

Communication Strategy and Outreach for Team Oculus for Solar Decathlon
Africa 2019

An Interactive Qualifying Project



WPI

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By:

Aaron Jo

Jonney Lee

Luke Zebrowski

Jonathan Benoit

Harrison Burack

Philip Phan

Proposal Submitted To:
Prof. Tahar El-Korchi and Aaron Sakulich, Advisor

Abstract

The goal of this project was to create an active outreaching social media platform to meet the requirements of the Solar Decathlon Africa competition in addition to informing the general public about Team Oculus' progress.

Authorship

Aaron Jo

- Drafted and wrote sections: Abstract, 2.4 (Social Media), 4.1 (Blog Post Schedule), 4.2 (Blog Post Strategy), 5.3 (Social Media Posts).
- Edited and revised sections: 2.2 (Solar Decathlon and History), 2.3 (WPI and Team Oculus), 3.2 (Communicating to General Public), 4.3 (Blog Posts and Social Media Purpose), 4.5 (Interviews).

Jonney Lee

- Drafted and wrote sections: 1 (Introduction), 2.2 (Solar Decathlon and History), 2.3 (WPI and Team Oculus), 4.2 (Blog Post Strategy), 5.1 (Website).
- Edited and revised sections: Abstract, 2.1 (Renewable Energy), 3.2 (Communicating to General Public).

Luke Zebrowski

- Drafted and wrote sections: 2.1 (Renewable Energy), 4.6 (Website), 6.1 (Blog Posts), 6.2 (Social Media Posts).
- Edited and revised sections: Abstract, 3.1 (Website Development).

Harrison Burack

- Drafted and wrote sections: 3.2 (Communicating to General Public), 4.3 (Blog Posts and Social Media Purpose), 4.5 (Interviews).
- Edited and revised sections: Abstract, 4.6 (Website), 5.3 (Social Media Posts).

Philip Phan

- Drafted and wrote sections: 3.1 (Website Development), 4.2 (Blog Post Strategy), 4.5 (Interviews), 5.2 (Blog Posts).
- Edited and revised sections: Abstract, 2.4 (Social Media), 3.1 (Website Development), 3.2 (Communicating to General Public), 4.1 (Blog Post Schedule), 4.2 (Blog Post Strategy), 4.3 (Blog Posts and Social Media Purpose), 4.5 (Interviews), 4.6 (Website), 5.1 (Website), 5.2 (Blog Posts), 5.3 (Social Media Posts).

Jonathan Benoit

- Drafted and wrote sections: 3.1 (Website Development).

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1. Introduction

United Nations findings from the past eight years have yielded some of the hottest temperatures ever to be recorded on the global scale (Climate, 2019). The near unanimous agreement amongst scientists regarding climate change is that it is due to an increased amount of human activity since the start of the Industrial Revolution. Human activities that require non-renewable materials and fossil fuels are the main contributing factors that affect global temperatures. This continuous damage to the atmosphere creates changes in the Earth's natural climate, leading to the destruction of wildlife habitats and rising ocean levels. However, the impact of this change can be lessened with the adoption of renewable energy resources.

Renewable energy is defined as energy that come from a resource that can be replenished, such as solar power or wind energy. A large advantage of using resources such as solar or wind is that there are no greenhouse gases created when obtaining the energy and thus lowering pollution. However, the adoption of renewable resources has been slow in keeping up with global climate change and requires more utilization within the private sector to be more widely accepted as an industry standard. To address this, many new programs that encourage finding innovative ways to adopt clean energy into everyday lifestyles have been founded. One of the programs seeking to encourage the use of energy-efficient technology is the United States Department of Energy's Solar Decathlon competition.

The Solar Decathlon Africa is an international intercollegiate competition judged on 10 different contests. The competition challenges students to build an environmentally friendly, innovative building that is indicative of future implementation of renewable energy. It will be

held in September 2019 in Morocco and will have the buildings constructed on location.

Worcester Polytechnic Institute (WPI) will be partnering with Université Mohammed V de Rabat, Université Moulay Ismaïl, and African University of Science and Technology to form Team Oculus. WPI will be planning both the construction and communication strategies within the team using Major Qualifying Project (MQP) and Interactive Qualifying Project (IQP) teams, respectively.

As per the Solar Decathlon requirements, teams are required to build a website for their solar house design. Team Oculus's website will be designed by us using research in web design and online communication. This research includes strategies for garnering the attention of individuals just visiting the site as well as strategies for holding their attention so that they revisit the site again. Additionally the IQP team have created social media accounts in the platforms of Facebook and Instagram to help garner interest in Team Oculus's project outside of the competition. Methods of achieving this will include scheduled posts and blog posts on all facets of external communication.

2. Background

The Solar Decathlon was created in order to address the lack of energy-efficient technology and stagnant innovation in the field of clean energy. First created as a US competition in 2002, the competition is comprised of 10 unique contests to challenge competing collegiate teams to continuously innovate and improve upon their designs of a smart home.

2.1 Renewable Energy

Since the Industrial Revolution, global pollution levels have increased dramatically due to unsustainable methods of generating energy. The majority of air pollution produced by humans is a result of the energy sector (Naceur, Cozzi, Gül, Dorner, Gould, Al-Saffar & Priddle, 2016) involving the burning of fossil fuels that release harmful sulfur dioxide, nitrous oxides, and other various particulate matter into the air. Airborne pollutants can have a variety of harmful effects, ranging from destroying fragile ecosystems to gradually changing the climate of the earth. Unsustainable energy can have drastic and far-reaching consequences that we may not even be able to predict.

Changes in climate have a drastic effect on agricultural production, such as increasing difficulty in regards to nurturing and growing crops. Changing ecosystems can make fishing and hunting harder as certain animals start to migrate to different locations, or begin to perish due to changing conditions. Airborne pollutants also directly affect the human population, just as they do other living organisms. Chemicals from power plants can cause irritation to the skin and eyes while abrasive particulate matter can be inhaled and cause lung damage.

However, a solution to lowering global pollution and climate change is sustainable energy. Sustainable energy is a source of energy that provides energy without compromising the environment. Sources like wind and solar power are examples of these sustainable energies. The Solar Decathlon seeks to increase investment in solar technology with the hope that humanity will be able to live without harming its environment.

2.2 Solar Decathlon and History

In order to inform the public about renewable energy practices, the United States Department of Energy created the Solar Decathlon Competition. Originally created in 2002, the Solar Decathlon competition is held biannually. In 2019, the competition will have three different competition sites: Morocco, Hungary, and Columbia. This competition originally aimed to challenge collegiate student teams to design and create a fully-functional, zero-waste solar-powered house (Kielich, 2018).

Since its inception, the Solar Decathlon's primary purpose has been to provide students with exposure and training for a sustainable energy society, in addition to educating and demonstrating to the public the comfort and savings of homes that are energy. The competition itself has expanded beyond the original scale of the United States, and has grown to a national competition with participants from around the world. As such, there are more than 140 teams competing worldwide, with over 18,000 participants for each Solar Decathlon Competition (Kielich, 2018).

The Solar Decathlon competition has constantly evolved and improved since its formation by the Department of Energy in 2002. The effects of this competition can be seen on a

global scale through the education of the public regarding the viability, benefits, and affordability of clean-energy solutions through media coverage and digital tools. In particular, the Solar Decathlon has been recognized by the National Building Museum in 2010 and awarded an Honor Award for the emphasis on renewable energy and its role in “educating a new generation of built-environment professionals (National, 2010).

The Solar Decathlon competition itself encompasses 10 criteria. These contests are related to architecture, market potential, engineering, communication, innovation, water, health/comfort, appliances, home life, and energy contests. Each of these contests are weighted equally at 100 points, for a potential score of 1,000 points. Of these contests, the Department of Energy’s focus is on energy efficiency, water conservation, and home life (Kielich, 2018).

2.3 WPI and Team Oculus

One team competing in the Solar Decathlon Africa competition will be Team Oculus, from Worcester Polytechnic Institute (WPI). WPI is a polytechnic school that emphasizes a project-based learning approach, allowing students to partake in hands-on projects to practice the skills they learn in the classroom. As a school that uses project-based learning (Project, 2018), WPI requires a Senior Major Qualifying Project (MQP) and a Junior Interactive Qualifying Project (IQP).

The WPI MQP program’s purpose is to provide students with projects similar to ones they would see in the workforce (Major, 2018). For Team Oculus, there are three MQP groups, with 10 total students. Those students are working on the development of the electrical components, HVAC system, envelope facade, and structure of the Geodome. This group includes

students majoring in Civil Engineering, Mechanical Engineering, Electrical and Computer Engineering, and Environmental Engineering.

The WPI IQP program is meant to mix students of different majors to tackle problems relating to science, engineering, technology, and society (Interactive, 2018). We are currently the only IQP group working on Team Oculus. Our goal is to create a communication plan for Team Oculus. This communication plan will allow information about Team Oculus and the Geodome to be publicized. Our group is comprised of Computer Science, Robotic Engineering, Civil Engineering, Electrical and Computer Engineering, and Mechanical Engineering majors.

On Team Oculus, along with students from WPI, are students from Université Mohammed V de Rabat, Université Moulay Ismaïl, and African University of Science and Technology. Members of these universities will be working with the MQP and IQP groups of Team Oculus to develop and promote the Geodome.

2.4 Social Media

In order to bring attention and awareness to the progress of Team Oculus and the Geodome, social media platforms can be used as a powerful mechanism to inform and interact with a wider audience compared to past forms of communications. In the United States alone, 73% of adults are involved in social media (Smith & Anderson, 2018) with the number growing every year. However, while prolific, social media is generally considered widely not concretely defined within the academic space, so in order to understand what social media is, one must explore the origins of social media and how it came about in the internet space. Social media is

widely considered to be the merging of philosophies within Web 2.0 and User Generated Content (Kaplan & Haenlein, 2010).

Web 2.0 is a term coined in the 2004 which is defined as how the world wide web moved away from creating content individually to a more collaborative and participatory effort through applications such as blogs and wikis (Kaplan & Haenlein, 2010). This idea of more collaborative ideas creates the foundational ideology of social media. User Generated Content (UGC) however, is defined as the sum of content created by the public (Kaplan & Haenlein, 2010) and refers to the various forms of media content that are publicly available ranging from websites to software applications. Furthermore, UGC creates specific niches within the online community and helps users find those who are like-minded and interested in the same matters as they are. Social media is defined as the merging of Web 2.0 and UGC or as a collective of online communities that interact through content, inputs, and collaboration.

Blogs are online journals written in reverse chronological order for the purpose to give information into the desired audience (“What is a Blog?”, 2018). Typically, blogs are posted on the writer’s own website and are much longer than usual social media posts. They are more in-depth and less interactive than newer forms of social media (e.g., Facebook and Instagram) but still serve the role of garnering engagement within the community. Blogs usually need more frequent updates as the content might seem dull and boring at times, so fast feedback from blog posts is of the main necessity in maintaining a good blog (“What is a Blog?”, 2018). The fundamental idea of blogs can be traced deep within Web 2.0 ideals and has less of a focus on UGC. However, as newer social media sites gain exponential growth, it can be seen that both

UGC and Web 2.0 can be fully merged within the internet space (Kaplan & Haenlein, 2010) as shown by websites such as Facebook.

One such newer social media site would be Facebook. Formed in 2004, Facebook is the most widespread and prolific social media site used in the modern age showing the best of both Web 2.0 and UGC. Through its user-friendly interface and many features and perks, Facebook has been a dominant force within the social media sphere, gaining over two billion users and reaching nearly every corner of the world. Users can post content ranging from simple text posts to complex things such as videos and fundraising campaigns. Additionally, the website gives users the ability to indicate if they “like” the social media post and gives them the ability to comment on these sites as well. The main limitation of Facebook, however, is that although it is easy to navigate, there is a disjointed focus on what should be posted within the site. This problem is however resolved using Instagram’s simple social media platform.

Instagram is a separate site owned by Facebook that has experienced exponential growth in the “Social Media Age” (Holt, 2016) through its dedicated usage of content that is related to photography and “Hashtags”. The required use of digital photos or videos gives Instagram a platform that has easily processed and predictable content. Coinciding with the “smartphone revolution” (Aldrick, 2018), where almost every individual has a smartphone that comes with a camera, Instagram’s use of photography attributes to more interactivity among its users. A heavy focus on UGC attributes to the success that the site has found, as the content is catered to more creative outlets in order to drive more distinguishable posts. The clean layout and design of the social media application subject users to only pictures and a text caption, through this method it is easier to appeal to a designated audience or like-minded individuals who create similar

content. Additionally, with the ability to tag friends, comment, and hashtags, the response of the respective audience promotes more interactivity between users.

Due to the effectiveness that social media platforms have in providing information to others, the Team Oculus IQP group will be using these platforms as a method to promote Team Oculus and the Geodome.

3. Methodology

The overarching goal of our IQP project is to create a communication plan for Team Oculus. To achieve this goal, we created a list of objectives: create a successful social media platform conveying the project to the general public, communicate the purpose and goals of the project itself, and be able to convey the market value of the building to potential investors. We completed these objectives by creating different social media accounts to promote Team Oculus and the Geodome, and by creating a website to give information about the team and progress of the Geodome creation.

3.1 Website Development

We aimed to reach out to the public and generate exposure towards Team Oculus. We wanted to generate public awareness to help spread the cause of the solar decathlon and our team's contribution to that cause. To achieve this we first began constructing a website using a website builder, Wordpress. Much of the website context and layout was decided from a combination of research and discussion amongst our group members. We wanted to create a design that would appeal to our audiences. We researched the roles of aesthetics in web design and analyzed information presented by the Nordicom Review, a journal that focuses on understanding media and communications. Additionally, we found that putting focus into our target audience and the genre of our website in order to develop a website is a successful method in conveying our message and effective at drawing in viewers according to research from the

Department of Communication at Roskilde University (Thorlacius, 2007). The choice of aesthetics could range from “flashy” animations to simple text-based designs depending on the target audience.

The topics of information we tried to convey on the about page were on the Solar Decathlon, who is team Oculus, and what is team Oculus’ goal, as well as information and graphics of the Geodome being designed for the competition. We decided on these topics by breaking down the ten criteria of the Solar Decathlon Competition and looking for relevant information we could expand on into a blog. A blog was also added which was used as a means of updating the public of Team Oculus’s milestones, as well as a way of introducing team members from team Oculus and providing educational information on green energy. A contact page was also added as a means of any visitors who had questions, would like to contribute a donation, or would like to point out any potential errors on the website had a means to do so. A simple blank form was added to the page that anybody could simply fill out with a message and hit send, which is then directly sent to the website owner. In addition to this an important people contact list was added as well, giving the email address of the webmaster, the faculty team leader, the faculty design lead, and all of the faculty leads from the respective partner universities of the consortium.

3.2 Communicating to the General Public

Due to our project focusing on creating a product for the Solar Decathlon Africa competition, it was essential to keep the public informed on our progress. The Communications

and Social Awareness contest of the competition assesses the success of Team Oculus's "communications strategies, materials, and efforts to educate, inform, and interest the public" ("Solar Decathlon Africa", 2018).

To assure that our social media platforms were meeting the requirements set by the Solar Decathlon, we consulted the competition's document of rules. We found that the competition encouraged teams to develop a strong online presence, and they suggested teams create websites, blogs, and social media accounts to achieve this ("Solar Decathlon Africa", 2018). Information on the effectiveness of blogs was found by researching online journals including CMO Marketing Network contributor Steve Olenski. One of the greatest methods for getting large amounts of information to the public is through blogs. Using a blog can allow for more visibility of a final product, and allow for in-depth conversations about the blog topic (Olenski, 2016). The blog also may offer a comment section for direct communication with readers. Since blogging is important for getting public recognition and feedback about a project, we decided to incorporate a blog into the Team Oculus Website. This can be found by going to the "Blog" tab of the website.

For the blog, we planned to tailor the articles around a target audience. Identifying our target audience allowed us to more easily cater our posts to appeal to individuals most likely to see them (Olenski, 2016). To identify our audience, we consulted data and competition requirements from past Solar Decathlon events. We viewed the demographics of past visitors and suggestions for who the audience should be. This information was found on the Solar Decathlon

main website. By analyzing the data on the former audiences, we inferred who future audiences would be. It was found that former audiences included local communities including families, academic professionals, students, etc. The Solar Decathlon website defines its audience by providing resources and information on competitions and events for politicians, students, educators, and the general public. Lastly, we viewed past winners of the competition in the communications criteria. We found that schools who ranked first in their competition with a score of 95 or higher defined their social media audience as environmentally conscious individuals, local media outlets, and their home school's local community in addition to the audience of the Solar Decathlon (Solar Decathlon Africa).

Since Facebook is the most popular social media platform in the United States, with 78% of the population being active users (Smith & Anderson, 2018), having a Facebook page would give Team Oculus more outreach. To create Facebook posts that would get the most attention and be the most pleasing, we researched Facebook posting techniques from the Social Media Intelligence company "Union Metrics." From Union Metrics, we gathered information on effective posting times (Sailer, 2018), the use of a few tags on each post to get greater outreach, and the use of images to draw the viewer's attention (Parker, 2015).

To define an optimal posting time, we conducted research to find when social media platforms experienced the most activity. Research performed by CoSchedule, a marketing company, found that Facebook was most active during the weekdays at noon. Putting out information at this time will give the greatest chance to gain interest (Sailer, 2018).

Similar to Facebook, Instagram also has a large number of active users, with 35% of people in the United States being active users as of March 2018 (Smith & Anderson, 2018). Due to Instagram's popularity, we created an Instagram account for Team Oculus as well, @sdateam19. To ensure the success of our Instagram page, we researched the best Instagram posting strategies from successful social media users Forbes and Vogue Magazine. This involved reading suggestions from editors and administrators of these social media groups, as well as researching from reputable sources and statistics about common viewing times for posts. These techniques would be used to help gain and retain followers.

4. Results

4.1 Blog Post Schedule

To complete our goal of communicating information about Team Oculus’s progress on the Solar Decathlon Africa Competition, we developed a posting schedule to organize our posting times and dates for the next three months. The posting schedule was laid out to allow each social media platform to have at least one post a week. Posts were laid out to be posted Tuesday through Friday and never on the same media platform two days in a row.

2018/19 Calendar						
December 2018						
Sa	Mo	Tu	We	Th	Fr	Sa
						1
2	3			Follow Us	7 Solar Decathlon	8
9	10	11 World is Changing	12 GPP's Involved in SCA	13 Structure Picture (FB)	14 MGP Team	16
16	17	18 IGP Team	19 IGP and HUA	20 El Kharde	21 Morocco	22
23	24	25 Happy Holidays	26 Environmental Degradation	27 Solar Decathlon China (FB)	28 Geodome	29
30	31					
January 2019						
Sa	Mo	Tu	We	Th	Fr	Sa
		1 Watch Us	2 21 Hours Interview (Harambee)	3 Team (FB)	Current solar power Consequence	6
6	7	8 Ibrahim	9 Structural Team Journey	Structure Team (FB)	1 Structural Team Interview Mar	12
13	14	15 Luke Zimmerman	16 Architectural Team Interview (FB)	17 Mary (FB)	18 Structural Team Interview Sam	19
20	21	22 Harambee	Update Blog Post via Structure Team	24 Sara (FB)	18 Structural Team Interview Adam	25
27	28	29 James	30 Envelope Team	31 Envelope Team (FB)		
February 2019						
Sa	Mo	Tu	We	Th	Fr	Sa
					1 Envelope Team Interview Julia K	2
3	4	5 Mike Chen	6 2018 MGP and IGP Progress	7	8 Envelope Interview Angel Can	9
10	11	12	1 Update Blog Post via Envelope Team	14	Envelope Team Interview Alex	16
17	18	19	20 Mechanical Energy	21	22 Mechanical Team Interview	23
24	25	26	27 MGP Update	28		

Figure 1

As depicted by *Figure 1* all the Instagram content will be posted on Tuesday and Thursday. There will be an accompanying Facebook post on Thursday that mirrors the Instagram post with more written content. The blog posts were originally planned to be posted once the content was obtained, but further discussion within the group led us to incorporate the blogs on the posting schedule. It was also agreed upon to post at 12 PM for all content to keep a consistent expectation of when the posts will be uploaded. Additionally due to timing constraints of when to start this schedule serves as a guide rather than a set agenda for our blog posts.

4.2 Blog Post Strategy

We developed a blog posting strategy that reflects an introduction to the broad scope of Solar Decathlon Africa and slowly narrows down to more specific details about the project as time passes by. This creates “engaging” content by creating a dialogue and giving context to the reader (Wright, 2006). Our first post introduces Team Oculus to the audience. This allows the audience to know who they are following and Team Oculus’s specific role in Solar Decathlon Africa. We then move towards the next post which is The History of WPI’s Relationship with Solar Decathlon in China, which provides a quick summary of WPI’s experience in China and introduces Solar Decathlon Africa and WPI’s participation in the event.

After these two initial posts we begin to narrow down the subject of the content to be about the sub-teams working in Team Oculus. This will introduce the general roles of each sub-team and the unique perspectives they each bring to the project. The next post is the MQP Team and it describes WPI’s Major Qualifying Project and the three MQP teams working on the building (Envelope Team, Structural Team, and the Mechanical Team). IQP and HUA Team is

the next blog post and it details WPI's Interactive Qualifying Project and Humanities Teams and the respective roles of each team in communicating the technical and nontechnical aspects of the project to the general public.

The next series of blog posts narrows down the importance of the project and the area it is affecting. Our next post, Moroccan Culture and General African Architecture, gives background to Morocco as a whole. The post also goes in depth about Moroccan culture and how that could be implemented to inspire new architectural designs. The accompanying post is Environmental Degradation, which describes the causes of environmental issues in the world. It also discusses why it is important to stop degradation and includes solutions such as reducing greenhouse gas emissions.

The next posts turn into very specific posts about the given subject and include interviews and technical aspects about the project such as the Geodome. These interviews are both with the teams working on the project as well as the individuals who participate in said teams.

4.3 Blog Posts and Social Media Purpose

The purpose and goals of Team Oculus' social media presence and content are to keep the public informed about the progress regarding the Solar Decathlon Africa 2019 Competition. In addition, the blog posts were created to allow the public to gain a more in-depth understanding regarding topics related to the Solar Decathlon. These topics ranged from general topics such as "Environmental Degradation" or to more niche subjects such as "Structural Tolerances of the Geodome".

The purpose of using this website/social media strategy was to cater to different dynamics of people. Those who are interested in the non-technical aspects of the Solar Decathlon are able to read content on the blog posts regarding general knowledge. However, those who want to know the specific details pertaining to the Geodome and the Solar Decathlon as a whole are able to consume the content available to them on the more technical blog posts that are written.

After the website development was completed in October of 2018, we were able to begin producing content to upload onto the social media platforms. However, the goal for this period of the project was not to upload consistent content, but rather to produce reliable, good-quality content with a backlog to continue posting on the website beginning in 2019. These contents would include a backlog of blogs, images, and videos. In addition, a portion of the already-created blog posts that have not been uploaded have content regarding interviews with Advisor El-Korchi and the MQP Structural Team.

4.4 Social Media Accounts

As stated previously, we decided to use Facebook and Instagram accounts due to their popularity. The Facebook account can be found by searching “Team Oculus” on Facebook. From the research we gathered, we decided to post information close to 12 PM on Thursdays as seen in *Figure 1* (Parker, 2015). This time matches with when people will be taking breaks for lunch, and are most active on social media. With weekdays at noon being a more popular time to view Facebook, putting out information at this time will give the greatest chance to gain interest (Sailer, 2018). We also learned that relevant tags would assist in gaining more views. These tags

would match with other interests of our target audience to direct them to our Facebook page (Parker, 2015). Lastly, our posts would include photos with detailed captions for information on Team Oculus. Using photos would draw the viewer's attention to the post (Parker, 2015).

The Instagram account for Team Oculus is @teamoculus, and photos of the progress of Team Oculus were posted here. With our research gathered on Instagram viewer patterns based on time and day of the week, we determined that the best posting time on Instagram would be close to 12 PM on Tuesdays and Thursdays as seen in *Figure 1* (Union, n.d.). Similar to Facebook, Instagram has the greatest engagement on posts in the early afternoon since most viewers would be taking breaks during this time. As a method of gaining more interest, we decided to sponsor a post on a more well-known page. This may be done in the future with the WPI Instagram page. With over 9,000 followers, having a sponsored post on the WPI Instagram page will allow for more traffic to our social media (DeMers, 2015).

4.5 Interviews

Conducting interviews with students of the MQP team, ENSIAS, and ENSAM will allow audiences to learn about the participants on a personal level. We aimed to create more engagement with audiences of our blog posts by involving them with the individual members of the teams. Interviews allowed students to express their approach to design issues, observations, and challenges faced. Coordinating interviews is integral to our strategy, because it allowed us to achieve a level of diversity within our content. The information would be released on the website in the form of a written blog post. This would engage members of the audience who were interested in students' design processes and methodologies.

We conducted our interviews with all members of the structural team: Kenza El-Korchi from the architectural team, and Professor Tahar El-Korchi. From these meetings, we learned about the roles of each member in the Solar Decathlon competition, challenges they have faced, individuals' strengths, and more. Interview responses were recorded in the form of audio recordings and word documents. Audio recordings allowed us as the writers to accurately and effectively portray the voice and tone of the interviewee.

Future plans include interviewing the remaining students from the MQP team and the Moroccan universities, ENSIAS and ENSM. We hope to create blog posts that inform audiences on students from WPI and Morocco. This will allow us to achieve diversity and impartial content, and to give all students from both communities an equal platform.

4.6 Website

We determined our target audience included people interested in the clean energy aspects of the solar smart house, as well as people interested in the technological aspect of the solar smart house. We came to a unanimous consensus on using a clean, modern, simplistic design for our website as a whole compared to a more complex web layout. The choice of using a minimalistic design was not as effective as we hoped when used on websites that focused on delivering information. Websites of the informational genre usually benefit from using a design with limited distracting features and information that is easy to obtain.

As such we avoided using anything too vibrant to make the page information easier to read and the images more distinguishable. The homepage for the website was used as the main component to draw in a website visitor's attention and interest. The homepage contained the

majority of our information. At first we thought to limit the amount of information on the homepage with hopes to not overload the visitor with unnecessary or confusing information without first properly giving a simple introduction on who Team Oculus is.

However, after trying that approach we decided for ease of navigation it would be simpler to keep a smaller number of tabs available. Similar website layouts were a popular choice amongst our competitors. From there the web page visitors were guided to a link at the top of the homepage which brought them to the blog page, this was our information dump page for Team Oculus's recent events where website visitors could see all of our latest blogs.

Roughly six months after the initial website development was completed using Wix Editor, however, the Team Oculus website had to be recreated using a different website creation platform: Wordpress. While the reconstruction and migration of the Team Oculus website took approximately three weeks, once completed, it was still able to follow the design elements that was researched and created in the initial website.

5. Conclusion

5.1 Website

The initial purpose of the website was to act as a platform for conveying news and updates regarding Team Oculus. This platform also served the purpose of promoting Team Oculus' other social media platforms (e.g. Instagram and Facebook). The initial strategy behind having the main website having links to direct to social media was to promote all aspects of the social media to all audience members. For those viewers who visit the website primarily to see updates regarding both the MQP and IQP teams and blog posts, but are unaware of Team Oculus' Instagram and Facebook pages, would visit other sites for updates and photos.

Development regarding the website during the duration of this project from August 2018 until February 2019 was accompanied with several unforeseen design and technical challenges. First of these difficulties was the website creation platform used to create the Team Oculus Website was completed done using Wix Editor: a drag-and-drop website building platform designed with HTML5 capabilities. However, this specific creation platform went against WPI Marketing and Communications' guidelines for promoting a website under WPI affiliated names. As such, the previously created Wix-made website had to be recreated and uploaded using WPI's authorized web creation tool, Wordpress.

When comparing Wordpress and Wix as website creation tools, Wix Editor allowed for several more features (e.g. animations, templates, themes, apps) that Wordpress did not allow. In addition, it was difficult to properly convert the Wix website using the RSS (RDF Site Summary) feed into Wordpress due to incompatible design elements in Wix. As such, the Wordpress

website, due to both time constraints and technical capabilities, was completed, however, did not have nearly the same level of features and user-interaction with which the original Wix website was created.

5.2 Blog Posts

Throughout this project, our blog posts have had the purpose of educating the public on Team Oculus. This included an introduction to Team Oculus members, the focuses of each group involved in Team Oculus, interviews with team members, and general information regarding the importance of the Solar Decathlon and Team Oculus's design. In total, we wrote 30 blog posts that would be posted on the Team Oculus Website.

While writing these blog posts, our team was challenged with different constraints. Our initial plan was to begin posting blogs to the website in December. However, we wanted to gather more data before posting, and needed a website approved by WPI Marketing. While creating changes to the website and conducting interviews took more time than we had hoped, we still felt confident that our postings would gather interest. Our blog posting strategy gave us the confidence to focus more on gathering more information while still having sufficient time in providing information to the public. Our current backlog of posts for the website will allow future team members to have a solid starting point, and can provide weeks of content.

Blog posts have begun being posted on the website as of February 20th, 2019 and will follow the original blog post strategy in terms which days of the week it will be posted. With revised content, personal writings, and engaging content, we expect to receive positive feedback from audiences.

5.3 Social Media Posts

In the last term of this project it was decided to merge our Instagram account with the account of the on-site IQP group in Morocco. Although there have been some posts on the page, we have a large backlog of Instagram and Facebook posts prepared for the account. The backlog of posts consists of profiles about the members of the team, the partner universities of Team Oculus, WPI's past Solar Decathlon involvement, and updates of team progress. We will add content onto the page collaboratively with the other IQP group. We have also been working with the humanities team to create member profiles for these social media outlets. We plan to also use these membership profiles that the humanities team has dubbed "team cards" on the Team Oculus website.

Additionally, the accounts have been used to highlight the work done by those on site in Morocco. This provides varied and interesting content to the audience. Therefore, the merge is a strong and effective decision. Audiences will be able to see the roles of members of Team Oculus in the United States at WPI as well as the roles of students abroad in Morocco. Though content is varied, every post still relates to the topic of Solar Decathlon, Morocco, or the Geodome, giving audiences a complete view of who and what Team Oculus is.

6. Appendix

6.1 Blog Posts

Team Oculus Intro:

Welcome to Team Oculus's blog! We are one of the teams competing in Solar Decathlon Africa 2019, taking place this year in September in Morocco. Our team is comprised of three universities with one common vision: to promote a sustainable future. Students from Worcester Polytechnic Institute (WPI) in Massachusetts, the National School of Arts and Crafts (ENSAM) in Meknès, and the National School of Computer Science and Systems Analysis (ENSIAS) in Rabat are collaborating to create a house named the Geodome to showcase in September. Throughout this massive project, our teams in Morocco and Massachusetts are constantly communicating with each other even when we're on the opposite sides of the globe!

Our main goal is to demonstrate an affordable and attractive house tailored to the needs of a rural African community, hoping to inspire communities locally and across the globe to take a step towards a sustainable lifestyle. This is a great mission and as the saying goes: nothing worth having comes easy! Our team is hard at work designing the home, obtaining materials and funding, and communicating with local artisans in Morocco all in preparation for competition day.

Some of the Geodome's features include:

- Lightweight and natural materials such as wood and wicker to provide a home with sufficient thermal insulation and structural resiliency
- A solar chimney for evaporative cooling and humidity control. We will maximize use of natural ventilation to decrease dependency on heating and cooling technologies
- Specially tailored kitchen and bathroom components and other furniture. With a round shaped home, we've got engineers working on designing some round-shaped furniture!

We've got more in store to show, but we can't spoil everything yet! Please stay updated with our blog and see the progress of the Geodome!

WPI Involvement:



As the year comes to a close, Worcester Polytechnic Institute (WPI) is busy preparing for the Solar Decathlon competition that is being held in Morocco next year in September of 2019. All members of WPI's Team OCULUS are occupied with drafting, scheduling, or finalizing the structural designs plans, attending meetings, and conducting interviews to ensure that their project for this year, the Geodome, will be ready for

the upcoming competition. As the event draws closer with every passing day, the energy, dedication, and passion of the team has been exuding is reminiscent of WPI's previous Solar Decathlon project.

The year 2012 marked the start of WPI's participation in the Solar Decathlon competitions. At the time, WPI had been partnered with the Ghent University of Belgium and the Polytechnic Institute of New York to form Team BEMANY. The students at the time finalized the building designs for what they called the Solatrium.

Modern in both architecture and technology, the Solatrium was designed with a large beveled skylight in the center of the roof, giving residents a feeling of spaciousness and providing ventilation to the structure. Lightweight wall panels with an insulated core provided the structure resiliency and a thermal barrier while specially coated glass windows moderated light and radiation levels. However, one of the coolest features of the house were the tiles, utilizing phase-changing materials which absorbed and released heat as needed. Aiming for victory in the Solar Decathlon, Team BEMANY fought hard to create an innovative and comfortable space.

During this competition, the team was awarded first in the Hot Water and Energy Balance contests while placing fourth in the communications criteria. The New York team had

designed and constructed a new set of floor tiles to keep interior temperatures stable, an innovative decision resulting in placing first in the Energy Balance and Hot Water criteria..

The achievements of WPI's past Solar Decathlon competition sets a high precedent for the current Team OCULUS to achieve, or even surpass. While the competition is still not for another year, one thing remains constant between the current team and team BEMANY: the palpable drive and enthusiasm of the teams. With Team Oculus having the same drive and dedication as past teams, it is undoubtable that the new Geodome will be a hot contender with other houses in this year's competition and the previous Solatrium.

Team Oculus has high hopes for what we can achieve in Solar Decathlon Africa and we can't wait to keep you updated!

MQP Team:

Welcome to Team Oculus's blog! Participating in the Solar Decathlon requires students to conduct extensive research into what designs are the most sustainable, innovative, comfortable, and cost-effective. Our Major Qualifying Project (MQP) team is currently responsible for designing the structural, architectural, and mechanical aspects of the house.

The MQP is required for every student seeking a degree from WPI. It is the final capstone project which allows a student to utilize all their technical skills to develop or design a project similar to what they will encounter in industry. Our MQP team is working hard to make sure their designs are ready when competition day comes, and they must be confident that their structure can be built given only a week.

Though the competition is set to take place in September 2019, that doesn't mean Team Oculus can rest until then. Our MQP team is conducting research and improving the Geodome's designs every day! They are creating a house influenced by the Moroccan culture per the requirements. As the Solar Decathlon Website says, *"It is important to remember the heritage of Africa and incorporate some of these traditional styles, arts and materials while building for the future."* Although we're all about innovation and using technology to create a sustainable future, we can't forget the past and the culture which influences African architecture.

To achieve this, our design teams had to extensively research traditional Morocco's structures and architectural influences. They learned about how prominent courtyards were in society, and how people utilized them for large gatherings. They learned about how some homes utilized low-cost bricks, but others have started to implement stucco so that designers can carve ornamentation into the structures. After hours and hours of learning about the architecture, our team proposed a floor plan for the house: a Geodome! Keeping the prominence of courtyards in mind, the team wanted to create a structure where residents can socialize in the open while also being exposed to breezy ventilation.

Our team is also faced with the challenge of creating a resilient structural design that is "constructible," and developing a mechanical design that is effective in a Moroccan environment. Structurally, the home must not only be resilient, but must also be built quickly and cost-effectively. The team is analyzing and testing multiple materials and structural compositions to observe which will have the most durability while being time-effective. However, the building is based on the hot and dry climate of Morocco. It is necessary for the team to design a ventilation and cooling system efficient enough to combat the intense heat, and comfortable enough for residents.

This all seems like a lot of work, and it is! However, the MQP team consists of sub teams including the Foundation Team, Structural Analysis Team, Mechanical and Energy Team, Architecture Team, and Water Supply Team. We have many people working together to learn from each other and do what we do best: put theory to practice. Stick with us throughout the next few weeks as we learn about who are on these teams and what they do!

IQP and HUA:

Welcome back to the Team Oculus blog. We have already talked about WPI's Major Qualifying Project (MQP) teams and all of the work they are doing. However, they are not the only members of Team Oculus from WPI. There is also us, the Interactive Qualifying Project (IQP) group, and the Humanities & Arts (HUA) group working hard on the project. Together, we are responsible for telling the story of Team Oculus and the Solar Decathlon Africa competition to the public.

Similar to the MQP, the IQP is a requirement for each student at WPI. The IQP is a project that is meant to act as a bridge between science and society, with common themes in energy and environmental problems. This project allows students from different majors to use the skills from the classroom in a beneficial way to society and provide a service to the world outside of WPI. We are making sure information about environmental safety and the progress of our entire team is being publicized and readily available for others to see.

Since the Solar Decathlon Africa competition taking place in September, there is a lot of time before the public can visually see the all the results of our hard work. This is where we come to help. While the MQP teams are designing and constructing the Geodome, we are publicizing progress to anyone interested. This consists of creating a website to give the public a direct line to us, blog posts to provide information on our team as a whole and energy problems in general, and social media posts to gather more of a following and interest in our work. With all of these different marketing strategies, we can gather a large following and help inform the public about the importance our team and the Solar Decathlon.

Lastly, there is one other type of project group from WPI working with us: the HUA group. Not only does WPI use project-based learning for large requirements like the IQP or MQP, but the school also uses this learning style while teaching courses in the humanities. Instead of learning topics of the humanities in classrooms, they are able to actively work on projects that will benefit their learning. Students are able to study topics in architecture, history, and art through large-scale project, providing a more interactive learning experience. The HUA group is hard at work studying the relations between team members and analyzing the stresses of a large-scale global project.

With our team members in Morocco, Nigeria, and in the United States, we can be put under a lot of stress. This struggle provides the HUA group with plenty of data to analyze. From this data, they can come to a conclusion of the source of stress and struggle in this project. While this data is gathered from our observations, the HUA group's findings do not need to stay with

us. The conclusions from the HUA group can be used to assist other global projects and provide a smoother working experience for all team members.

While we and the HUA group function more differently than MQP team, the information we are gathering and providing are essential to the success of our project. With the HUA group providing assistance with this major global project and the publication of information we provide, Team Oculus can make an impact not only in the Solar Decathlon Africa, but in the education of the energy problem. Stay tuned to hear more updates from both us and HUA groups in the coming weeks!

ENSIAS:

Welcome to Team Oculus's blog! As you may know, our team is comprised of three different schools. Our team has members from Worcester Polytechnic Institute (WPI) in Massachusetts, the National School of Arts and Crafts (ENSAM) in Meknès, and the National School of Computer Science and Systems Analysis (ENSIAS) in Rabat. Meknès and Rabat are in Morocco, where the Solar Decathlon competition will take place. Our team would not be performing as well without them! Today, we'll look at ENSIAS's role on Team Oculus and how they're helping make the team a stronger competitor. Their goal is to build a system that integrates smart house technologies to collect data and control subsystems to achieve a level of comfort for residents and control energy consumption.

One of the Geodome's key features is its oculus in the ceiling. This will provide the home with natural ventilation without heavily depending on technology. However, residents aren't going to be able to depend solely on the structure for their comfort! Also, ENSIAS is working to place advanced technologies into the home to maximize user comfort while keeping in mind that the Geodome is designed as a sustainable and green home.

Here are some features they are working on:

- Monitoring and visualizing the comfort and energy consumption of each appliance in the home by using artificial intelligence (AI)
- Provide a platform for residents to control their home's temperature and luminosity on a mobile app

ENSIAS has broken down into three subteams to each specialize in tasks to make these features effective. The first group is focusing on an Augmented Reality (AR) platform using a program called Unity3D to simulate the house's shape. The group hopes to develop a system where a camera helps collect data, and it will allow the team to plot the data into software for analysis.

A second group is working on developing a system to monitor carbon dioxide content in the home so they can store the home's air quality as data. The last group is creating a Wireless Sensor Network (WSN) that can record the temperature, humidity, and luminosity of the home as data. They are developing a server that will not only collect data, but also control the air conditioner, humidifier, and windows to adjust to the data.

ENSIAS is working hard to take advantage of today's technology to create a sustainable, comfortable, and clean home. They are utilizing technology to monitor the data and condition of the home, and working to create a system which will adjust the house's atmosphere accordingly. The result will surely be an amazing, sustainable and technologically advanced home! Keep up with us and follow our progress as the Geodome progresses more and more!

Morocco:

Morocco is beautiful and has been gaining popularity over the past few years. By the end of 2017, the North African nation saw a whopping 10% increase over 2016 with visitors from across the globe from China to Germany. With the Solar Decathlon Africa taking place in Morocco, many members of our team will get to experience the local culture!



Over the past few years, one of Morocco's sites has been popping up all over social media, catching the awes and gasps of audiences across the globe. This site is unlike any other place in the world. It's made up of winding alleys like a maze, homes perched tightly next to each other on high hills spread across miles. It's known as the "Blue City," because it is a blue city! Known as Chefchaouen, the towns' alleys, sidewalks, and buildings are all painted a vibrant blue with complementary white along the walls. Many other towns across Morocco also look like this, allowing for close-knit communities.

Many homes were often connected to roads that led to a marketplace for residents to enjoy music, street performances from acrobats, shop for food, and socialize. Marketplaces are always bustling with tourists and local visitors. Many describe the plazas as mazes of stalls and shops, full of vendors hustling from tiny kiosks to make successful sales. If you need groceries, the marketplaces got it. If you need clothes, the marketplaces got that too!

Another grand highlight of Morocco is the food. Its cuisine is influenced by many different cultures including Arabic, Mediterranean, and Berber cuisine. Arguably the most notable dish is Tagine, a pot with a conical lid with multiple ingredients such as beef, lamb, chicken, and veggies are slowly cooked inside. Other popular dishes include couscous and harira.

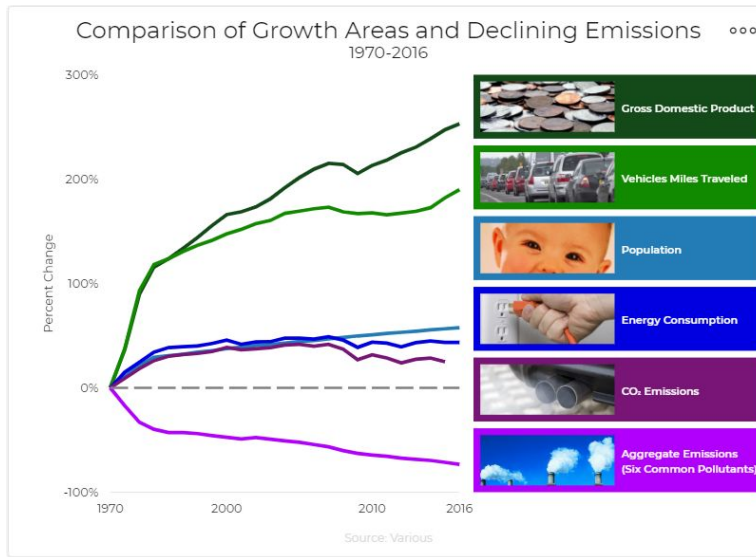
Our team will be experiencing many different aspects of Moroccan culture. They have visited much of Morocco's beautiful cities: ornate arches, close-knit communities, and bustling markets. They have also been communicating with local artisans to understand their work, and to collaborate with them on the Geodome. They are enjoying the food as they immerse themselves into the culture all while working hard to further the progress of the Geodome, and you can enjoy the culture too if you decide to come visit our house on competition day! We will have Moroccan-influenced furniture in our home, constructed by the local artisans themselves. Visitors will be able to see the local culture combine with sustainability and green technology!



Morocco is a vibrant nation. It consists of a blend of different influences, and this is reflected among the nation's people, architecture, and food. From bustling marketplaces, to serene mosques, there is beauty for everyone to enjoy. If you ever get the chance to come to Morocco, this amazing country is worth the visit!

Environmental Degradation:

Since the 20th century, the world's environmental ecosystem has changed dramatically, and not for the better. Global climate averages have risen by 0.8° since the 1900's and air pollution has increased by 40% in the past 20 years. In addition, the United Nations has concluded that humans are damaging and destroying the native wilderness & wildlife faster than the endemic life can adapt. While in first-world nations, the introduction of nature reserves and



protection has assisted in preserving the remaining ecosystem, in developing nations, there has been a 60% drop in the biodiversity index because the native people rely more on the land.

However, despite these conservation efforts, in both developed and developing nations, the key problem for the degradation of the environment is due to overloading the natural capacities of the land and

ecosystem. Traditional methods of generating energy, whether it be through coal or gasoline, all cause tremendous damage to both the continental landscape, as well as the atmosphere. The primary solution to combat this degradation of the environment is to use renewable and eco-friendly energy sources. These include solar, air, and geothermal energies. It is imperative for nations to research and implement 'greener' methods of energy generation to secure a healthier, sustainable ecosystem for the future. However, within the last 20 years, from 1990s to 2017, the adoption of solar/renewable energy technologies has only risen by 3.6%

In addition, it is also important to realize the distinction between clean and 'false' energy efficient technologies. These 'false' technologies include dams to generate electricity and power. While in theory, dams appear viable and conservative in nature due to utilizing the natural water resources of the land, in practicality, dams are incredibly dangerous and damaging to an ecosystem. Hydropower has changed river ecology and contributed to climate change by releasing greenhouse gases through the decomposition of flooded lands and forests.

Scientists and researchers around the globe have concluded that if the governments around the world do not decisively act to fight climate change, humanity is likely to cross a point of no return by the next 20 years.

It is due this that the US Department of Energy's Solar Decathlon carries an important role for the plant's future. By advertising and innovating existing energy-efficient technologies to the general public, the goal is to integrate green homes into every facet of a person's life. Currently, WPI's MQP team is attempting to create a cost-efficient, sustainable smart-house for Moroccan communities while introducing new architectural designs.

With the world's ecosystem changing so rapidly every year, and the lack of energy-efficient technologies being implemented, we eagerly wait WPI's Team OCULUS innovative solution to tackling this problem!

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Geodome:

What is a Geodesic Dome?

A Geodesic dome is a structure that makes use of a interconnected triangle mesh to resist loads in all directions and is the essence of Team Oculus's structural design. Domes have been used as far back as during the ancient Roman times, but it wasn't until 1919 that German engineer Dr. Walther Bauersfeld, came up with the idea of using triangles to hold the dome structure together. Geodesic domes are often accompanied with an oculus, hence were our team name comes from. The Geodesic dome is just as important in our teams design as the oculus is. As we plan to use the domes behavior and shape to create a solar chimney effect. An example of a well-known geodesic dome is the spaceship earth ride at Disney's Epcot, as pictured above.

Advantages:

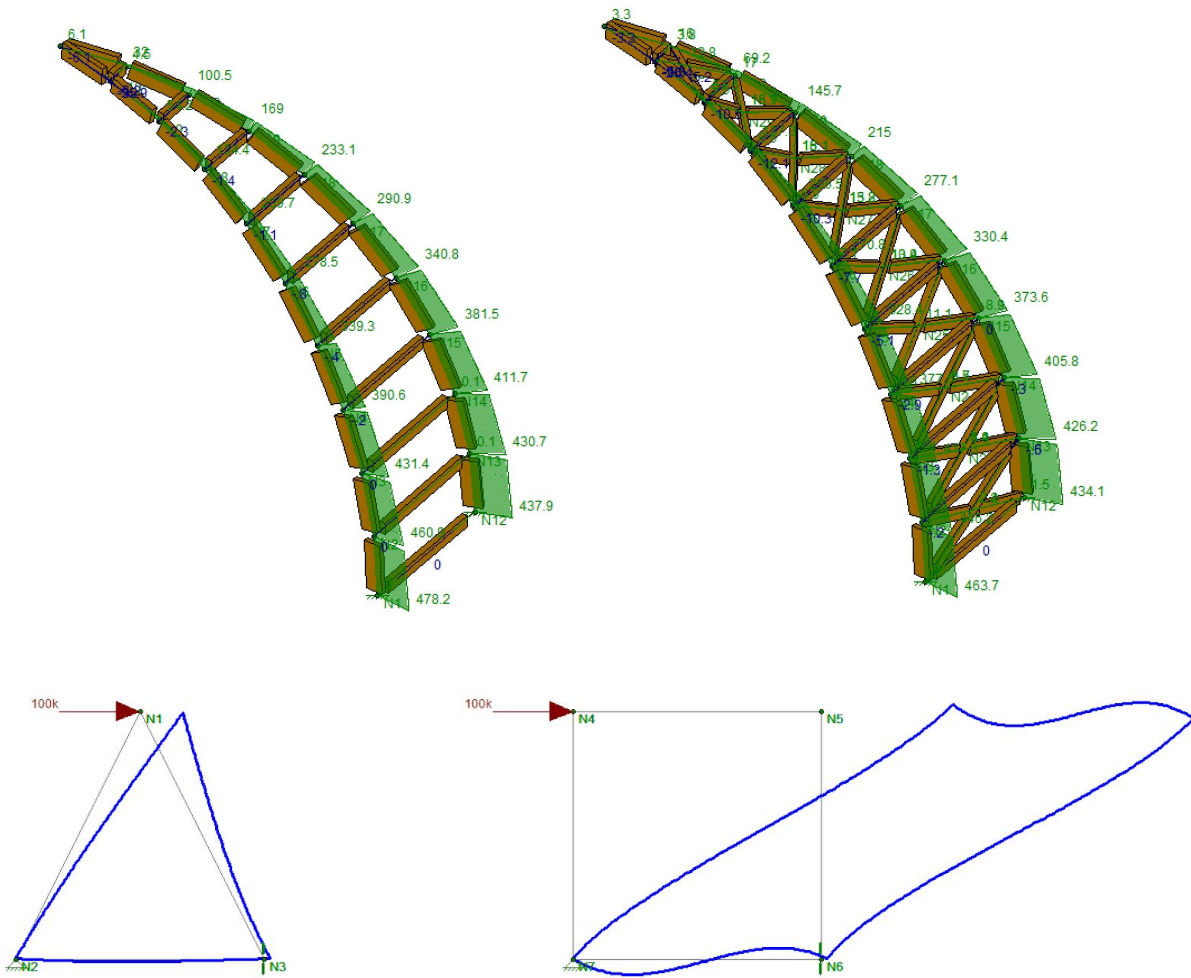
Disadvantages associated with the geodesic domes are that most building materials come manufactured as rectangles and must there before be cut into a triangle; thus causing a waste of materials, fire escapes can be problematic to design, windows for geodesic domes can cost between 5 to 15 times greater than a standard window due to curvature, the curved walls often cause wasted space as most furniture is linear and not curved, and moisture distribution in a dome is unusual. Despite these difficulties Team Oculus is prepared and equipped to take on these challenges, to produce a net zero energy geodesic dome.

Current Applications of Geodomes

The Structural Advantage of Triangles Over Rectangles

The use of a triangle mesh has significant advantage over other Euclidean geometries. The structural advantage of a triangle over the other shapes is that triangles are inherently stiffer. As demonstrated below using RISA a structural analysis finite software, it can be concluded by comparing the results of the bending stress in the frame with the square mesh (left) to the one with the triangle mesh (right), that the triangle mesh is reducing the amount of bending stress occurring. This is not because more material was added, but rather occurred due to a square being able to simply keep rotating until it is a flat one-dimensional line, in which it would be fully collapsed at that point. A triangle however, will not structurally collapse so easily under loading conditions because the two diagonal members will resist this collapse through distributing the load by both tension and compression. Which in turn will generally allow the triangle to maintain its angles. Therefore, triangle meshes are becoming more common in construction practices, such as the recently completed One World Trade Center. This is also why

cross bracings are used in frames normally. Team Oculus armed with this knowledge plans on taking advantage of this information and implementing it into its design plan.



The Future of Geodesic Domes

The use of geodesic domes have been proposed for several applications. Idea’s ranging from building a geodesic dome over New York City to control the cities climate and weather, to ideas from NASA and Elon Musk whom similar to us, Team Oculus, dream to implement a net zero energy geodesic dome structures on Mars. Different from us however we will not be designing for the ultra thin atmosphere and dramatic weather of Mars, Team Oculus instead aims to appeal more to commercial and tourist activities in the Moroccan region of Africa.



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El Korchi Interview:

Every team needs a leader, especially one that is run by students. While each and every one of us are working as hard as we can to make the Geodome as impressive as possible, we just don't have the experience. That is where our leader, or advisor, comes into play. Since we are working on the Geodome as a project, having an advisor can help keep us on course and ensure that we are meeting and exceeding the requirements expected of us.

Our advisor, Dr. Tahar El-Korchi, is a WPI professor in Civil and Environmental Engineering, and has worked as an advisor in the past for WPI's Team BEMANY in the 2013 Solar Decathlon China. We interviewed with Dr. El-Korchi to learn about his interests in our team and in the Solar Decathlon Africa.

With the Solar Decathlon being a competition to promote sustainability, what are some of the issues that you personally see in sustainability and green energy?

El-Korchi: Personally, I see the more common issues in sustainability. I believe we need to improve in our methods to combat climate change. This includes combatting the Greenhouse Effect, our use of nonrenewable energy, and Carbon Dioxide emissions. While all of these are major problems, there really isn't one solution, but the combination of ideas can play a big role in climate change. Personally, I believe we should promote the economy on sustainability.

With sustainability being a major issue, what is the Solar Decathlon's role in achieving national sustainability?

El-Korchi: The Solar Decathlon is a catalyst, both to drive people to action and in the creation of new technology. It acts as a role model for people to follow and get involved in sustainability. With the competition impacting universities, students, professors, and locals, the experience of the Solar Decathlon can multiply and lead to further change in the world. With teams also working on designing an energy efficient building, they may come across new technology that can be used to improve sustainability. Through these new ideas, the creations of the Solar Decathlon can improve and influence the designs for the following year.

What was your experience with the Solar Decathlon China?

El-Korchi: I loved it from the start. The competition made our team members feel like an olympians. I acted as the faculty lead for WPI's Team BEMANY, working with students in the design aspects, with administration and staff to raise funds, with alumni to gather funds and support, and with volunteers to help with construction. I mostly focused on the financial aspect of the team, gathering the appropriate funds for the competition. Since only \$100,000 was provided, we needed to create a strategy to gather funds to build are house. we were able to gather enough funds with the buzz we created from our vision of a net-zero house.

It seems like you really love the work you did with Team BEMANY. What would you say was the hardest part of the competition?

El-Korchi: Well every day was a challenge for us. Thinking about the tasks we needed to complete within the time constraints was very stressful. Once we started building though, it was all about focus and problem solving. If something happened, we would need to work around it. It was exhausting and very tedious but moving forward is the only way to go. Failure is not an option.

With everything you learned from the Solar Decathlon China, what are your expectations this year with the Solar Decathlon Africa?

El-Korchi: I'm expecting a successful outcome of the project. This includes not only designing the house, but also having a unified team. Even though there is experience behind this project, we cannot guaranty a positive outcome. I do hope the outcome will be positive though. Morocco is my home country, and I have friends and family all over the country. This adds a little bit more pressure and motivates me to continue to perform at the highest level.

What is your favorite aspect of this year's design?

El-Korchi: I love how the design started as so simplistic and has evolved into a more complex model compared to a traditional house. The fact that our design is a Geodome will help us stand out and show our out-of-the-box thinking.

What does WPI's involvement in the Solar Decathlon Africa mean for the school and future projects?

El-Korchi: Basically, WPI's involvement in this competition means that the school will become more of a global university and can perform at a higher level. Given WPI's curriculum of project-based learning, we are well positioned to thrive, in the global context.

Thank you for all of your assistance in making this project a learning experience for all of us involved. We hope to exceed the expectations of the competition and appreciate all of your help in achieving our goal.

Make sure to keep updated with our blog and follow the progress of our Geodome! You can follow us on Instagram, Facebook.

Current Consequences of Solar Power:

Solar power is highly regarded for its sustainability and is often lauded for its cleanliness but like all other sources of energy, it has its drawbacks. There are currently two means of collecting solar power, both with different upsides and downsides. As such, they are both useful in different situations.

The first form of collecting solar power does so by harnessing the sun's light. Solar panels use what are called photovoltaic cells, which generate a flow of electrons when exposed to light. Solar panels are very modular in size and shape, which is one reason we use this method of collecting solar power on our Geodome. Another reason is because solar panels only make use of the sun as the input to fuel their power generation process and don't incorporate any moving parts, which means they can be used indefinitely assuming they aren't taking damage from weather and atmosphere. Their drawbacks include the limits to where they can be placed and utilized and the fact that the manufacturing of rare earth metals, of which solar panels are composed, results in a considerable amount of pollution.

The second form of collecting solar power does so by using the sun's heat. Mirrors are set up in a dish to focus the light from the sun onto a single spot. A reservoir of water with a steam generator attached to it can be placed at this spot and as the water evaporates, the steam generator generates power. While this design is cleaner, (the only byproduct is steam), it also tends to take up much more space while also being susceptible to internal wear and tear due to the moving parts in the steam generator. When these parts are damaged, they have to be replaced, and though water and sunlight are sustainable, steel is not. As a result, this method is cleaner than the first but less sustainable and requires more space.

Structural Team Interview:

The teams that make up Team Oculus each have their own strength and skills to help achieve the single goal of competing in Solar Decathlon Africa.

We interviewed the Structural Team and got their own takes of what it means to be in Team Oculus and SDA. The interview was conducted with three members of the Structural Team; Mary, Sara, and Alana.

What is your major?

Mary: *Civil Engineering*

Alana: *Civil Engineering*

Sara: *Civil Engineering*

Why did you pick your major?

Mary: *I chose my major because I like the hands-on aspect of civil engineering and being able to work outside.*

Alana: *I'm interested in structural development as a whole and Civil Engineering is a great opportunity to improve the quality of people's lives.*

Sara: *I'm very interested in the visual aspect of building a community as well as be more involved in humanitarian work around the world.*

What made you choose to work on the Solar Decathlon Project?

Mary: *I thought it was a good opportunity to gain more hands-on-skills on actually learning how to build a structure and all the work that goes into it.*

Alana: *I'm very into the idea of being part of cross-cultural projects and [...] the opportunity to travel to different parts of the world and work with other students and teams to see the different aspects of design and construction [...]*

Sara: *It's very appealing to work on because I'm able to see the end result and that there is a purpose to it as well as learn about other communities' cultures.*

What is your role in the design process?

Mary: *I was primarily researching and brainstorming the actual impacts that the building would have on the communities.*

Alana: *I'm very skilled at using Excel as well as Autocad, so I was able to design the structure in CAD before importing it RISA*

Sara: *I was assisting in the analysis and verification of the models developed in Excel and AutoCad.*

How do you plan to adapt to the unforeseen challenges during the design and build process?

Mary: *One of my professors advised me to create models to represent the actual house and I realized the difficulty in having many connecting members onto a singular joint in the design making me realize the importance of materials and construction used in real-life as opposed to a model or render.*

Alana: *In terms of structural stability, many of the members are over-designed so that they will be able to take more loading capacity than is expected.*

Can you pinpoint or define the hardest design challenge that you have experienced in your team?

Team: *The biggest difficulty was finding a design that every team agreed upon. Structurally, we are able to make anything work, but also have to account for the architectural team and other teams. Due to the architectural aspect of the project, making new revisions of each design was very tedious and taxing.*

How are you tailoring the design to meet the needs of the local community?

Team: *The Moroccan students came up with the inspiration of the structure, which is to address the needs for eco-tourism in Morocco. The vision for the house is a modular dome that can be easily constructed and complemented with local material depending on the region in Morocco to make it appealing and representative of the region for the locals.*

How is the design unique compared to the other teams/ how are you differentiating the design?

Team: *The design of the structure itself is unique, it's in the shape of a modular dome which hasn't ever been used in the Solar Decathlon before. In addition, you're able to add a facade or a building envelope to the structure to make it unique to any specific region in Morocco or Africa.*

It sounds like the Structural Team has been hard at work preparing for the competition in Morocco! We eagerly wait for WPI's Team Oculus to showcase their Geodome structure to see the unique ability to complement the design with resources local to the region!

Architectural Team:

If you wanted a new house, would you buy one solely on its outside appearance? Surely, the inside of the home is just as important as the outside? If you have ever attended an open house, you may have seen many potential buyers observing every corner of the home. Many love marble countertops with stainless steel appliances while others prefer rustic wooden walls with large glass windows. There are many houses to appeal to the many preferences. From the kitchen to the bathrooms, buyers want to make sure a home is perfect in every way before they spend hundreds of thousands of dollars or more.

Well, who is tasked with designing an aesthetically pleasing home in the first place?

Architectural engineers! They are the designers who are tasked with creating a comfortable and appealing space for prospective inhabitants. However, their profession is deeper than choosing what kind of floors should be used or the color of the walls.

Architecture is an intimate and integral component of the design of any structure. It is more than glass walls, beautiful countertops, or ornate courtyards. The profession is an art focused on being mindful of how space is occupied and manipulating that space into a place that harbors comfort. Architects focus is not only the house, but the potential residents as well. They focus not only on the inanimate objects occupying the house, but also on social and psychological implications their designs will have on the people. Their goal is to create a space that is comfortable, tranquil, inviting, and open.

Team Oculus's MQP team consists of an Architectural Team, engineers responsible for brainstorming the best ways to utilize the space of a curved home. Other sub-teams on the MQP team are spending a lot of time designing the geodome to be structurally resilient, choosing the proper building materials, and making sure the house will be able to receive adequate water supply. However, the Architectural Team is focusing on designing a home which unifies multiple principals. They are manipulating the space of the Geodome to be aesthetically pleasing, sustainable, and comfortable for the resident. Their role requires increased focus on the actual people who will live in the home.

The participants of SDA, including Team Oculus, will be judged based on 10 criteria including innovation, sustainability, engineering and construction, social awareness, market appeal, comfort, electrical energy balance, entertainment, appliances, and, you guessed it, architecture.

Team Oculus's home will stand strong as a worthy competitor in the architecture criteria. The structure of the house is curved, following the shape of a dome. Because many appliances and furniture are tailored towards houses with a cubic and linear structure, the Architectural

Team designed their own. They designed a kitchen with a specially tailored countertop height and shape following the curvature of the geodome. They are even working on a design for a bed that folds into the home's curvature! This allows the space to be well utilized, but also have enough room for a comfortable good night's rest.

The architects will have local artisans craft the furniture, allowing authentic culture to influence the home and ensure that Team Oculus's home incorporates the local Moroccan culture. This will allow residents of the geodome to feel immersed into the community and have an intimate experience with what Moroccan craftsmanship is like. The local artistry will create a beautiful home, unifying both the cultural lifestyles of many generations and the hopes of many for sustainability in the future. Our architects will design and work with the artisans to create something pleasing and great for our visitors when the competition arrives in September!

Architectural Team Interview:

A few days ago, we talked about how architecture is an artistic, aesthetic, and social approach to designing a home. It focuses on creating a pleasurable design that also affects the well-being of residents and giving them comfort. This is no easy task, and Team Oculus has a passionate architect willing to take on the task for SDA 2019.

Meet Kenza El-Korchi, a senior in Architecture from the National School of Architecture in Rabat, Morocco.

What made you pick architecture?

Kenza: *I love how architecture can help enhance someone's quality of life. It's not only about the building and structure. It's about how you can shape people's space. For example, you can design a home to have equal space for men and women, allowing for maintenance and encouragement of equality.*

To me it's not only about creating a nice design. There is a social aspect.

I love architecture because I want to design things on paper and then have it come to life. I get to design the house and participate in the construction process; from "a" to "z" you get to do everything as an architect.

Any special reasons for picking the University you did?

Kenza: *It [National School of Architecture] was the first and only architectural school in Morocco for many years.*

We have professors of all ages from many countries around the world including Belgium, the United States, France, and other international firms. These professors bring international architecture to Morocco for us to see. My school even offers students a whole year to go abroad to another university and study architecture there.

I love that I get to apply theoretical knowledge to practical scenarios. We have workshops where we work with the local government, communities, and many cities to work and improve quality of life for residents. We get to use knowledge to solve real issues during school.

How have you worked as an architect in Morocco?

Kenza: *My school offers many projects in Morocco. We go to small cities, rural areas, and help those residents. We reshape their buildings and space to give them a comfortable workspace and shelter.*

Wow, that sounds awesome! What was your favorite part about these trips?

Kenza: *Meeting the children. I got to work with them, talk to them, and know that I was helping the youth of Morocco.*

What made you want to join WPI for the Solar Decathlon competition?

Kenza: *My school posted about the Solar Decathlon and I was very interested in working with a group on another project. I learned about WPI and liked their vision and saw that some of WPI's advisors have already participated in prior Solar Decathlons.*

What is your role on the team?

Kenza: *I am an architect on the team so I am working to create a beautiful space for the home. I work with the engineering teams to make the architectural ideas physically work. I am also a team manager and coordinate between teams here at WPI and in the Universities in Morocco.*

What are some difficulties you've faced in your roles?

Kenza: *A challenge is making everything fit perfectly into the house. We can't just use a normal bed, so we had to design a different one that folds into the curvature. Even our kitchen is tailored to have a specific shape that also follows the curve of the geodome. [With being a team manager], it is difficult to have the teams at WPI and Morocco communicate because of the 6-hour time difference. We have to plan things very early, be considerate of time, and make sure everything is perfectly organized.*

That sounds like hard work! But what are some things you're most excited about working on?

Kenza: *Building with my own hands. I want to see our designs and hard work come to life, and be a part of the construction process.*

As a student from Morocco, how do you feel about the Solar Decathlon taking place in Morocco?

Kenza: *Proud. I am happy that it's taking place in my country. It's more spotlight for us. Intelligent students and professors are coming from all across the globe. I am also hopeful that Morocco will implement sustainable solutions. I hope that the community will learn more about sustainable solar energy and see its benefit. I'm also excited and intrigued to see how other competing teams will design their homes.*

Thank you so much for giving us insight into the mind of an architect on Team Oculus, Kenza! We look forward to seeing your work come to fruition!

Make sure to keep updated with our blog and follow the progress of our Geodome! You can follow us on Instagram, Facebook

Envelope Team:

Our team is comprised of several different groups, with each group and members having their own unique set of skills and talents that allow them to effectively contribute to the construction of the Geodome.

Today, we're taking a look at an interview with one of these groups: The Envelope Team. This team is responsible for the creation of the outer covering that will protect the geodome from the outside. This interview was conducted with two members of the Envelope Team; Julia and Alyssa.

Hi Julia and Alyssa. What are your majors?

Julia: *We are both majoring in Architectural Engineering.*

Why did you pick your major?

Julia: *I am most interested in the creation of buildings, and Architectural engineering is able to focus more specifically on building design and construction.*

Alyssa: *Similar to Julia, I'm also interested in architecture, but I don't want to work on the other kinds of projects one would see as a civil engineer. I am more fascinated by buildings than bridges.*

It seems like you picked a great project, since you're both interested in building design.**What made you choose to work on the Solar Decathlon Project?**

Julia: *I loved that this project gave me the ability to go off campus and continue to see the world.*

Alyssa: *I chose this project because it gave me the opportunity to see the fruits of our labor [...] What makes this project unique is that we are able to see the results of our work as we construct the final building.*

What are your roles in the design process?

Alyssa: *Both of us are designing the enclosure for the building. Because the HVAC unit uses so much power, the thermal envelope needs to be fully efficient to keep the house at a stable temperature. Besides this, I am also heading the fire protection aspect of the project. This will help keep the house safe and hospitable.*

Julia: *Like Alyssa said, we both are helping design the enclosure, or envelope, for the Geodome. But I am also heading construction health and safety. This includes making sure that all of the proper building codes are in place, and the building won't break apart.*

As such a large project, there are bound to be problems you might not be prepared for. How do you plan to adapt to these unforeseen challenges during the design and build process?

Julia: *For when we physically build the geodome in Morocco, we are planning to hire skilled on-site contractors who can help us with more difficult unforeseen problems. We're only college students in a new place that we aren't accustomed to. We're hoping that, with the help of local contractors, we'll be able to work through any unexpected problems.*

Alyssa: *We have to consider that the Geodome will be a public building. For that, we're considering more health and safety aspects to protect the people who would be going inside. We've studied different safety codes, and will be implementing those into the envelope and house.*

How are you working through the different design standards for the envelope between America and Morocco, such as the different safety codes?

Alyssa: *So WPI has taken the lead with designing the envelope, but, as we said earlier, Morocco and the US do have different building and safety codes. We are using building codes from the US because US building codes are a little broader with different OSHA codes. We feel that the OSHA codes in the US will give us the ability to create our structure as we see fit. Also, since the competition was created by the US Department of Energy, we feel that it is expected to use US building code.*

How are you tailoring the design to meet the needs of the local community?

Julia: *We are going to be incorporating Moroccan design aspects into the decoration of the Geodome. Members of our team have gone to Morocco and showed us their tiling and woodworking designs. While they are a little different than what we are used to, we would still like to implement the Moroccan designed into the façade so it will be a good fit in the community. Making the project blend with the local community's design will also mean using the local workers who are more accustomed to the designs, and they will be assisting us in the construction on site.*

With so many different teams participating in the Solar Decathlon, how is the design unique compared to the other teams. Basically, what do you think is going to make the Geodome stand out?

Julia: *Because the project is a dome, the insulation and walls aren't going to follow typical construction methods. Our building also is not a perfect dome which complicates the design. A normal dome would have a standard force applied to it, which would help each part support each other. Since our building is not a perfect dome, the forces are not standard and will need to be carefully calculated by the structural team. We'll be using those calculations to create the best form of envelope that we can.*

Alyssa: We should also consider that the Geodome is more tailored to ecotourism, not strictly residential like other teams. Like we talked about before, we are using different building codes to be able to have the building in this form.

Thank you so much for informing us on the hard work that your team is doing. We can't wait to see the final product of your work in September 2019.

Make sure to keep updated with our blog and follow the progress of our Geodome! You can follow us on Instagram, Facebook

IQP Interview:

It is time to meet the team behind all the blogs and social media within Team Oculus. We are the Interactive Qualifying Project Team from WPI in charge of communications. We are a collection of students from WPI and here is some questions you may have had for us!

What is your favorite hobby?

Philip: *Guitar and making music.*

Jonney: *Playing the piano.*

Luke: *Drawing*

Jon: *I like to snowboard in the winter.*

Harrison: *Being with friends and writing computer programs*

Aaron: *Some of my favorite hobbies include swimming and video chatting my friends. I get homesick a lot so this helps me feel a little closer to home.*

What is your major and why did you choose it?

Philip: *Electrical and Computer Engineering. The whole field has many research opportunities and lots of things to be discovered. Technology is constantly under development and I imagine it will look very different in 100 years, and I'd like to be a part of that.*

Jonney: *I major in Electrical and Computer Engineering. I chose this major because I have been interested in electricity every since I was 8 years old. My decision to do Electrical Engineering was heavily influenced by my childhood of building legos and watching my older cousin coding.*

Luke: *Robotics major specializing in Computer Science. I chose this major because I've always been interested in technology*

Jon: *Civil Engineering, I liked how broad the major was.*

Harrison: *Computer Science. I like the idea that I can create a fully functioning program starting from nothing*

Aaron: *I am a Mechanical Engineering Major with a Mechanical Design Concentration with a Business Minor. I chose this major because I really enjoy the beauty of making things and seeing how mechanisms work.*

What made you choose this IQP?

Philip: *I wanted to see how WPI was involving themselves in global sustainability efforts, and be involved in the process. I wanted to be a part of representing my school and show audiences that we are trying to make a difference in the direction of our earth.*

Jonney: *The notion of helping facilitate the innovation and design of energy-efficient technologies for the environment was something I wanted to be a part of.*

Luke: *It chose me*

Jon: *It seemed interesting and related to my major.*

Harrison: *I believe that this IQP can be a way for me to experience different cultures, as we are also working with teams around the world.*

Aaron: *During my senior year in high school my hometown in Irvine hosted the Solar Decathlon in the US and because of this experience I wanted to participate in the competition ever since*

What are you most excited about working on the Solar Decathlon?

Philip: *Following the full design process. We get to follow the MQP team and see how they are designing components, and in the end we will see the final product.*

Jonney: *Being able to research and bring awareness to new and innovative technologies for maintaining the environment.*

Luke: *Learning new things surrounding the nuances of human thought and perception. For example, how people react to different website layouts and formats was extremely intriguing.*

Jon: *The communication strategy between the two teams seems to be the most exciting part of the project.*

Harrison: *I am most excited to see the finished product. With the hard work of the different project teams on Team Oculus, I know that the Geodome will be spectacular.*

Aaron: *I think the most exciting thing will be seeing the end product and just seeing all the hard work the teams have been putting in come to fruition*

How has your experience with this IQP helped you grow personally?

Philip: *This is the first time I've worked on developing the social media presence of a group. It's been fun working with a team to reach one common goal.*

Jonney: *This IQP project required me to communicate with different universities across the world due to the global aspect of it. In this sense, this project helped me become a more rounded and open-minded individual as I learned more about both African and Moroccan culture and how they differed from the American lifestyle I have known.*

Luke: *I learned a lot about social media strategies and how to format an appealing website.*

Jon: *It taught me that communications are much more difficult than they seem and it has helped me prepare for future team projects.*

Harrison: *This IQP has helped me understand just how important communication is for any kind of project. Whether it be internal communication between partners or external communication with the public, every project thrives on publicity and a good communication strategy.*

Aaron: *I feel as though I have learned a lot about communication and having self motivation to work on projects such as this.*

Here is us, the IQP team and we have been working hard creating this blog and social media to help Team Oculus win SDA. Be sure to stay up to date with our website and social media!

ENSAM Interview:

We at Team Oculus work in many sub teams from different colleges. One of the Colleges is École Nationale Supérieure D'arts Et Métiers or ENSAM. We interviewed Kaoutar, Oussama, and Anass from ENSAM when they came to America and got their perspective on the Solar Decathlon Africa!

What's your major and why did you pick it?

Kaoutar: *I chose Civil Engineering in my 2nd year of highschool. My neighbor, a woman, she is very unique and has 5 children and her own [Civil Engineering] office and I did an internship at the office there. I saw how she can go through the work and processes of being a civil engineer while maintaining her family life.*

Oussama: *I chose to go the school for Mechanical Engineering, but my passion was always in Civil Engineering. In our first two years of college, you can do internships in different fields and due to that I changed majors to Civil Engineering on the third year. I am very confident in the choice and I am very proud of being part of the first set of students to graduate for our University*

Anass: *I chose Civil Engineering because building stuff and actually being on spot guiding directing everything that has to do with civil, was really something that strikes me. Since I was young, I loved going outside and picked the major out of passion.*

Why did you pick your respective University?

Kaoutar: *We study a lot of Mechanical Engineering and Chemical Engineering in the first few years of [High School] so we had lots of variety. Uniquely to me, one of the reasons is because I live in Meknes and I can go to visit my family every day. Also I really like mathematics so I choose engineering. I got accepted two schools of engineering after graduating from high school, ENSA and ENSAM, and ENSAM was the best choice.*

Oussama: *I choose it because it's a prestigious school and [after] passing exams and getting accepted into a certain schools after graduation gave me the opportunity to attend med school, ENSAM, ENSA, etc. But I chose ENSAM because it's part of the future I was planning.*

Anass: *I had a lot of choices to be honest, but I chose it because variety within the fields to give me the option to choose what I really like. Gives me the opportunity to work with other majors due to that collaborative nature. It is a good school in Morocco and has a limited number of graduates as well as public schools are better than private schools in Morocco.*

What other kind of projects have you done within your major?

Kaoutar: *Working with the structural team in the summer*

Oussama: *I have done a lot of small projects for my major. They push us to learn in real life situations. Like when we have a problem to organize ourselves and come up with different levels of solving the problem. We would develop a lot of soft skills in our projects*

Anass: *Some of my favorite projects have been from the project learning program. It is for our 3rd year to final year and we have a project in every single subject. It can be related to management, economics, civil engineering, and we all have projects in them. [...] I wasn't getting great scores on my first two years, but when I started learning civil engineering in my 3rd year, I started getting really good marks and enjoying what I was doing. My two favorite projects has been Solar Decathlon Africa and raising money for blind people and buying them devices.*

Why did you choose to participate in the Solar Decathlon?

Kaoutar: *It was our first meeting with WPI students, they came to our school just to visit our professors/staff and they did a presentation and I was curious about Solar Decathlon It was a unique experience because we would get to learn a lot because of the 10 criterias, it's a unique experience to try out.*

Oussama: *When you have a plan you need to choose the right way to get the goal. So when I chose the project it was matching with my end goal. Morocco is [recently] trying to optimize solar energy. By choosing this project I'm impacting my country and am more involved in the growth that we are trying to achieve.*

Anass: *I still remember the first time they [WPI Students] came to our class. It seemed like a boring class, but when we had the WPI students come over I could really relate to them. I wanted to align with the SDA and so I can achieve that role.*

What is your role in the Team?

Kaoutar: *I work on the structure. I started working on it in my 4th year, I worked deeply on it in my summer internship. My challenge is to work with the international codes, in Morocco we have some Moroccan codes and local codes that are very different from international codes. So it's a challenge for me to read a lot of building codes and to have the best structure. I worked with small team in summer internship.*

Oussama: *We are more involved in the project where there are a lot of tasks to do. I was managing lots of different teams lots of lots of different majors. 6 majors in total. Communications team, civil engineering team, structural team. So the challenge was the software and trying to simulate the complicated structure.*

Anass: *When we started working we diversified into little teams. We asked ourselves "How we are gonna assimilate it and optimize it?" "And try to make our vision into a reality?" I was managing the team in my school in September and instructed the people who worked with me in other roles such as energy production. Additionally since I'm an engineer I wanted to work on the Envelope Team.*

Wow that sounds really cool! Did you guys experience any difficulties in the role?

Kaoutar: *We had difficulty coordinating between ENSIAS and ENSAM and WPI. When we started working on something we coordinated with the other teams, we would have challenges to work together and experience lots of reiterations. Another Challenge that our professors couldn't see is that, this was a kind of new project for him. For my internship I was asking a lot of questions he didn't know yet. The professor who stamped our drawings didn't know a lot things, and he didn't know how to do international codes and were unfamiliar with the structure itself. Another challenge is to work with the Solar Decathlon Africa rules. We had the challenge to build a house but also have it comply with rules. For example we shouldn't have stairs in the house, we have to be mindful of all kinds of residents that might live in it.*

Oussama: *Biggest challenge that we surpassed was that Solar Decathlon Africa was originally separate from their program and not included with their school [credits]. The fact that we were able to overcome we were able to make the school recognize the project and be able to work for the school was very gratifying.*

Anass: *Since we had the subteams, the biggest challenge for me was to figure what my school has to do and what my school has to recheck. It might seem easy to do but if we are not working in the same spot it becomes a difficult working with the team. Another challenge I personally faced was "where does my role end?" The tasks are sometimes confusing, and having to let people do what exactly what they should be doing and what they shouldn't be doing is hard to define. Additionally our professors were giving us hints because they didn't want to help us because they were used to a more traditional type of civil engineering since from the engineering perspective. The envelope was hard to model. The results wasn't matching up or wasn't as expected. We had a 3D drawing in the structural analysis software to allow us to know how thick the wood should be/material should be. For structural the hardest part is to know the international building codes and to interpret them into the structure. In the envelope it wasn't even possible to integrate the drawing into the software. We had to redo converting the areas of the structures in a simpler model as much as possible just to compare the models and actually build envelope simple enough so that the software understands it. Some softwares don't support such complex structures especially when it comes to envelope and lighting plans. We had one guy checking that our structure matched every single rule and respected every rule.*

Moving away from difficulties, what is something you are most excited to work on?

Kaoutar: *We creating the structure on paper and being able to see it in person in the end. Also working with WPI students because we're not just working with Moroccan students and we're working with diversity. We get to come here [WPI] and meet other people and know more about other culture. Additionally The dome is really inspired with Moroccan architecture and has a lot of light. Also another thing is the fact that we chose wicker because it is our [Moroccan] artisans handiwork.*

Oussama: *Most exciting thing is the fact that we will build the structure and see it eventually and having kinda like baby [Geodome]. Also like Kaoutar said we choose local materials in order to push our culture into the structure*

Anass: *The diversity of our team. It is a real project. We're actually studying and at the same time building it. Just designing is not a complete experience, but this is a complete experience. It impresses me because we will be building it and making it happen with a very diverse team. [...] Also the furniture, there are some details in it that can come from other moroccan culture. Like the mosaic we're putting in or the carpet we're putting in. The architecture is mixed with engineering.*

Team: *This will be the first structure that we will build. The main structure is wood connected by steel and the same time we'll have floor that is concrete. We're gonna be having the drawings for the foundation and everything related to concrete. There's gonna be a wicker layer the final layer, purely architectural.*

How do you feel about The Solar Decathlon hosted in Morocco this year granted you guys are from Morocco?

Kaoutar: *We in Morocco want net zero energy city. We want a city that just uses renewable energy. The houses in Morocco consume a lot of energy so we're hoping this will change energy consumption. This project's results will allow us to teach and communicate with others that they can use renewable energy too.*

Oussama: *Morocco doesn't rely on renewable energy as much right now, but it's a project we're working on for our country. We're proud to have solar decathlon that will be organized in our country. In our culture we don't invest much in buildings. By doing Solar Decathlon Africa we're changing the culture to invest more in renewable energy*

Anass: *I would say change of management phase. We are consuming energy and not solely relying on renewable energies. There are lot of plans coming up and we are so proud that the city is gonna be holding the Solar Decathlon. Makes a lot sense to be in that city, but there is a lot investments to make it a green city for example the event is going to be held right across from a green park [A center of renewable energy buildings]. And the fact we are personally contributing to it.*

All of the teams within Team Oculus are working hard to deliver a final product for Solar Decathlon Africa!! Be sure to follow our blogs, Facebook, and Instagram to keep up to date to what we are doing!!

6.2 Social Media Posts

Follow Us:



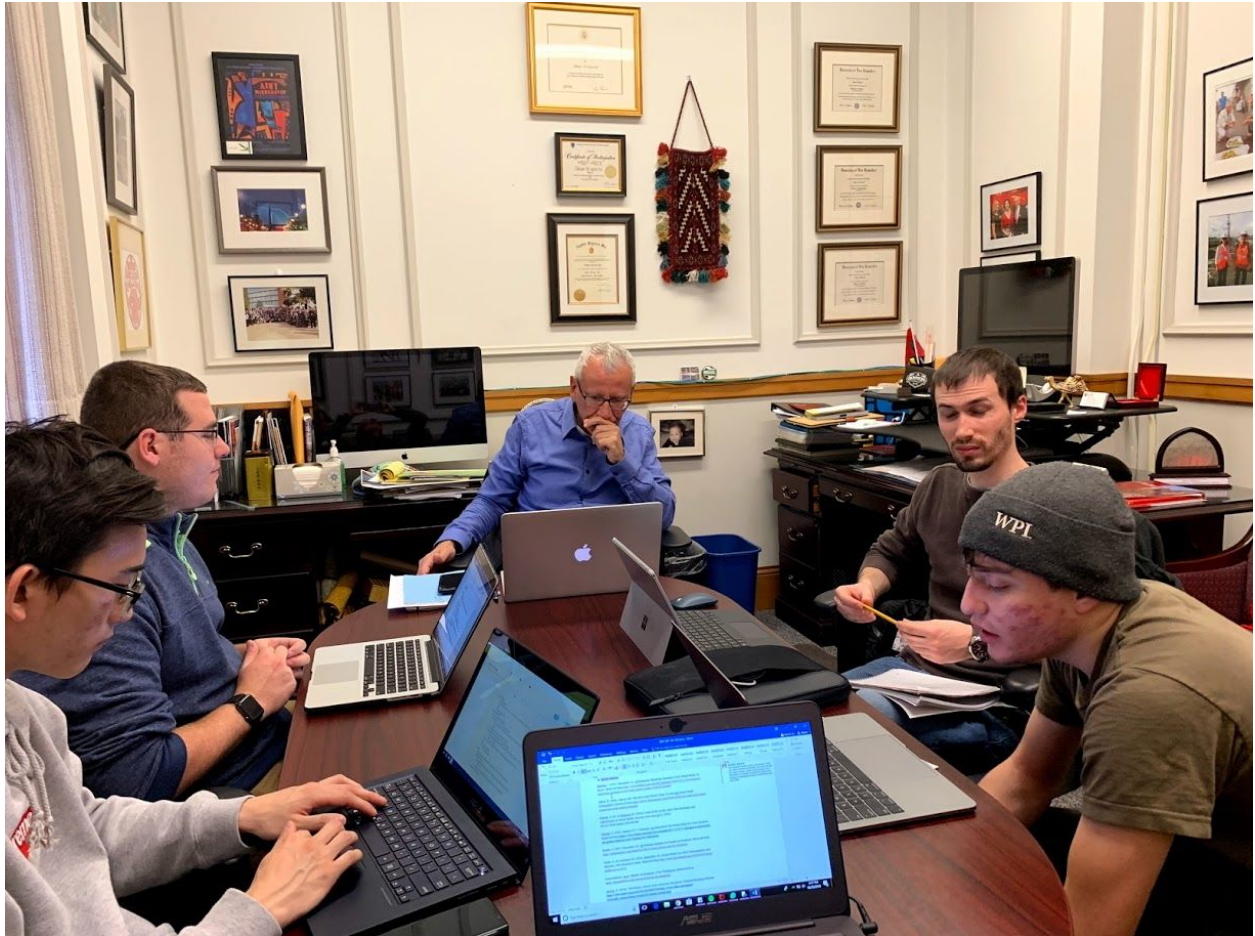
Be sure to follow our instagram, facebook, and blogs to keep up to date with Team Oculus
#teamoculus

Winter is coming:



Winter is coming here in Massachusetts, but the sun is still shining bright on the solar decathlon
#teamoculus

IQP Team:



Hello World! We are Team Oculus and we will be a team competing in Solar Decathlon Africa representing the schools Worcester Polytechnic, Université Mohammed V de Rabat, Université Moulay Ismaïl, and African University of Science and Technology. Stay tuned to see what we are all about!

El Korchi:



Meet the Team! This is the Civil Engineering Department Head, Tahar El-Korchi and he is one of the project advisors of Team Oculus. He was also, involved in Solar Decathlon China in 2013, and he's back for the competition in Morocco! If you see him around campus at WPI, ask about the project!

FB:

Meet Tahar El-Korchi, the lead project advisor of Team Oculus and head of the Civil Engineering Department. Since the beginning of this year, he has been overseeing and advising a group of WPI students as they have worked on their submission for the Solar Decathlon Africa competition which is to be held in Morocco next year. With more than 30 years of experience with WPI alone, his input is invaluable to the students working on Team Oculus. Despite this, he often encourages his students not to rely on him completely, believing instead that independence can be a strong learning tool. While his past experience working on WPI's Solar Decathlon China submission in 2013 as well as countless other MQP and IQP projects throughout the years certainly makes his perspective enticing, he rarely gives out his expertise for free. In exchange he asks merely that his students form their own perspectives first.

Aaron Jo:



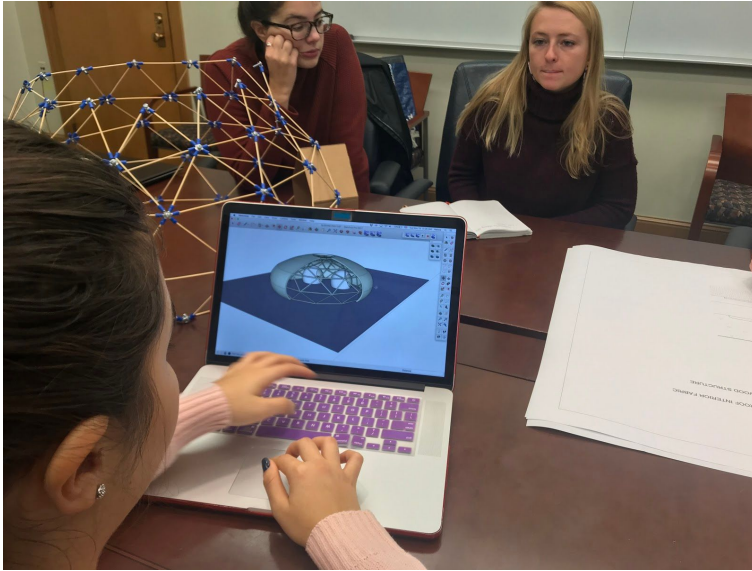
Meet the team! This is Aaron Jo, he is a junior majoring in Mechanical Engineering and Business, and is part of the IQP Team. He loves to take photos and to swim! #teamoculus

Jonathan:



Meet the Team! This is Jonathan Benoit.

Structure Team:



This is the structure team working on the infrastructure of the solar house. It is shaped in the dome/ donut formation in order to be able control the ambient temperature naturally!!

FB:

Here we have our inspired structural team! Mary Sheehan, Sara Cardona, and Alana Sher can be seen working on the infrastructure of Team Oculus's geodome. The shape of the structure was designed to regulate ambient temperature naturally, as well as to appeal to the Moroccan environment.

Wood with steel joints

Envelope:

Insulation, water impermeability

Harrison:



Meet the Team. This is Harrison Burack from the IQP Solar Decathlon Team! He is a junior Computer Science Major and is actively involved with student government as the sitting secretary. He loves to chat and his favorite food is pizza!

Jonney:



Meet the team! This is Jonney Lee, a junior in Electrical and Computer Engineer and part of the IQP team! He enjoys fishing back home in Florida and at Worcester! His favorite cuisine is Korean and Italian!

Philip Phan:



Meet the Team! This is Philip Phan of the IQP team, and he is a junior majoring in Electrical and Computer Engineering at WPI. He enjoys playing guitar and hiking! #TeamOculus

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