

Problem

Rural developing areas have unique and unmet needs for simple technologies and replacement parts. The result is a waiting game that hinders economic productivity and limits innovation.

- » Distribution systems and Supply chains do not reach the last mile
- » Developing communities employ outdated and "expired," irreplaceable parts
- » Low ability to pay limits willingness to supply
- » Limited local sourcing or job creation
- » Inability to create tailored designs for localized needs

Design Challenge

- » How can we familiarize both the development and tech communities with the potential uses for 3D printers in this capacity?
- » What design steps and technologies are missing to make 3D printing useful in a developing nation context?











Research

- » Literature Review of small-scale manufacturing, 3D technology, development knowledge exchange
- » Interviews with industry experts (All Hands Active, MAKE)
- » Team prior professional and personal experience in developing countries

Things Fall Apart: Maintenance, Repair, and Technology for Education Initiatives in Rural Namibia			
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	gins of ICT and nformation school mights for III this gap- wing but scattered ucture, maintenance gapir as key sites of ity in ICTD settings. key findings and ip. DTS ornation Systems]: trategic Information velopment, ICTD. velopment, ICTD. velopment, ICTD. velopment, ICTD. velopment, ICTD. velopment, ICTD. velopment, ICTD. velopment, ICTD. sources for the second interaction of the second interaction of the second interaction second interaction second interaction second scores for this move. repart of this work for repart of this work for velopt the second second second second second second work the condes are work the condes are second	Practically, painful us has taught us than interventions often maintenance and reg and tractors rusting symbols of the dam in recent years, particular the state of the state	experience within and beyond the ICTD field to therwise well-intentioned and designed falter and break down around issues of falter and break down around issues of the state of the state of the state of the under an African sun stood as cautionary gers of tied aid and inappropriate technology, piles of broken computers and shuttered (expert withing and vitus-ridden operating med a similarly iconic status. In all case, reaccounted for problems of maintenance and evely sunk expensive and otherwise hopful works budy of work in the information and come to focus on questions of maintenance is environmental dislocations. Nowing body of work in the information and come to focus on questions of maintenance in the state of the state of the state is a state of the state of the state transmither in the state of the state is a state of the state of the state of the state is a state of the state of the state of the state is a state of the state of the state of the state is a state of the state of the state of the state of the state is a state of the state of t
vest made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. <i>Conference</i> 1/0, Month 1–2, 2010, City, State, Country, Copyright 2010 ACM 1–5311-5010-00000010. S10.00.		 MALINI ENAIVOL, KEPAIK, and II for DEVELOPMENT Why study maintenance and repair? One answer comes from the field of infrastructure studies. Blending insights from the history of technology [2-5] and American pragmatist conceptions of work 	

object printing for the developing world

Solution

developing countries.

- » This document would address the gap in knowledge that exists among professionals and possible stakeholders in the developing world and the field of development.
- » Interested parties would discover the state of the technology, its ideal implementation, and provide avenues of access to relevant resources.

object designs.

- » Modelled after Thingiverse and Quora websites, requests for specific object needs would be responded to with 3D designs that could then be printed into usable objects.
- » This forum would allow for the creation of a library of objects, parts, and pieces useful

The formal Establishment of a 3D Printing For Development Group.

- » Working to form relationships with local business people, NGOs, and business incubators in the developing world, this group would facilitate the stakeholder conversations that would incite further innovation and stakeholder investment.
- » This body would serve as a means of continuity for this movement, connector for interested parties, and champion of this technology.



Design



- » All Hands Active 3D Modeling Class, printer introduction
- » Interdisciplinary design jam (School of Information, Ford School of Public Policy, Ross School of Business, AHA)

A **Primer** on the advantages and opportunities of 3D Printing technologies for

A **Design Exchange Web Service** for the request, posting, and curation of 3D

Prototyping

- Tapping into vibrant networks of software designers, engineers, and potential implementers in developing countries
- » Usability testing for both designers and printers
- » Iterative design process

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