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| **Project** | **Description** | **Names** |
| Proper Rover wiring | - Creation of electrical boxes, addition of connectors, ease of use, etc  - Reduce lag and bus use of lower priority equipment  - Separating different data types to different communication paths | Riley, Connor, Andrew, Sakhana, Zaidi |
| Documentation | - Use of free 2D drawing software  - Keep up an electrical document that we can use to troubleshoot problems | Riley, Sakhana, Zaidi |
| Attachment electrical boxes | - Arm box, Drill box, Bucket Box, Misc Boxes  - Standard box size creation as well as a standard back plane so the layout of electrical components can easily be changed without changing the box  - Ideally there would only be need of connecting power and comms | Riley, Connor, Andrew, Sakhana, Zaidi |
| Drill attachment (Science) | - Need to help with PCB creation  - Discuss with science on how to manipulate their input signal to get a proper output to be read by a teensie (and research into if teensie is the best microcontroller for this application) | Riley, Connor, Sakhana, Zaidi |
| Testing Boards  Indicator lights | - Each attachment and motor will require a test board  - How to go about doing this?  - We have no way of telling if  different parts of the rover are even powered  - Research and development of adding indicator lights to the system (motors, PIs, Jetson, etc) | Riley, Connor, Andrew, Sakhana, Zaidi  Conner, Andrew, Sakhana |
| Battery Management Board | - Total redesign is required  - Require a gauge IC, and another IC to switch the IC we have from a low side power transistor system to a high side  - We want to be able to read power flow as well as battery charge remaining (ties into our goal of communication) | Connor, Andrew, Sakhana, Zaidi |
| Proper cable management | - Labeling all cables properly so we know what cables go where | Riley, Connor, Sakhana, Zaidi |
| Embedded arm camera, laser distance measurement IC, motors and LEDs | - Communicate with mechanical on how to approach creating a detachable end effector (like Oregon state at CIRC) and investigate getting power and comms to it to power small motors, laser distance measurement IC, camera, LEDs and maybe a small microcontroller. | Connor, Andrew, Sakhana |
| Setting up a backup 900 MHz comms system | - Investigate the feasibility and possibility of this alternative.  - Reasoning is that 900 MHz has more directional power and less reflection due to terrain | Sakhana |
| Determination of best communication protocols | - Changing the rover from USB communication to I2C communication  - Research I2C to be able to understand the protocol  - Switch the Pi’s and Arduinos to use I2C  - Determine whether USB will be used for communication between Pi’s and Arduinos | Andrew, Sakhana |
| Create a temp-dependant switch to turn on the fans | - Research into an appropriate sensor  - Wire up something to turn the fans on when a certain temperature occurs | Connor, Sakhana |
| Redesign of the motor controllers | - Either create a smaller one specific to our needs or purchase one  - Research into the different types of motor controllers and discuss with computer if it will work (communication type and if the hall effect sensors are present) | Connor, Sakhana |
| Other | - If you have any other ideas for projects for the year feel free to come to either team lead to discuss them. | Connor, Sakhana |