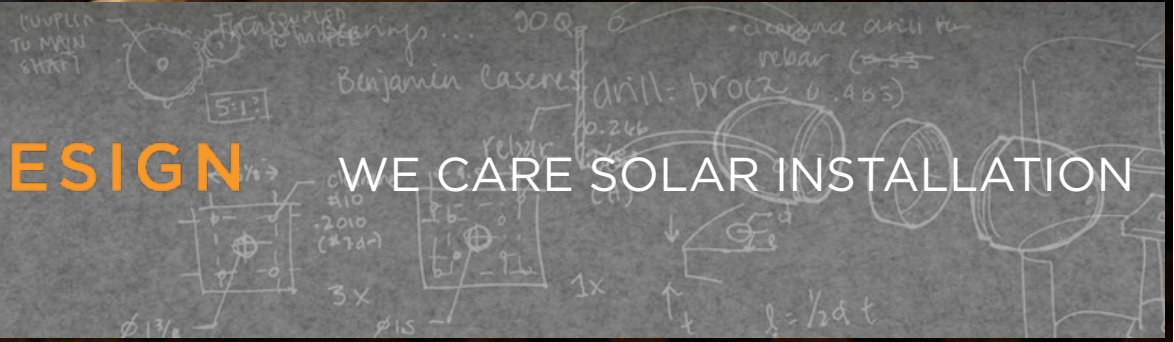




CATAPULT DESIGN

WE CARE SOLAR INSTALLATION



The majority of our world's population lacks access to life's basic needs. We design and implement the human-centered products to help them thrive.

Catapult Design a non-profit design consultancy working with non-profit, social enterprise, and for-profit companies to bring their product ideas and needs to life. Our market: the poor, the underserved, the majority.

As a team, we've spent the last three years building our own expertise and a network of specialists that will allow us to best serve our clients. Each Catapult team member has several years of experience in product development -- we want to put that expertise into practice through the social missions of our clients.



BACKGROUND + CONTENT

WE CARE Solar is developing a plug-and-play, small-scale solar system for health clinics in Africa. The original concept is in field tests in Nigeria; Catapult offered to install a WE CARE Solar system in Rwanda as part of an energy assessment trip to health clinics with The Ihangane Project.

The WE CARE Solar system donated to the Rwandan field test included a 12V battery, 20-Watt solar panel, LED charge controller, two headlamps, and two DC LED bulbs.

The system was installed in August 2009 at the Minazi Health Post in the Gakenke District of Rwanda.



ABOUT CATAPULT DESIGN
RWANDAN HEALTH CLINICS
PARTICIPANTS
MINAZI HEALTH POST
SYSTEM TRAINING
DESIGN + INSTALLATION

POSITIVES
ROOM FOR IMPROVEMENT
BUSINESS CONSIDERATIONS

SOLAR VENDORS IN KIGALI
SUPPLIES IN RURAL RWANDA

CREDITS



ABOUT RWANDAN HEALTH CLINICS

In the Northern Province of the Rwandan countryside, communities are decentralized with the vast majority of the population living off-the-grid. Health clinics are spotted throughout each district connected by underdeveloped, dirt roads. Most health clinics are powered by solar, diesel generators, or nothing at all. Electricity is minimal. And clinics without any power are completely disconnected from the hospital network.

A clinic can serve as many as 20,000 community members. The majority of health care workers speak Kinyarwanda, French and limited English.



PARTICIPANTS



Heather Fleming Catapult Design

Heather is a co-founder and CEO of Catapult Design, a non-profit design consultancy for emerging markets.



Dr. Wendy Leonard The Ihangane Project

Dr. Leonard is the Founder of The Ihangane Project, a non-profit organization working with health clinics and women's cooperatives in Rwanda's Gakenke District.



Jacqueline Umuvyeyi Ruli Hospital Technician

Jacqueline is in charge of the three solar systems presently installed on the seven health clinics within the Ruli Hospital network.



Dr. Laura Stachel WE CARE Solar

Dr. Stachel is the Founder of WE CARE Solar, an organization developing low-cost solar systems for health clinics in Africa.



ABOUT THE MINAZI HEALTH POST

The community of Minazi developed the health post based on a need for access to a health facility in closer proximity to the Ruli Hospital. Minazi is about a two-hour drive from the hospital, though residents make the trek on foot. The Minazi Health Post serves 7000 community members, has five rooms, no electricity, but is supported and staffed by the Ruli Hospital.

Without electricity, Minazi is completely cutoff from the health clinic network and cannot call for assistance in an emergency.

← 3% → clearance 1-4.5 → rebar No. 246

SYSTEM TRAINING

Catapult and The Ihangane Project broke the system installation into two visits one week apart: the first to assess the clinic and train the staff, and the second to install the panel on the roof and see how the nurses were adjusting to the system. In between visits, Jacqueline, the hospital technician, had a bracket constructed to attach the panel to the health post roof.

In the system training, Jacqueline translated our instructions into Kenyan Swahili. The nurses were educated on how to connect and disconnect the system, dangers of the battery terminals, how and where to install the system, how to charge electronics, proper system usage procedure, how to read the system outputs, and who to contact for technical support.



SYSTEM DESIGN + INSTALLATION

During our first trip to Minazi, Jacqueline measured the angle of the roof and designed a brace for the solar panel at approximately 0deg. Kigali is 1deg South of the equator and Minazi is 80km to the West. In Ruli, Jacqueline worked with a local fabricator to construct a brace for the panel out of steel u-channel.

The bracket was attached to the corrugated steel roof via bolts and the panel to the bracket via wire. The wire is a temporary solution until properly sized nuts/bolts are acquired in Kigali.

The panel cabling was run underneath the PVC gutters and into the ventilation holes on the side of the health post. The walls of all clinics and posts are made of brick; the dashboard is temporarily placed on a desk until proper fasteners for brick/concrete can be purchased.



POSITIVE RESULTS

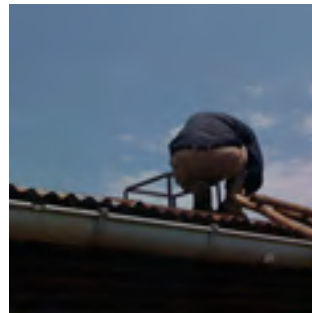
The headlamps are a hit.



The nurses will be able to charge their cell phones, vital to keeping in touch with the ambulance.



The nurses took quickly to the system.

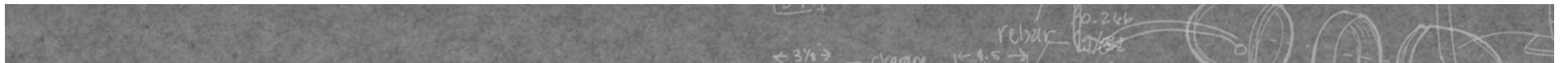


The installation is robust and clean.

The community works together to install the system. We essentially do nothing.



Ruli Hospital agrees to provide technical support for the solar installation.



ROOM FOR IMPROVEMENT

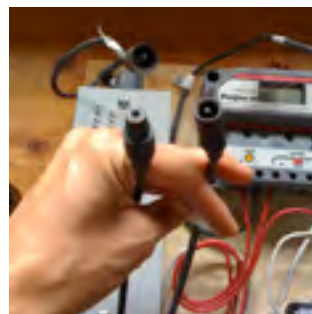
Include hardware or features for wall and panel mounting.



Include visual (think IKEA) instructions and installation suggestions, or in the native language.



Add a system monitoring worksheet or data logging option for technician oversight.



Include a replacement parts list.

Cigarette lighters not used in Rwanda; include an adaptor for charging cell phones.



Develop an intuitive order of operations and user interface.



CREDITS:

Ruli Hospital
Minazi Health Post

WE CARE Solar
Catapult Design
The Ihangane Project
Jacqueline Umuvyeyi
Nicholas Evans

Photos and video the installation:
[http://picasaweb.google.com/CatapultDesign/
SolarInstallationMinaziHealthPost#](http://picasaweb.google.com/CatapultDesign/SolarInstallationMinaziHealthPost#)

<http://www.youtube.com/user/CatapultDesign>

