

The spreadsheet currently showing what is completed

Conclusions

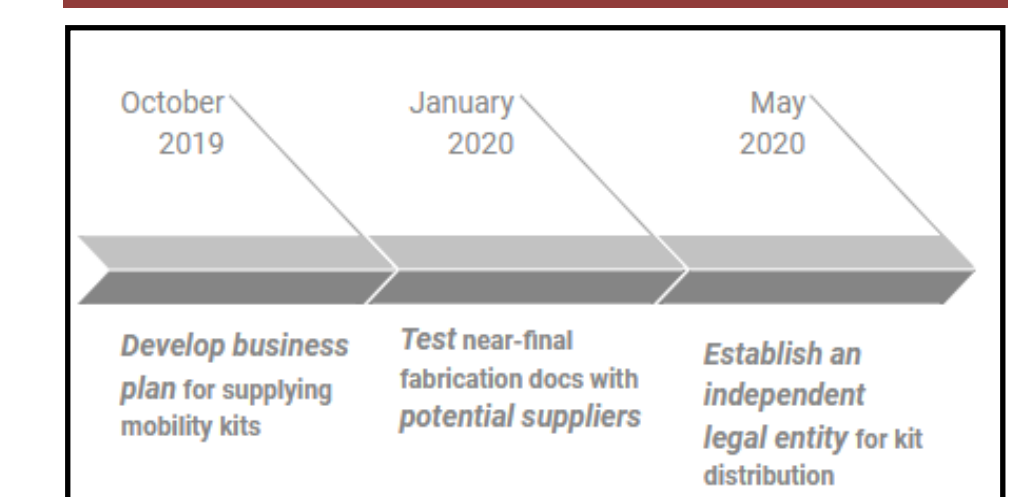
This year, documentation was the main focus. Our goal is to create documentation, fabrication tool, and supply chain resources that enable our clients to build trikes independent of the Collaboratory. By completing our goals this year, we are on track to complete the project by the spring of 2020.

Timeline for goals in the 2018-2019 school year



The 2018-2019 school year's major goal is to finish the process of establishing ready to use documents as well as communicating with the Burkina Faso build team for verification.

Timeline for goals in the 2019-2020 school year



The 2019-2020 school year's aim is to be the final year of the project existing underneath the Collaboratory. With that, the major goal for this year is to finalize and hand off of the project.

Acknowledgements

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