

Chapter of the Year Competition Report

University of Maryland, College Park

05/01/2018



Section A: Programs and Projects

Part I: Design project + Repair Project

As this is our first year, we decided to focus all our design efforts on one project, designing add-on features to donated wheelchairs such that they better meet the needs of the handicapped population of Uganda.

We are conducting this project in collaboration with the Engineering World Health chapter at Makerere University. After visiting various local clinics and rehabilitation centers, they have provided us with needs assessment, detailing the inadequacies of donated wheelchairs and major areas for potential improvement. Based on their findings, we began working on 2 features that can be added to any donated wheelchair. The first of these devices is a braking system that allows users to slow down their speed as they descend a hill. The second device is an adjustable neck and headrest, that creates more stability and support for individuals, particularly as they pass through uneven terrain. We are still in the prototyping phase of this project and are coordinating with Makerere University to ensure that our devices are made from locally sourced materials, ultimately reducing costs and making them replaceable.

We have also established ties with the University of Maryland, Medical Center, who have agreed to provide us with unwanted wheelchairs. We are currently working on 4 wheelchairs but have an additional 6 to be repaired and sent as soon as we finish with our first set.

Furthermore, we have agreed to further collaborate with the Makerere University in the field testing process before we ship our wheelchairs to them for distribution.

Part II: Kit builds:

Our designated Kit Chairs were charged with initially understanding how the kits work, then leading a kit session for other members of the club. They prepared a presentation providing students with background information on the purpose and function of the devices these kits simulate. Throughout the presentation, they highlighted certain concepts that complement our course material. Then, club members, working in teams of 2-3 per kit, were guided through the building process. Due to a delay in shipping of kits, we were only able to hold 1 kit building session attended by 9 students.

Part III: Future activities:

For the upcoming year, our club will continue to work with Makerere University on innovating the wheelchair design through creating and assembling accessory features that improves the quality of life of individuals with disabilities in developing countries.

Section B: Organizational Structure

Part I: Chapter Structure and Statistics:

Besides our Executive Team that is composed of 3 members, there is Leadership Team and Subteam Leaders, which are both under the guidance and supervision of the executive team, are composed of 10 and 3 members respectively. Leadership positions include Repair Chair, Kit Chair, Innovation Chair, Service Chairs, Web Administrator, Promotions Consultant and Secretary. Executive Team meets once a week to organize and prepare for general body meetings, sending weekly newsletters, and organizing the general body, whereas Leadership Team meets once a month to organize specific events such as guest speaker talks, kit days, brainstorming sessions for the design competition...etc. The Subteam Leaders are delegated the responsibility of managing their subteam's attendance, leading discussion related to our design for the wheelchair project with Makerere University, and guiding the team to meet deadlines set by the Executive Team such as CAD drawing submissions, proposed budget...etc.

We communicate to our members through 3 platforms: our weekly newsletters sent from our email (ewhatumd@gmail.com), our Facebook page which has 131 follows (<https://www.facebook.com/ewhumd/>), and our website (<http://ewhatumd.com/index.html>).

Our general body meetings are once a week and the average attendance is ~15-20 people. During our general body meetings, we discuss updates on the Wheelchair project from each subteam, participate in brainstorming sessions, and discuss updates on the design competition.

Section II: Fundraising Approaches

Approach	Amount
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Student Government Association	\$1,140.00
Do Good Mini Grant	\$ 500
Grilled Cheese Sales	\$250
Total	\$1890

Do Good Mini-Grant program is aimed at helping with students with the development and implementation of their student-led, student-run proposals which aim to create a positive social impact for a social issue or cause.

Section III: Other chapter activities

Over the course of our first year as a chapter, the UMD chapter has organized 3 guest speaker talks and 1 kit day. Dr. Robert E. Fischell, founder of the Fischell Department of Bioengineering and holder of over 200 patents, came for a joint talk with our chapter and the Biomedical Engineering Society (Appendix 3). 124 students attended this event. Synapto, a student run start-up company that aims to use artificial intelligence and portable EEG to early diagnose Alzheimer's, talked about how their company started, how their technology is innovative, and where they are now (Appendix 1). 25 students attended this event. Dr. Eric Bubar, a professor at Marymount University and founder of Enabling the Future at Marymount, came to talk about what Enable is and its impact around the world (Appendix 2). 35 students attended this event.

We held a booth the University of Maryland First Look Fair as well as the Stampfest (Appendix 6).

Section C: EWH Chapter Feedback

For chapters that have just started, it would be helpful to be partnered with another successful chapter (eg. a previous design competition winner, or chapter of the year winner), such that it would be helpful to be able learn from their successful tactics.

Section D: Appendix - Photos, Tables, Schematics and additional material

Appendix 1: Synapto Talk



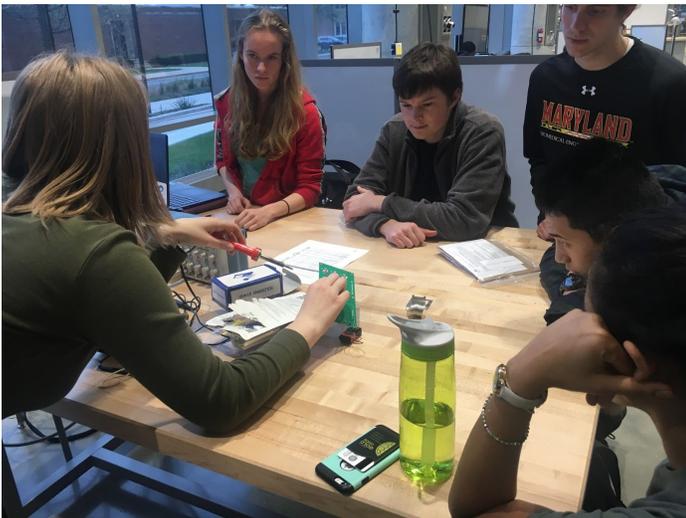
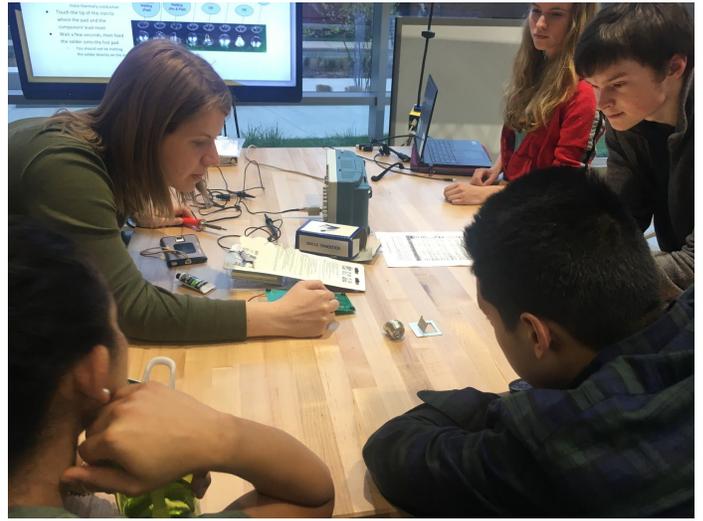
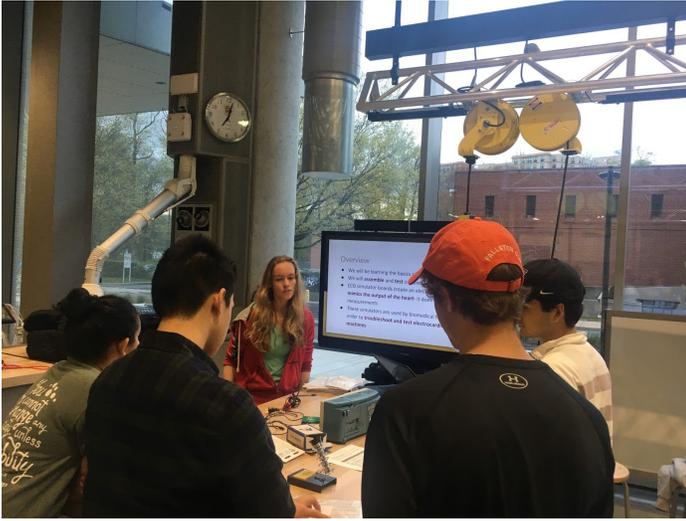
Appendix 2: Dr. Eric Bubar Talk



Appendix 3: The Executive Team with Dr. Robert E. Fischell



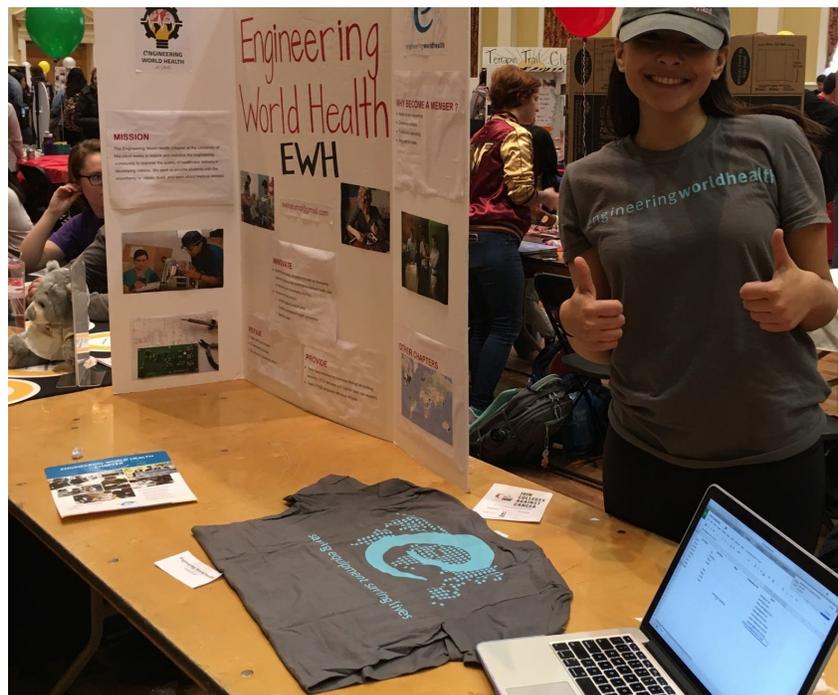
Appendix 4: Kit Day



Appendix 5: Innovate Maryland 2018: In Recognition of Do Good Mini Grant Recipients



Appendix 6: Stampfest: An activities expo for clubs and organizations to advertise and recruit members at the beginning of the spring semester.



Appendix 7: Advertising Flyers



**ENGINEERING
WORLD HEALTH**
at UMD

**ARE YOU INTERESTED IN
MEDICAL TECHNOLOGY,
HEALTHCARE, AND
PROVIDING AID TO LESS
DEVELOPED COUNTRIES?**

INFORMATIONAL GENERAL BODY MEETING
(FREE FOOD WILL BE PROVIDED)

WHEN: Wednesday,
February 7th
@7:30PM **WHERE:** Kay Boardroom 2
(111) in the Kim
Engineering
Building

For any additional questions contact us at ewhatumd@gmail.com
or through our Engineering World Health at UMD Facebook page

UMD'S OWN EWH AND BMES PRESENTS

A TALK WITH DR. ROBERT FISCHELL



WHEN
Thursday, Oct. 19th
6:30 – 7:30 PM

WHERE
Chemical and Nuclear
Engineering Building,
Room 2108

ADDITIONAL INFO
Dr. Fischell will be
holding a 45 minute
speech followed by a 15
minute Q&A session

**MORE ABOUT
DR. FISCHELL**

- B.S. IN MECHANICAL ENGINEERING FROM DUKE UNIVERSITY, M.S. IN PHYSICS AND HONORARY DOCTORATE FROM UMD
- HOLDER OF OVER 200 MEDICAL PATENTS
- ESTABLISHED THE FISCHELL DEPARTMENT OF BIOENGINEERING AT UMD IN 2005
- ESTABLISHED THE ROBERT E. FISCHELL INSTITUTE FOR BIOMEDICAL DEVICES TO ENCOURAGE CREATIVE COLLABORATION BETWEEN THE MEDICAL AND ENGINEERING FIELDS
- AWARDED THE NATIONAL MEDAL FOR TECHNOLOGY AND INNOVATION IN 2016

ENGINEERING WORLD HEALTH AT UMD PRESENTS

A TALK WITH DR. ERIC BUBAR



In addition to being an accomplished astronomer and physicist teaching at Marymount University, Dr. Eric Bubar also conducts research into using low-cost desktop 3D printing to create upper-limb prosthetics for individuals in developing countries around the world. Through partnering with volunteers from Enabling the Future, Dr. Bubar and his students have been able to help provide artificial limbs for people in the United States, Costa Rica, Uganda, Palestine, Pakistan, Sierra Leone, and the Dominican Republic

WHEN
WEDNESDAY, APRIL
4TH AT 8:00PM

WHERE
THE PEPKO ROOM IN
THE KIM ENGINEERING
BUILDING (KEB1105)

FOR ANY ADDITIONAL QUESTIONS CONTACT US AT ewhatumd@gmail.com OR THROUGH OUR ENGINEERING WORLD HEALTH AT UMD FACEBOOK PAGE




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PRESENTS

SYNAPTO TALK

SYNAPTO IS AN EARLY STAGE BIOTECH VENTURE AIMING TO REVOLUTIONIZE THE EARLY DIAGNOSIS OF ALZHEIMER'S DISEASE THROUGH THE USE OF PORTABLE EEG AND ARTIFICIAL INTELLIGENCE

JOIN US AT THE TIME AND LOCATION BELOW TO TALK WITH SYNAPTO ABOUT THEIR PROJECT AND WHERE THEY ARE NOW AS A COMPANY
(FREE FOOD WILL BE PROVIDED)

WHEN
THURSDAY, MARCH 8TH AT 6:00PM

WHERE
THE PEPKO ROOM IN THE
KIM ENGINEERING BUILDING (KEB1105)

FOR ANY ADDITIONAL QUESTIONS CONTACT US AT ewhatumd@gmail.com OR THROUGH OUR ENGINEERING WORLD HEALTH AT UMD FACEBOOK PAGE




Are you interested in:
**Medical Devices and
Healthcare in
Developing Countries**

Informational General
Body Meeting
Tuesday, September 19th
at 8 pm in the
Pepco Room (1105)
Kim Engineering Building

**ENGINEERING
WORLD HEALTH**
at UMD

For any questions contact us at ewhatumd@gmail.com or Engineering World Health at UMD facebook page

Appendix 8: Original Sketch for Braking System

