Design has traditionally affected only the world’s most affluent people, or 10% of the entire population. This rule is increasingly being broken by designers who see an opportunity to work in the area of extreme poverty. The focus of the Harambee project is to use a collaborative process that involves a multitude of international stakeholders to develop innovative and empowering tools together with people with disabilities in Uganda. A key aspect is the focus on local manufacturing and prototyping so that ideas can be explored locally and with input from the end users. This project is a collaboration between CanUgan, Read Initiative and the School of Industrial Design.
The Design Innovation for Disability project is a collaboration between the Carleton School of Industrial Design, the READ Initiative, and CANUGAN. It was made possible by a generous grant from the IDRC. The goal of the project was to apply industrial design methods towards finding new and innovation solutions for people with disability in Kasese Uganda. The existing hand-pedalled tricycle which CANUGAN locally manufactured and distributed was taken as a starting point. Through research, prototyping, field study, and collaboration with stakeholders each team member designed a new product that addressed issues facing people with disability in Uganda.
THE HARAMBEE PROJECTS

One team: Four Connected Projects

**Ruby Hadley’s Extended Mobility**
Aims to explore opportunities for people with disabilities beyond the assistive devices currently being produced in rural Uganda.

**Andrew Theobald’s Platform for Empowerment**
Aims to use the tricycle as a means for generating income through small businesses.

**Alyssa Wongkee’s Tricycle Frame**
Is a redesign of the hand pedalled tricycles currently in use in rural areas of Uganda.

**Carmen Liu’s Adaptive Tools**
Is a system created to allow for the potential of a collection of tools powered by the hand pedalled tricycles locally used by people with disabilities in Uganda.
The first half of the project was devoted to research in order to identify the opportunities for design. Secondary research focused on understanding physical disabilities, the Ugandan context, and existing projects. Noel Wilson of Catapult Design, and Aaron Wieler of Whirlwind Wheelchair International, were brought in as experts in design for developing countries. Via Skype, we communicated with our partners in Uganda which allowed us to ask questions and share information. Key issues facing people with disability in Uganda were indentified and each team member chose a design problem to focus on for their respective project.
TRIP PREPARATION

Ideating, prototyping, building

With our general directions in mind we began to develop more tangible concepts. We based our designs on what we knew of the context we were designing for—rural Uganda. Through sketching and model making we built prototypes that could be tested first in Canada, and later in Uganda. One of our first tests was that of communication: Would we be able to accurately communicate our designs to our partner manufacturer in Uganda? Using pictures of our prototypes and working drawings, we sent our ideas to our manufacturer to see if he could fabricate it. Alongside this, we continued to develop some models that were also brought to Uganda during our field study for further testing.
Upon arrival in Uganda, we finally got to meet the people with our collaborators, whom we had been working with for the six months leading up to the field study. One of the key players in this group was our partner manufacturer, Kio Mukiika. Being able to work closely with him as the four models developed was essential to successful outcomes. As testing and discussions progressed, working with Kio Muikiika, we could adjust and make alterations based on the discoveries made along the way. Kio is an extremely talented welder, craftsman and problem solver, and each of the four projects was greatly influenced by his expertise.
Working with end-users was key to the development of our project, as the final results were ultimately to benefit them. Getting first hand feedback and suggestions during the testing phase meant that the project was being shaped by the users as well as by us. What made the end results successful was that these designs were not made ‘for’ users in rural Uganda, but ‘with’ them.
During our discussions with various organizations and with individual Ugandans with disability, lack of income and extreme poverty came out time and time again as the largest issue. Lack of government support, accessible education, costly treatment and discrimination compound the problem of economic empowerment. Each project addresses this issue in some way whether by generating income, reducing costs, or simply providing the mobility required to participate in small business.
FINAL DESIGN

One tricycle, four opportunities
**CONCLUSION**

**THESE ARE THE DESIGN GUIDELINES ALL FOUR FINAL PROJECTS FOLLOWED**

The Harambee project was successful in facilitating a design process with the direct input and involvement of the stakeholders and beneficiaries of CANUGAN’s efforts. This is crucial in any effort to design with social intent, not merely to conduct research, but to allow end users to design their own solutions. We were also able to demonstrate that local craftsmen can be leveraged for prototyping and design input as well as manufacturing. Our project serves as an example of how innovation and collaboration can be applied to international development. Through working together we are able to design products that directly relate and benefit the users.