**How do your interests directly connect with Cornell Engineering? If you have an intended major, what draws you to that department at Cornell Engineering? If you are unsure what specific engineering field you would like to study, describe how your general interest in engineering most directly connects with Cornell Engineering. It may be helpful to concentrate on one or two things that you are most excited about. (250 words)**

With Indonesia being home to 13,000 islands, there is huge potential to use tidal turbines as an alternative energy source in the remote islands of Indonesia. The archipelago provides vast bodies of water which are optimal for harnessing this source of renewable energy.

This requires a good understanding of the energy transfers within the turbines, thus, I need to improve my knowledge of thermodynamics. Not only do I want to know the optimal cycle for maximum energy transfer, but I also want to know how to achieve it. This would, therefore, enable me to develop my designing skills to modify the blueprints through the use of CAD and modeling so that I could work towards this goal.

I believe Computing 1110 would help me gain the necessary skills I need to use MATLAB because I could design new blueprints for the tidal turbines using the different and complex features within this application.

Furthermore, the Barthelmie Wind Energy research group aligns with my plan to improve my understanding of wind turbines. Although the focus is wind turbines and mine is tidal turbines, they are both turbines with similar mechanisms occurring on the inside while using a different input. Gaining research experience with them would allow me to understand the designs of an efficient wind turbine energy generator and I can transfer this knowledge for tidal turbines.

All of these activities help me work towards making Indonesia cleaner and helping us move forward into this new world of renewable energy technology.

**Question A: Describe an engineering problem that impacts your local community. This could be your school, neighborhood, town, region or group you identify with. Describe one to three things you might do as an engineer to solve the problem. (250 words)**

Recently, I’ve been noticing more stray animals roaming around my neighborhood. Seeing Rimba, my golden retriever, at home belly-up under an air-conditioned room made me feel heart-broken for strays. He’s provided with food and shelter unlike the strays, who face deadly threats of getting shot by the police due to Omani laws. With many strays roaming around, I yearned to find a sanctuary for them. With the increasing expansion of the city of Muscat, more garbage is being produced and disposed of, which attracts stray dogs into the city. To stop this from happening, I want to lead them away from the city by means of leading them elsewhere with the use of dog food.

My first solution was to build an automatic animal feeder since it would feed the strays whilst eliminating human presence so they wouldn’t feel threatened. For it to be effective, it should be placed in the outskirts of Muscat to prevent the dogs from entering the city and lead to less instances of the dogs facing the brutality of the police. Additionally, this feeder should be automatic and it would be powered using solar energy by implementing a solar panel so that it takes advantage of the abundant sunlight in Oman.

An alternative solution would be to create prosthetic limbs. The harsh conditions have led some strays to lose limbs which negatively impacts their quality of life. Therefore, I would work with Qurum Vet to conduct research and development into making my own prosthetic limbs for rescued strays to help them lead a normal life again.