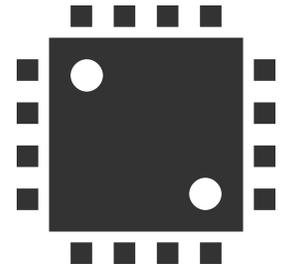




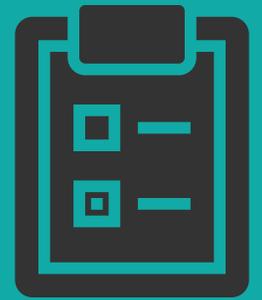
# Ohm

An exploration into the future of transportation



## Plan

Initially, we planned to design an inexpensive bike kit that allowed an average person with no prior experience with engineering to easily convert a conventional bike into a fully functional e-bike. However, after encountering various issues in research, we transitioned into converting a conventional mountain bike into an e-bike by designing our own mid-drive motor system with a custom battery and powerful esc.



## Research

Some of our inspiration for building an e-bike came from Youtube videos we had seen of other people online who had also built their own bikes. Although it seemed like a lot of engineering we decided that it would be a fun challenge and learning experience. We started off by looking into other bike builds on Youtube, GitHub, and Thingiverse. After we had a general idea in our heads of how we wanted the main components to work we then started an in depth research into which components would work best together and which would be able to preform to our expectations. We consulted Mr. Hunt and EV forums for the bulk of this research and to answer any questions that we had.



## Challenges

During the process of researching and developing Project Ohm, we encountered many challenges. Some of these challenges include:

1. Designing a drivetrain that would fit in the narrow space on the back wheel.
2. Creating a motor mount that would securely place the motor mid-frame.
3. Finding a sprocket that fits the motor shaft but also the chain size.



## Implementation

After multiple months of research, we finally committed to ordering parts and we started building and configuring all of the smaller sub-systems such as the LCD display and VESC. When the motor and batteries arrived we started the surprisingly arduous task of configuring, welding, and soldering the battery cells together. We are in the process of designing the motor mount that will connect the motor to the existing drivetrain.

