

Humanitarian Engineering: Innovation Modules

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Background

Our project is focused in the Dagoretti Market slum area of Nairobi, Kenya.

Among other things, individuals living in Dagoretti are limited by a lack of accessible resources, the area's limited business infrastructure, and a general lack of business/ innovation skills.

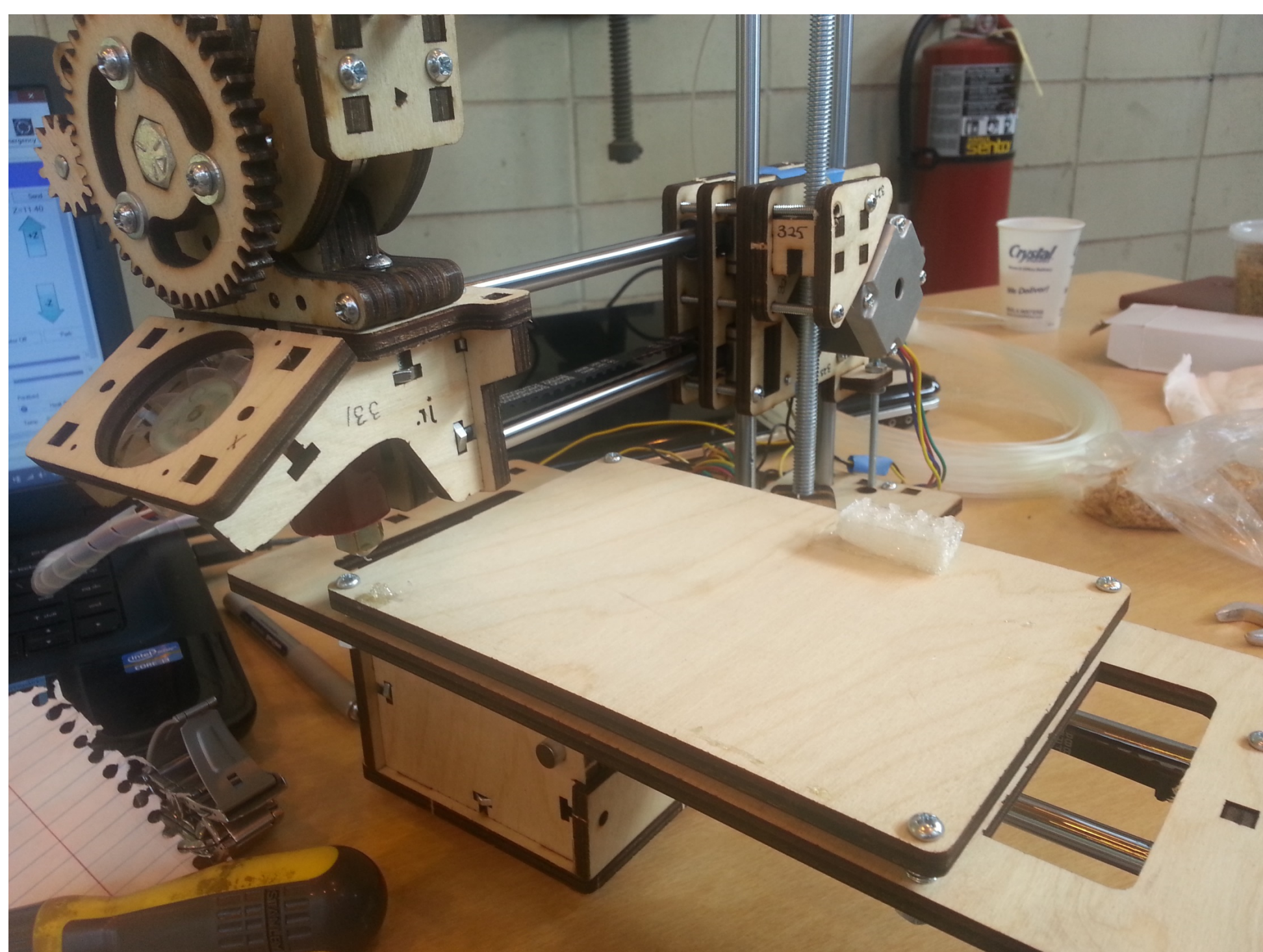
The lack of large businesses generally leads each person to work for themselves. Many find themselves caught in the role of the struggling entrepreneur without the skills in business or innovation that are necessary to obtaining fiscal success.

While they lack necessary skills, the Kenyan people are largely very resilient and resourceful. We have every confidence that these people are fully capable of solving their own problems and lifting themselves and others out of poverty, if they are given the means and the opportunity to do so.

The Idea

We aim to facilitate an information exchange that empowers Kenyan citizens to think innovatively about sustainable business. Under the inspiration of the Technical Entrepreneurship master's program at Lehigh University, we wanted to approach this project as a means to expose individuals to the field of innovative design and to help cultivate revolutionary thinking.

We plan to do this by developing a series of hands-on educational modules. While the main focus of each module will be training in specific skill sets, each module will emphasize the development of basic business skills and creative thinking.



Additive Manufacturing

Additive manufacturing (more commonly known as 3D printing) has been called "The Next Industrial Revolution". This summer, we explored the field of additive manufacturing, eventually building our own low-end 3D printer.

We hope to capitalize on inspirational technologies such as 3D printing in the innovative aspects of this project.

Curriculum

Our summer project revolved around the development of an educational curriculum. The curriculum consisted of four major tiers: Learner Training, Business Skills, Innovation, and Implementation.

Learner Training focuses on helping program participants to develop a new sort of mental framework, one that will allow them to break free of mental constraints and prepare them for the type of learning experience we plan to provide.

The Business Tier focuses on providing the basic business skills necessary to create and run a successful business. Such skills include: basic book keeping, business model development, and a basic understanding of important economic theory.

The Innovation tier will focus on skills such as: market analysis, creativity, and ideation techniques such as "brainstorming". This most important element provides learners with the skills to find needs within their environment and to creatively combat them.

In the implementation process, the learner puts the previously developed skills into action, creating their own business models. The curriculum was designed to conclude with a business competition, similar to Lehigh's "Eureka!" competition.

Though our plan has since turned from a fluid curriculum to a system of separate yet cohesive modules, many of the same principles will still apply as we move forward.

Resource Center

Our hands-on approach calls for a space where learners are free to experiment with new technologies and machinery. Inspired by facilities such as FabLab and Makerspace, we envisioned a space where learners have access to equipment such as 3D printers, laser cutters, CNC machines, and computer stations for practicing code. We envision a center that will allow learners to develop new technical skills, that they can generate new products and businesses.

We understand that this element of the project is a heavy undertaking and are pursuing existing resources in the area that would provide learners with similar resources and opportunities.

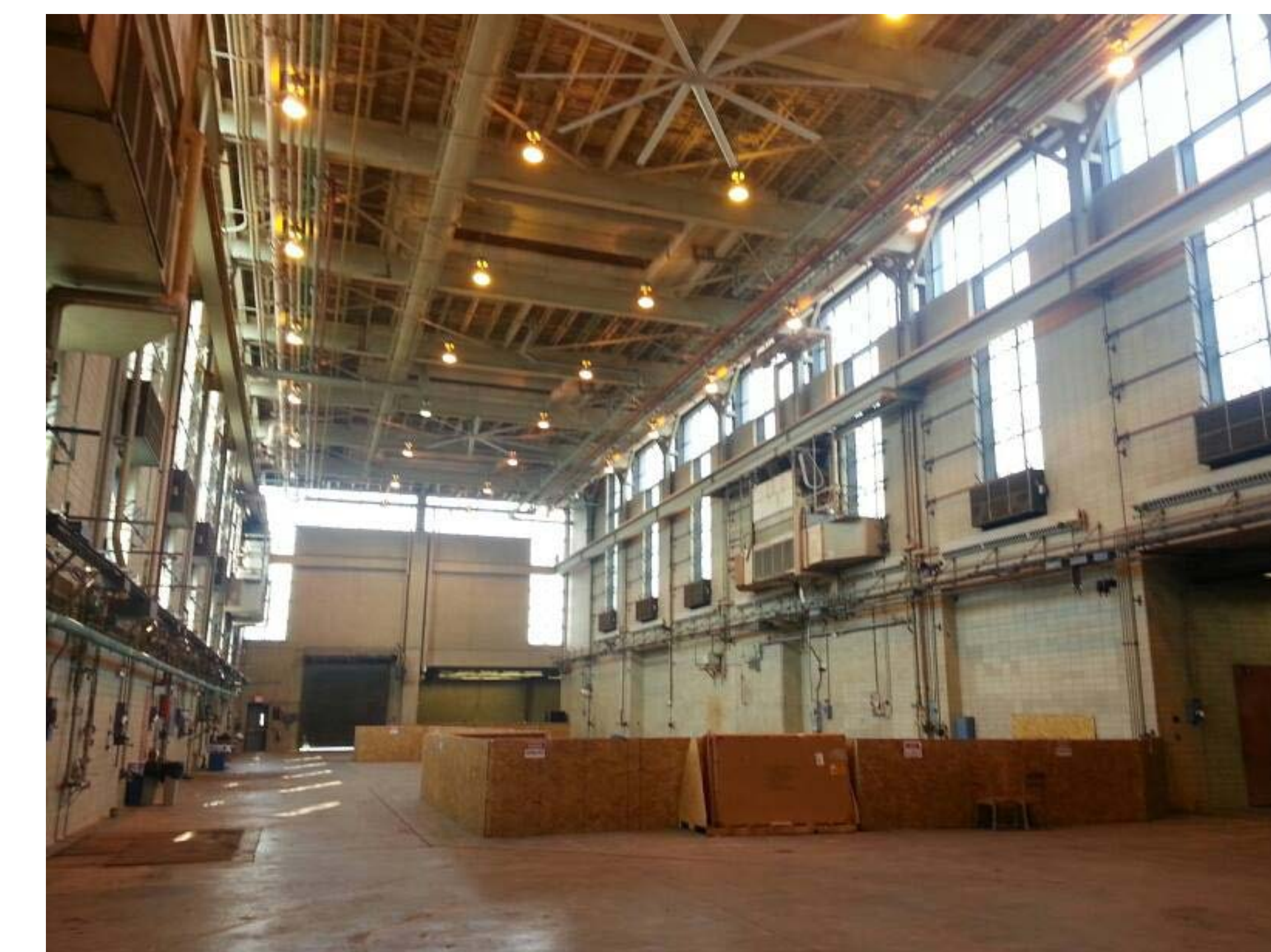
Future Plans

Over the course of the semester, we plan on fully developing a coherent series of "Innovation Modules". Each of these stand-alone modules will incorporate the 4 tiers of our curriculum into a skill-driven, hands-on training session.

We believe that applying business skills and innovative techniques to concrete skills such as computer coding, website design, or carpentry would produce greater results than a more theoretical approach.

SmartSpaces

Thanks to the speed and efficiency of the administration, we had the opportunity to work in Wing C2 of Building C on Mountaintop Campus two weeks after it was purchased. Building C, soon to be known as "SmartSpaces," is an enclosed space where students working on various projects work together. This space facilitated a beautiful overlap of interests and ideas, making it very difficult to avoid being inspired by the ideas of others around you.



Acknowledgement

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