Watching shows on the discovery channel about new technologies was one of the highlights of my childhood. One show was called “How do they do it?” where engineers shed light on the genius minds behind simple modern day objects. The show explained the design process common objects go through, ranging from simple objects like ketchup bottles to complex objects such as powerships. My favourite episode was the one on tractors in India: it was a revolutionary piece of technology that doubled productivity for farms and allowed farmers to provide food for one of the biggest nations in the world. What really stood out was the design because these budget tractors were weatherproof, functional and aesthetic. This TV show demonstrated the importance of mechanical engineering and was a huge inspiration for me to start my own projects.

One of my personal projects was an automatic feeder, which I developed to feed stray animals here in Oman. Seeing these hungry creatures in the scorching heat motivated me to use my knowledge in building to create a device that would provide them with food. I harnessed my designing skills to create an idea on paper and turn it into a reality in the Design & Technology workshop in my school, where the first functional prototype was born. This model boasted an Arduino Uno, which I programmed by learning how to code in C++, to dispense the food and was powered by a solar panel to incorporate an environmentally friendly aspect. I got in contact with one of the biggest shelters in Bali therefore my project had a new sense of purpose because it will be now built for those who actually need it. Google Sketchup, a CAD software, helped create an accurate and detailed 3D model to visualise the product whilst eliminating the need for me to build and modify more prototypes. Upon the final design meeting with BAWABALI, the final product was finally finished and used in their main shelter.

To further polish my engineering skills, I did a summer internship at a water treatment processing plant company, which allowed for a more practical application of my knowledge. A physics project in school sparked this desire to enhance my understanding of the systems behind these plants. Guided by mentors, I discovered that pipe flocculators bind unwanted substances in the water together to create ‘floc particles’ and in the DAF tanks they rise up to the surface because of bubbles and are removed. This became more clear when I saw these machines in action when I did a site visit to their newest plant in Jakarta and the efficiency of this machine considering the sheer volume of the water passing through was captivating. I addressed these sections in my report where the main objective was to determine whether they can reach their ultimate goal of a supply capacity of 1500 litres/second. I had the opportunity to present to the CEO, the director and the engineering team and they valued my opinion. In addition, I had the chance to visit their desalination plant in Bali as I was interested in how reverse osmosis was utilised to make seawater consumable.

Although individual work has helped me acquire knowledge, teamwork is a crucial skill that would let me strive as an engineer. During the Duke of Edinburgh expedition, my teammates and I discussed our responsibilities. I was in charge of setting up the tents which was an important role in the completion of this trip. Additionally, the DofE volunteering led me to support the librarian in the school library in cleaning and sorting books. This helped me become more organised and greatly developed my communication skills as I had to work with other students.

Mechanical engineering is crucial to the development of new technologies. My education would help me understand what occurs in these systems and understand the reasons for its success. I hope to improve them by increasing their capabilities and maximising efficiency to benefit people or animals and further evolve the mechanisms we use.