***All 300 words max.***

***Most students choose their intended major or area of study based on a passion or inspiration that’s developed over time – what passion or inspiration led you to choose this area of study?***

300 OMR. Our electricity bill had never reached that high before; even in the 110F summer heat with all our air conditioners blasting at 65F, the bill was usually 80 OMR at most. During my quest to uncover this surge in cost, I wallowed in the idea of reducing the unpredictability of my electricity bill. I stumbled upon a method to track electricity usage in real-time: the smart grid, or more specifically, the smart meter.

I was intrigued by the smart meter’s potential to record near real-time data of electricity usage in houses, while simultaneously sending this information directly to energy suppliers.

To further my knowledge on smart meters, I interviewed an innovation engineer at the UK’s National Grid, who introduced me to the challenge that currently hinders their smart meter rollout: the one-directional flow of electricity in the current grid. By enabling a bidirectional flow of electricity, the smart grid facilitates effective communication between suppliers and consumers, thus creating a more reliable and sustainable grid.

I continued my smart grid endeavor by pursuing an internship at a local Indonesian electrical consulting company. Here, I realized the major differences between the UK’s and Indonesia’s grid. Due to these differences, I had to adapt and relearn aspects of the UK's electrical distribution processes to sync with the Indonesian case study given.

While the value of my electricity bill that month still remains a mystery, it brought me something of greater value: how I can prevent unusually high electricity bills for others in the future. My initial shock of receiving that bill has led me to pursue the ‘smart grid’ field in the future, which also acts as the underlying drive behind my interest in pursuing electrical engineering.

***Many students pursue college for a specific degree, career opportunity or personal goal. Whichever it may be, learning will be critical to achieve your ultimate goal. As you think ahead to the process of learning during your college years, how will you define a successful college experience?***

During my internship at a local Indonesian electrical company, I learned that the heavily coal-reliant country had set a goal to achieve 31% renewable penetration into the electrical grid by 2050. However, I believe that Indonesia can set more ambitious goals. To me, college will be the place for me to learn to help my home country achieve this by increasing smart systems in their electrical grid.

To learn is to do; I believe it is important to put the knowledge we learn in our courses into practical work. At CMU, I hope to do this by undertaking undergraduate research in the smart grid field. Access to the Microelectromechanical systems (MEMS) laboratory will enable me to look into the development of smart sensors, which are integral to creating a more reliable grid. Aside from learning, a successful college experience to me is also one where I can interact with those whom I admire. I aspire to interact with Dr Venkat Viswanathan’s research on how liquid crystals can ultimately produce longer-lasting batteries, which I believe can be essential for the revolutionary design of electric cars, working in tandem with the smart grid as a form of energy storage to improve the sustainability of the current electrical grid.

As a foodie, I look forward to exploring the food culture of Pittsburgh. As the birthplace of my two most consumed childhood foods—Big Macs and Heinz ketchup—I do not doubt that there is an abundance of unique food combinations and cuisines.

Balanced by the facilities needed for me to work towards my goal of increasing smart systems in my home country and the range of fabled food, I am eager to join CMU knowing my quintessential college experience will be fulfilled.

***Consider your application as a whole. What do you personally want to emphasize about your application for the admission committee’s consideration? Highlight something that’s important to you or something you haven’t had a chance to share. Tell us, don’t show us (no websites please).***

According to a Google search, creativity is “the use of original ideas to create something”. I conformed to this definition until last year, when I entered the DIDI Project Design Space Competition.

Our team was challenged by Dettol Arabia to create a product that reduces water usage and promotes proper handwashing techniques. We started the brainstorming session with a bank board. *Mini tank beside sink to temporarily store unused water*. Too simple, I thought. *A wide body below the tap’s aerator to spread the water over a larger surface area*. Already exists, I continued. These ideas on their own were not ‘innovative’ enough. I was fixated on creating something entirely new.

While staring at the board, I was reminded of *Alex the French Guy Cooking*’s YouTube video on building a croissant-dough roller from planks of plywood. To adjust the thickness of the croissant sheet, he used 2 rods that lifted up and down by altering the angle it protruded at.

Aha! I can use Alex’s mechanism to open and close the tap automatically! How can I attach it to the bottom of the tap though? Let’s use our initial brainstorm idea! I could attach the rod to the wide body below the tap, so the product would be able to spread the water over a larger surface area while automatically turning on and off! Effective and innovative! Over the next 3 months, we brought our idea to life, and while each idea wasn’t a completely ‘new’ idea, the combination of the two earned us a gold medal.

I learned that innovative thinking doesn’t have to come from an original idea—for me, innovative thinking isfinding what others have overlooked and seeing it as an opportunity to create innovative solutions.