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Bringing the World to UD

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II. Bringing the World to UD

Mark Rasmussen, Undergraduate Student, School of Engineering

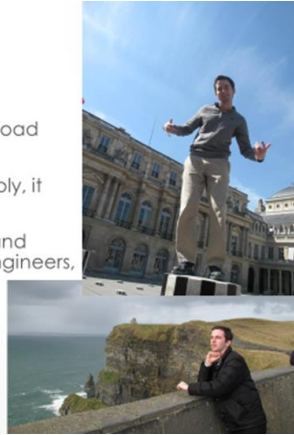
This presentation focused on Mark's work with Engineers in Technical Humanitarian Opportunities of Service-Learning (ETHOS), a service program in the School of Engineering. The slides show his trips to Ireland and Ghana.

Presentation Slides



MAYNOOTH IRELAND

- Was one of the first engineers to go abroad and take engineering related courses
- Chance to travel around Europe cheaply, it taught me a lot about the world
- Became ambassador of the program and wanted to inspire people, especially engineers, to study abroad



Improving access to fresh produce through sustainable urban agriculture
A system engineering approach to garden design and management
 Mark Rasmussen*, Hassan Alhashimi*, Venkat Rajeev Reddy Mallipeddi† & Kellie Schneider*, PhD
Department of Mechanical Engineering*
 Department of Engineering Management, Systems, and Technology*
 Department of Computer Science†

Motivation

More than 40 million Americans are food insecure. People that are food insecure lack reliable access to a sufficient quantity of affordable, nutritious and food safe food. The Foodbank, Inc. works to reduce hunger in Ohio's Miami Valley through the acquisition and distribution of food to people in need, management, and food recovery.

In 2016, The Foodbank, Inc. distributed more than 2 million pounds of food including 2.8 million pounds of fresh produce to more than 70,000 people.¹

The Foodbank is trained in urban gardens provide clients with more fresh produce. In addition, The Foodbank wishes to develop community gardens and educational concepts accessible to urban-tract people.

Project Objective

Utilize a system engineering approach to develop a cost-effective perspective for garden construction and maintenance as well as the implementation of sustainable technologies and processes.

Design Considerations

Model Implementation

- System Needs:
 - Volume production
 - Worker requirements
 - Filter given constraints/requirements
- Requirements:
 - Worker's accessibility
 - Working cost
 - Space for educational and additional space
 - Multiple materials and tools (not too heavy)
 - Working convenience (practicality)
- Design:
 - Not too heavy (200#)
 - Don't become too big?
 - Don't bother around any of it
 - Don't have any other design

Acknowledgements

This work was funded through The Henry Sustainability Institute and the University of Dayton School of Engineering Center for Sustainable, Intelligent, Connected, and Digital Learning.

Methodology

Systems Engineering "V" Model

- Focuses on top-down design
- Analysis and decomposition of system requirements
- Utilizes bottom-up verification
- Creation of system elements
- Integration and testing against requirements

Future Work

- Implementations:
 - Utilizing garden to raise portion of city's following chosen design
- Verifications:
 - Cost Requirements (customer needs)
 - Material chosen (best-fit design)
 - Maintenance
 - Checking on the design
 - Operation and Maintenance
 - Software error
 - Software error fixed

Works Cited

1. Being Green: Higher Education, Social Justice, and Sustainable Development. (2016, Spring 2016). Retrieved from www.sustainabilityinstitute.org

2. The Foodbank, Inc. (2016). Retrieved from www.foodbankinc.org

3. The Foodbank, Inc. (2016). Retrieved from www.foodbankinc.org

ETHOS IMMERSION AT ASHESI UNIVERSITY

TEACHING ASSISTANT

- Got a chance to help students design a solar powered pump system
- Teach Solidworks



RESEARCH ASSISTANT

- Got to build and design something I thought solved a problem in West Africa
- Gave me a chance to present at Flyer Pitch



HOW DID THIS IMPACT ME?

Every experience impacted me in different ways

- My abroad experience was really my first time traveling, so it opened up my view to the world
 - Saw so many similarities everywhere
- My work at The Foodbank Inc through UD taught me a lot about the issues in the surrounding community
 - Bigger than just UD in Dayton, there is so much more to everywhere you go
- My ETHOS experience changed my career and opinion of the world
 - I love to travel, but this was no Europe. I realized how amazing and different from my opinion Africa (Ghana) was

HOW CAN UD ENHANCE IT'S INCLUSIVE COMMUNITY?

Plenty of ways



- Promote joining clubs across majors; challenge students to be involved in things outside their field
- Continue its work to make these opportunities known to 1st-years
- Work on a student mentoring program similar to alumni mentoring program