

TechCon 2016

INNOVATION MARKETPLACE CATALOG



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**Massachusetts
Institute of
Technology**

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Addressing Uncertainty in Geocoded AidData
Robert Marty and Michael LeFew
The College of William and Mary

Geocoded aid data empowers researchers to assess the impact of aid and practitioners to better allocate resources. We are developing statistical models using Bayesian inference and SIMEX to incorporate geographic uncertainty, allowing data to speak more truthfully about the impact of aid.



Chatbot for Family Planning Counseling
Syed Ali Hussain and Shirish Bhattarai
Michigan State University

This project proposes a mobile phone Chatbot to promote family planning in rural Pakistan. Chatbot is a lightweight mobile application designed to replicate a one-on-one counseling session that is engaging, fun and interactive even for users with limited or no literacy.



BVKit
Margaret Nanyombi, Were Douglas, Nafula Winfred, and Ndagire Esther
Makerere University

Self test diagnosis kit for women to monitor their reproductive health at home.



dot Learn
Babatunde Alawode and Samrat Bhattacharyya
MIT

We are designing video-based digital education that works in emerging markets. We are able to deliver five hours of video learning to students at the cost of sending a single text message. Leveraging this technology, we are building an Africa-focused online education platform.

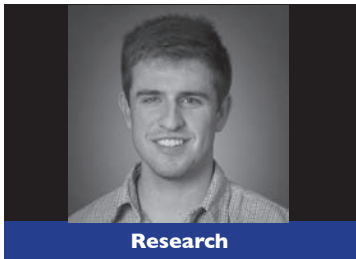
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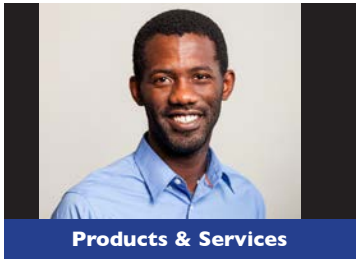
ekulture
Christa Preston

The lack of awareness about Autism in Uganda leaves children with at risk of severe danger. embraceKulture is working to change this. Our “ekulture” solution uses mobile phones to empower parents, teachers and persons with disabilities to become the agents of change.



**Experimentation in
Public Procurement
& Supply Chain Design**
Mark Brennan
MIT

Supply chain design is a crucial and understudied component of improving public procurement and facilitating private markets. An experimental approach to supply chain design – piloting different product types, suppliers, and distribution methods – offers a systematic way to evaluate procurement decisions.



ElectroSan
William Tarpeh
UC Berkeley

ElectroSan is a new technology that uses electricity to preferential-ly extract nitrogen from human urine. Recovered nitrogen can be used to produce fertilizers and disinfectants, which can both lower the costs of sanitation provision and fertilizer production.



FRUITI-CYCLE
Ben Wokorach, Nelson Mandela
and Richard Obonyo
Makerere University

An affordable cold chain distribution means design for small scale farmers of fruits and vegetables across Africa to improve on post harvest handling of the perishable delicate produce while reducing the current 45% post harvest losses to 10% and increasing market accessibility.

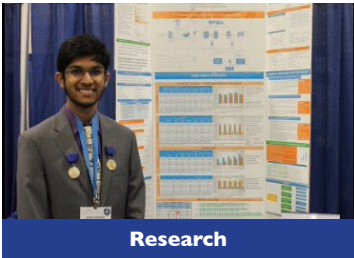
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Gravity Goods Ropeways
Diwakar KC & Ritendra Thapa Magar
TERI University and University of Oregon

The GGR system works on simple technology. Two linked trolleys, on pulleys, run on separate 10mm diameter steel wires which are suspended from towers, when full trolley comes down, pulled by the weight of its load; it pulls empty one up and ready for the next load. The total cost of one ropeway installation is NPR 2,500,000 (US \$24,286).



Hydrogel Desalination Technique
Chaitanya Karamchedu

Approximately only 3% of seawater contains dissolved solids that are bonded to less than 10% of seawater. This study harvested the remaining 90% of seawater using hydrophilic polymers and with no external energy, beyond the synthesis of the hydrophilic polymer itself.



GridWatch
Noah Klugman, Pat Pannuto, Veronica Jacome, Matt Podolsky, Ofir Reich, Prabal Dutta
UC Berkeley, University of Michigan

Despite the fact that access to reliably-present electric power is of paramount importance for quality of life and economic stability, utilities worldwide often depend solely on customer-generated reports to learn the location, duration and size of service interruptions. We propose a new low-cost crowd-sourced method of monitoring distribution-level power outages and restorations through the use of unmodified smartphones.



IoT Solar Panels with Mobile Payments
Kayla Falk, Raghav Saboo, Vibhu Tewary, Starling Shan
Dhoop Energy - Duke University

Low-income urban centers suffer from global energy poverty. This problem is particularly prevalent for street vendors. Lack of light and electricity limits their working hours and causes safety issues. Our team offers interconnected solar-power units that can be turned on/off remotely based on daily mobile payment. We created a prototype IoT device that is connected to a solar panel unit (provided by Orora Global).

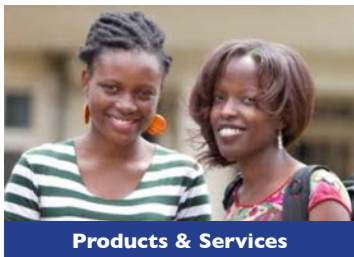
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Kids Write
Sora Edwards-Thro, Lydia Boike,
Nick Rance
College of William & Mary

We created software students can use to read, write, and share stories. We worked with Haitian teachers to create lessons to accompany existing Haitian Creole materials. Students were divided into an experimental group of Laptop users and a control group who used paper books and notebooks.



mDex
Bonita Beatrice Nanziri, Rachel Aitaru Olema, Flavia Nshemereirwe
Makerere University

mDex is a smartphone low cost, reusable, near instant point of care diagnostic tool aimed at increasing access to Sickle cell Diagnostic services in low resourced areas. It empowers medical practitioners to diagnose Sickle cell anemia in the absence of a hematologist.



Ma3Tycoon
Menghan Li, Jintai Li, Emily Long
MIT

Ma3Tycoon is a prototype app aiming at updating Nairobi's complex and dynamic informal transit ("matatu") system, improving navigation and accessibility of the system. The goal of the project is to crowdsource updates by tapping into the expertise of riders, drivers, and others who use the system everyday.



MOBFIT Ltd
Charles Batte, Kiiza Gideon, Jovial Nanfuka, Vincent Mukasa
Makerere University

MOBFIT connects smallholder farmers to markets by using mobile technology to enhance community based aggregate production. Farmers on our platform in proximal geo-locations receive demand data driven SMS advice on what to grow in a given season.

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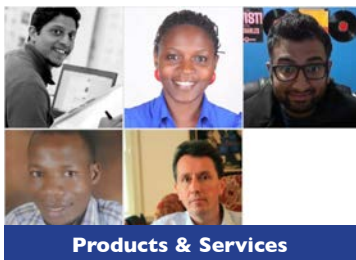
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Products & Services

m-Omulimisa SMS Services
Linlin Liang, Daniel Ninsiima, Dr. Richard Miiro, Hassan Miiro, Kirk Mason
Makerere University

This is a mobile and web-based platform that enables farmers to exchange information with extension officers in indigenous languages. The platform leverages human mediation and text messaging to create mobile and web-based consultation services. Farmers can use their phones to ask questions in languages that they understand, and receive understandable feedback.



Products & Services

Nyweza
Ayan Bhandari, Blesson John, Lydia Asimwe, Geoffrey Bwireh, Paul Fearis (mentor)

Motorcycle taxi (boda boda) accidents account for ~41% of trauma cases at Mulago Hospital, Uganda's largest hospital. Many of these accidents involve side saddle riders having no means of grip. Our company, nuway, has developed Nyweza, a safety device that protects side saddle boda boda passengers from accidents while providing space to store luggage.



Research

No-Go Zones for Aid
Graeme Cranston-Cuebas, Leigh Seitz
College of William & Mary, University of St. Andrews

Traditionally, development aid spikes during times of catastrophe, natural disasters, and pandemics. However, many areas of the world most vulnerable to these disasters are left without aid due to unstable and dangerous conditions on the ground. This project has quantified the size and location of these no-go zones in Nigeria's war-torn northern regions and compared the relative tolerance of different traditional and emerging donors.



Products & Services

Nubrix
Elijah Djan
University of Pretoria

We recycle paper to make building bricks.

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Practical Education Network
 Anna Waldman-Brown, Dr. Heather Beem, Saddik Mohammed, J.D. Rainey, Noah Alorwu, Belle Archaphorn, Steve Bonomo, and Aron Walker
 MIT

Through our teacher training workshops, PEN empowers educators around the world to engage students in hands-on science projects. Our material blends constructivist learning with design training, to allow participants to discover key concepts and engage in science projects with relevance to their daily lives.



PedalTap
 Grace Nakibaala, Pidson Abaho, Molly Mbaziira, Isah Ssevume
 Makerere University

PedalTap, is an affordable portable hands free foot operated water tap dispensing system. The PedalTap technology is modifying the existing water tap system to create a no touch cost effective solution for developing countries that reduces the growth and frequency of potent and infectious diseases spread like flu, cholera, and Ebola.



Resilience Resource Allocation Measure
 Morten Wendelbo
 Texas A&M University

The project will provide a tool to improve human resilience to natural disasters. The research combines geophysical, geospatial and economic analysis in order to consider physical and social vulnerabilities when estimating levels of damage in a given geographical area.



SAFR: Sustainable & Affordable Fluoride Removal
 Katya Cherukumilli
 UC Berkeley DIL Lab

200 million people worldwide are at risk of developing irreversible crippling deformities by drinking groundwater contaminated with toxic levels of naturally-occurring fluoride. Sustainable and Affordable Fluoride Removal (SAFR) is a method for using mildly processed bauxite, an aluminum-rich ore, to remediate groundwater fluoride concentrations for safe drinking water.

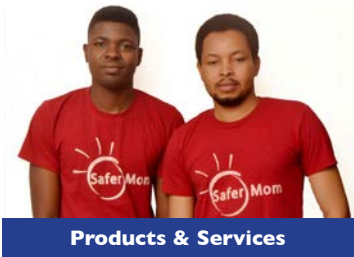
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Sensen
Prithvi Sundar, Amit Gandhi,
Thiago Koji Masuki
MIT

Sensen provides a data collection and analysis platform for products deployed in remote locations in emerging markets. The flexible end-to-end platform seamlessly combines sensors in the field with a web-based visualization portal. Sensen leverages low-cost sensors and expertise in data processing to effectively deliver metrics on performance, health, and usage of products. Organizations can use the real-time information we provide to monitor their products and demonstrate true impact.



Safermom
Adeloye Olanrewaju

Safer Mom is a smart last-mile platform for pregnant and new mothers in Africa. We built Safer Mom to help mothers access quick, quality, affordable healthcare, access to doctors, monitor and track their health, vaccination reminders, help lines, etc. via SMS, voice and web and mobile app Platforms.



Sharing the Land
Lobo Ngumba Aime, Serges Vutegha,
Gracien Senzeru, Nelly Sikuliwako,
Kyle Hamilton
Université Chrétienne Bilingue du Congo

The vision of Sharing the Land is to promote peace and development by facilitating a transparent, fair and equitable land management system in eastern Congo.



Smart Conical Clay Pot (SCCP) Water Filtering Device
Dr. Ambelu, Mr. Astatkie, Mr. Melak, Mr. Emiyamirew, and Mr. Ambelu
Jimma University

Cone shaped modified clay pots will be assembled with sensors are going to be developed to filter contaminated water. The cone will be made from earth materials to remove microbes, physical and chemical contaminants.

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Products & Services

Swag System and Tech Dada Learning Communities,
Josephine Miliza, Cecilia Wangui, Risper Akinyi

Our innovative Swag system delivers gamified, open-source tech, design and business skills training to low-income young women without highly trained teachers or internet access. We deploy Swag through female learning communities, so young women can feel safe and create social networks.



Research

Spatial Inequality in Sub-Saharan Africa
Layla Abi-Falah
College of William and Mary

Our research thus far has established that there is a path dependent effect between cash crop cultivation during colonialism and present-day areas of development that creates sub-national spatial inequality within Sub-Saharan African nations. We now aim to analyze the effect of violence on this path dependent effect.



Products & Services

Takachar (Safi Organics)
Kevin Kung and Samuel Rigu
MIT

Fertilizer today is produced in large-scale, capital-intensive facilities and shipped to emerging economies, resulting in significant logistic mark-up. We bring a technique to enable small-scale, low-cost, and decentralized fertilizer production based in rural communities using locally available resources and waste.



Products & Services

The Icon Magazine
Francis Nsanga and Joshua Musasizi

This is an entrepreneurship publication offering experiential learning, bench marking and inspiration to individuals and startups through success stories of transformational initiatives. The Icon Magazine is our premier flagship innovation for the Icon Entrepreneurship Platform consortium.

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Products & Services

UjuziKilimo
Brian Bosire

UjuziKilimo uses innovative sensory technology to provide precise and understandable information to farmers to help increase their crop productivity and access markets for their produce. Farmers get actionable, trackable information in minutes via an SMS platform, improving productivity.



Products & Services

The Releaf Group
Uzoma Ayogu, Tobechukwu Nzewi, Ikenna Nzewi, Isaiah Udotong, Emmanuel Udotong, Joshua Nzewi
Duke University

Releaf is an online platform that leverages the talents of students and professionals in the US & UK by strategically connecting them to high potential agri-business ventures in Nigeria to execute business critical projects with the goal of stimulating wide-scale economic development in the region and beyond.



Products & Services

Universal Pedal Power Take-off System & Bean Threshing Implement
Adam Lyman, Ronald Averill,
Michigan State University

The Universal Pedal Power Take-off System (UPPTS) leverages the ultra-efficient power transmission of a bicycle to convert human kinetic energy into mechanical work used to operate a variety of appropriate agricultural implements. Modularly designed, the UPPTS powers any implement designed to interface with the system.



Products & Services

Vegetable Spinner
Madison Cooper
Texas A&M University

Our Vegetable Spinner is a simple human powered device that aids workers in vegetable packaging centers to clean vegetables faster and better in order to increase productivity.

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Products & Services

Visualize

Maria Young and Julia Kramer
University of California, Berkeley

Visualize is a low-fidelity cervical cancer screening training model that aids midwives or other healthcare providers as they learn how to screen for cervical cancer using visual inspection of the cervix with acetic acid (VIA). VIA is a low-cost and effective alternative cervical cancer screening method.