Electrical Longboard – Personal Project

I wanted to create a fast way to get around campus while avoiding the limitations of parking a car/moped. I built an electric longboard powered by two lithium polymer batteries in parallel. I used an electronic speed controller paired with a Turnigy electric motor to power one rear wheel. A simple transmitter and receiver are used to send commands to the electronic speed controller to either accelerate or deaccelerate the board. I took lessons in welding to add a bracket onto the truck to use as the motor mount. I used my soldering experience to connect all wiring. I then put all electronics safely under a case. This project gave me hands-on experience in welding and soldering as well as basic mechanical design. I learned how common radio-controlled components and parts can be used for an assortment of tasks outside of radio-controlled racing.

Moped Rebuild – Personal Project

With the opportunity of buying a broken moped for $10.00, I began to dissect how a moped works. The moped was hit by a truck and major components were warped/broken. Over a few weeks, I installed a new kick start system because the electric start was thoroughly destroyed. With a little starter fluid sprayed in the carburetor, it ran in a few kicks! I ran it for around 20 minutes as I fixed up the outer plastics. I attached all tubing back together and cleaned a lot of the exterior engine parts. With some basic automotive skills, I was able to diagnose, rebuild and test the moped to get it back on the road under my ownership.

UNH LunaCats Robotics – Electrical Box Project

During my freshman year, I was a member of the UNH LunaCats electrical team, a robotics engineering organization. The objective of our robot was to mine a sand-like material inside a pit at the Kennedy Space Center while avoiding boulders and open pits. The electrical team was responsible for the electrical box design and layout. I played a key role in deciding the best layout of the electrical box to conserve space as well as leave enough airflow for heat dissipation. I selected the box and assembled all components by soldering all wire connections. I then designed the housing to attach the box securely to the frame.

UNH Students for the Exploration and Development of Space Rocket Propulsion Lead – Solid Rocket Engine Project

As rocket propulsion lead, I manage all members of my team to design, manufacture and test a solid fueled rocket engine. As of this writing, we are in the early stages of development and expect to have final design done by the end of the fall of 2018. We have been reading and giving presentations from information given in the textbook *Rocket Propulsion Elements o*n a weekly basis to get a deeper understanding of design constraints and objectives. Solidworks and MATLAB are the main programs our team uses to do analysis of components and overall design.

SEDS Chief Technical Officer – Organization Project

As CTO, I manage all subgroup leads for our multi-stage rocket. With 25 active undergraduate members, it is my responsibility to ensure all students are given work they are comfortable with and can accomplish. I oversee all meetings within each subgroup and advise when I can. This role gives me the ability to learn every part of our project and help morph it into something creative and innovative. I have been using project management tools including slack communication and Trello to stay organized and keep all members aware of what everyone is doing.