

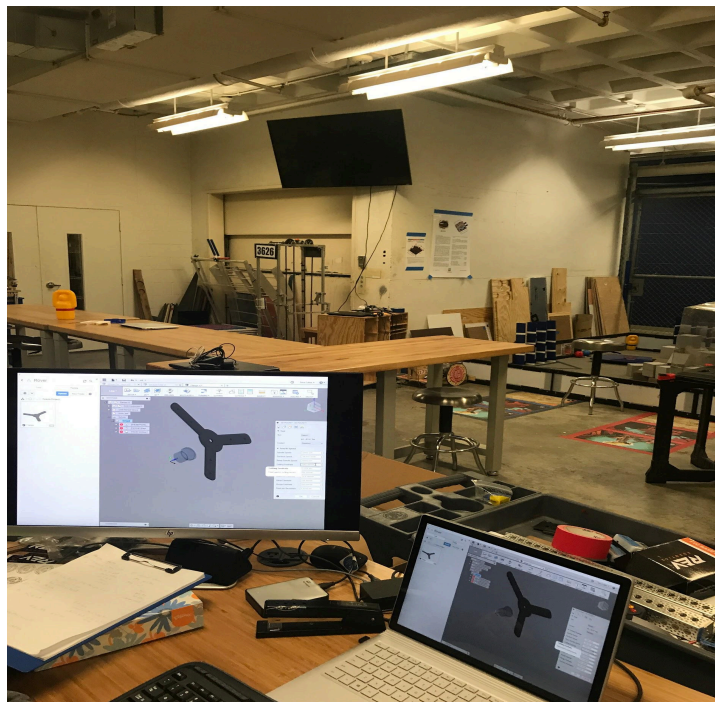
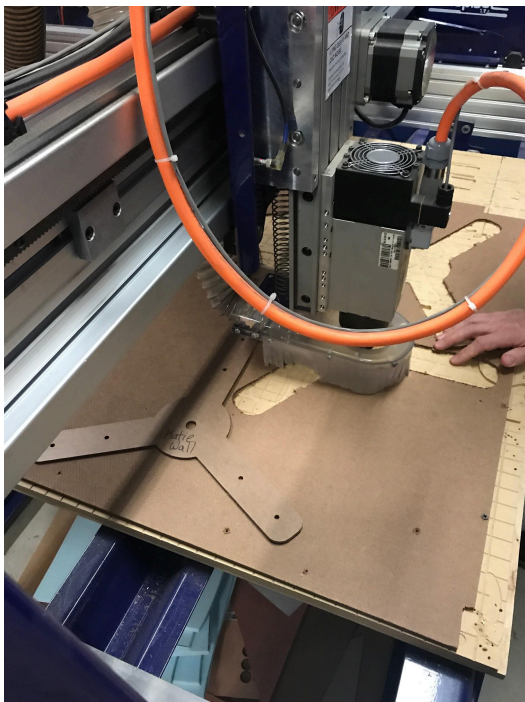
Bates Detwiler
(1-22, 1-25, 1-26, 1-27)
30 January 2018

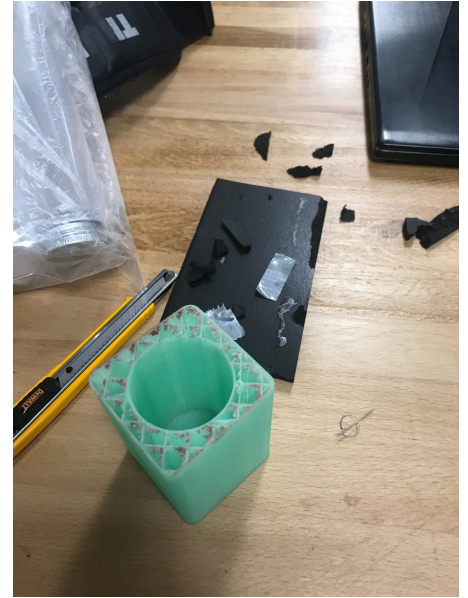
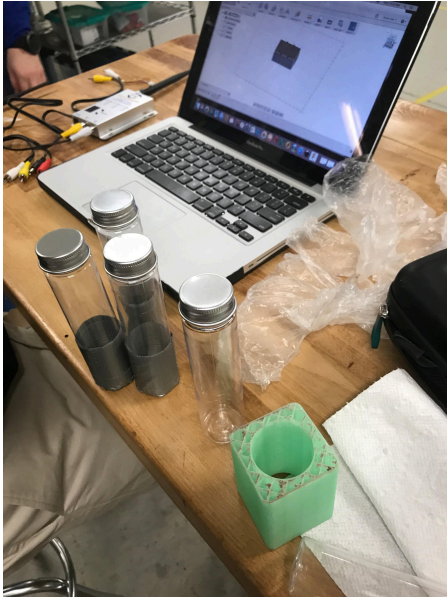
Journal 07

(1-22) - Monday Class

On monday we were still waiting on parts to come in so Derian and I worked on finishing the soil and liquid tasks. I talked with the frame team about the placement of the task materials earlier and decided that the best place was to put them under one of the seats. This is because they will be out of the way and not accidentally knocked, but also easy to grab when they are needed when doing the tasks on the course. After that, I realized Bailey's initial design for the test tube holder was not going to work because the angle of when the scoop is picking up material, the edge of the holder will scrape the material and very little will get into the test tube. I solved this by cutting the top portion of the test tube holder, so the top of the test tube sticks out and can easily pick up soil or liquids. I then realized that the test tube scoop still holds the tubes too loosely, so after some trial and error first trying hot glue, then foam. I settled on wrapping the bottom portion of the tubes in Duct tape. This allowed them to have a much tighter fit with the holder and stay inside without falling out on the course. Next, I worked with Derian on a way to attach the test tube to the rod. We found that a 45 degree angle was best for picking up the most material, and Derian began to construct it in CAD.

Later in the day on monday, I came in during my free to cut my fusion project with Bailey and Mr. Cribbs. Mr Cribbs retaught us how to use CNC router as it has been a very long time since I last used it. Cutting the flange only took about 35 minutes and allowed me to be finished with the fusion project.

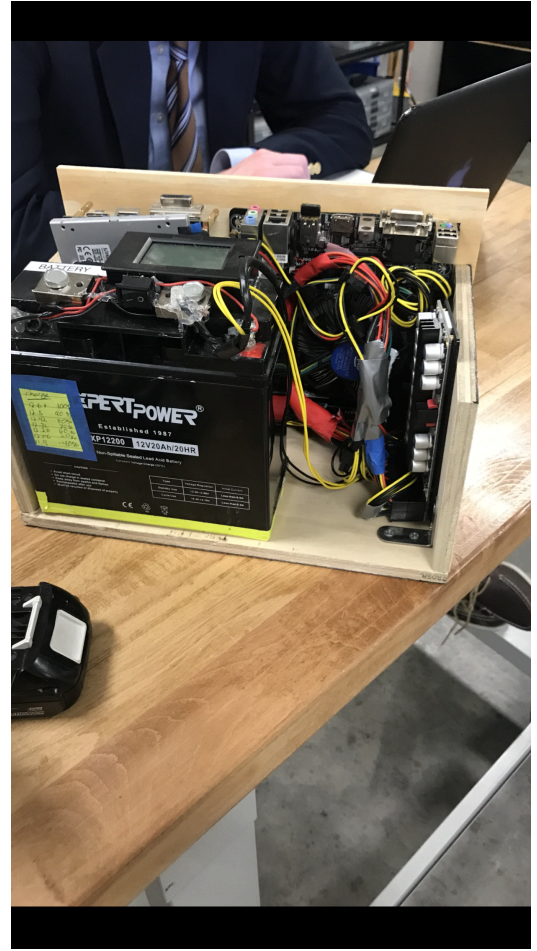




Thursday After School 1-25

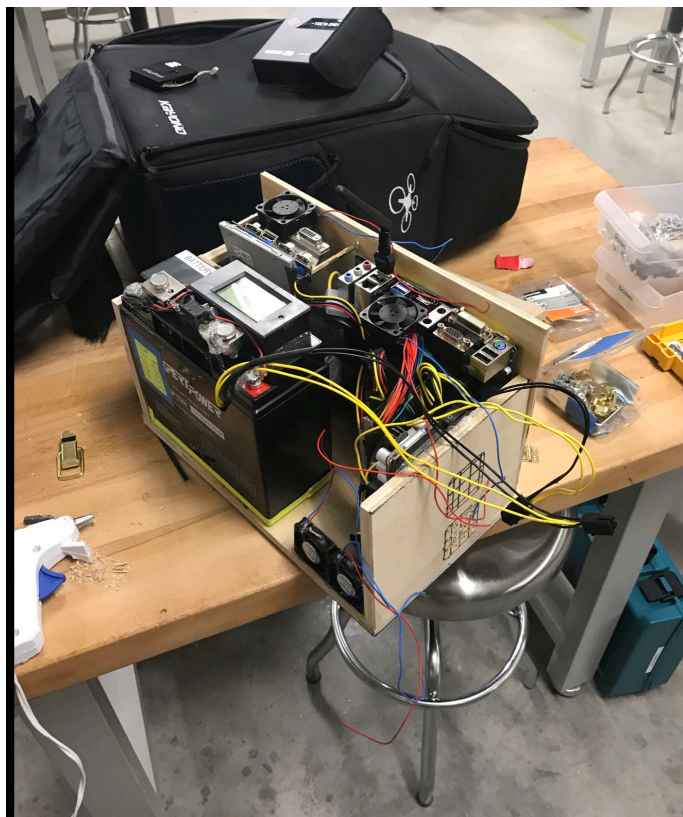
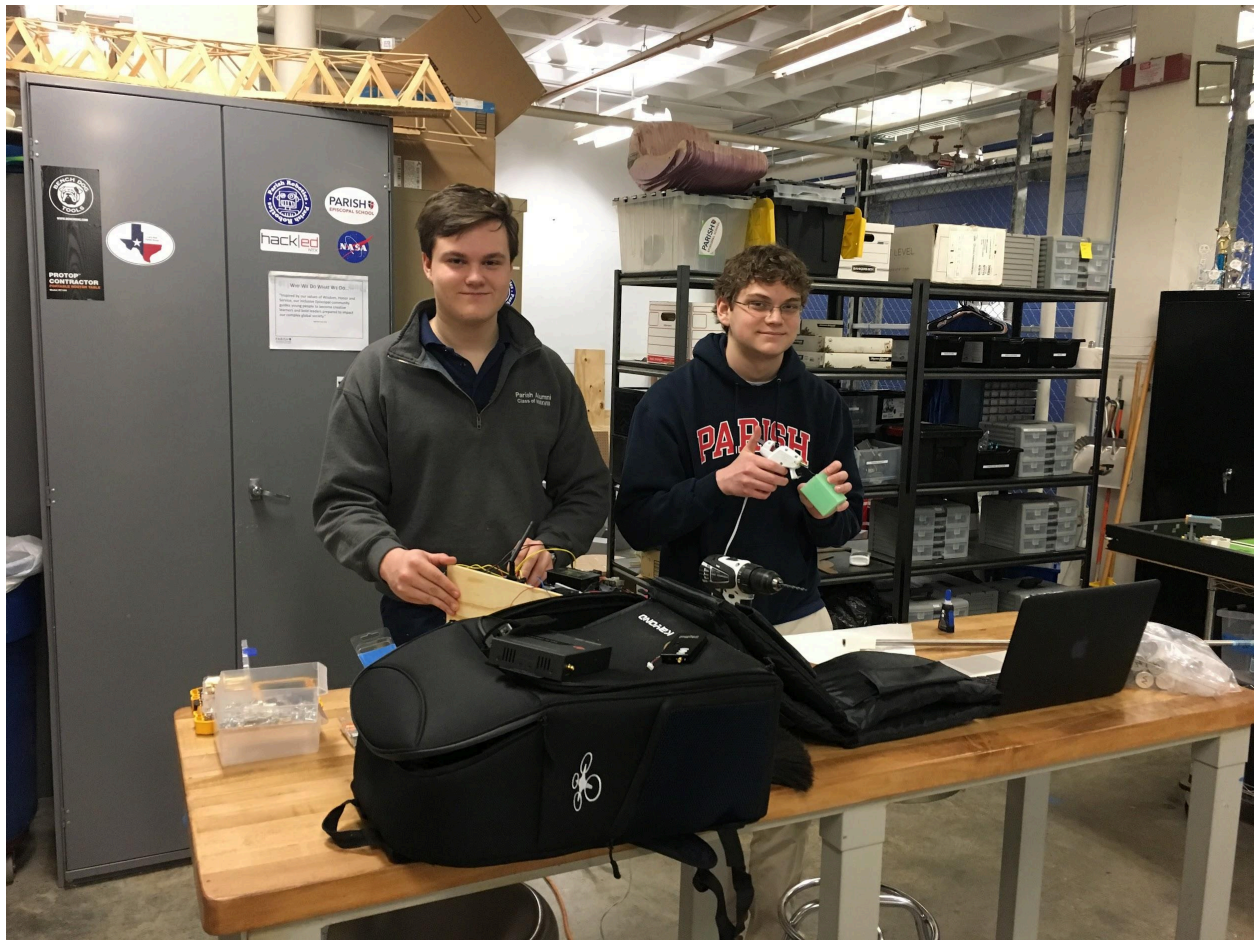
Today, I was delighted to find that all but one of the parts had come. I spent most of the during the lunch session on thursday organizing and setting up the new components that had arrived. Unfortunately, I was still missing the HDMI cables, so I could not set any of the components without a video signal. I then set out on making an enclosure for the computer and battery to be mounted in the backpack. The enclosure is also beneficial because it can easily be removed to work on any of the components if we need to. I did this because the rigid enclosure provides mounting points for keeping all of the hardware still and also protects it for any accidental bumps. I did not CAD this as it was not necessary because it was a very simple build. I measured all of the sides in the backpack as well as the components and used scrap wood from the wood shop to cut the appropriate pieces of wood. I then re-used the L-brackets from last year and screws to construct the box. I had just enough time left after school to mount the battery and computer inside the box.





Friday Class 1-26

Today in class I spend the first half of class hooking up all of the wires and cables to the computer mounted in the backpack. I also added the cooling fans so the computer will not overheat inside the backpack. I plan to cut holes for fans in the backpack in the future to allow for more airflow. I also tested the backpack with Derian to see how heavy it was and to both of our amazement, it was easily manageable (lighter than my current school backpack). Next in class, the whole team went outside to test Ryan's wheel designs. They consisted of resin coated cardboard, our wheel from last year, one with one layer of plywood, and one with two layers of plywood. We found that the resin wheels did not work very well because it would easily fracture. The plywood wheels showed the most potential because of their rigidity and lighter weight. Luckily all four wheels stood up to Wes's crazy driving.



Saturday 1-27

Today I finally had all of the materials to assemble the 360 system version two for the first time. It took about an hour to fully set everything up, but once I did, it worked almost flawlessly. The HDMI transmitters were working perfectly, the HDMI grabber was taking the video in with no issues and the computer was streaming the video with less than 5% dropped frames thanks to the upgraded wifi card. The only issue I encountered was the video was being output in dual fisheye mode. The video needs to be converted to equirectangular mode to properly be fed into youtube. After testing, I spent the rest of the time researching software solutions for convert the video. I found that it can be done in unity, but it is not easy, so I plan on continuing to look for more solutions.

Again this week, I am very ahead of schedule for TS2 and plan on finishing the whole system by the end of Febuary which is perfect because it gives us plenty of time to test.

Bailey and Nate are continuing to work on the code, but hit a wall because they are still trying to impliment graphics into the program. They are spending their time researching the most effient solution, and plan to continue working on this next week.

As a telemetry unit, we are perfectly on track for finishing early and have been working very well together.

	Task Name	Start	Finish	Assigned To	Duration	Predecess...	Stage	Status	Comments	F	S	S	M
176	Liquid Retrieval Gear Design 1 (Task 5)	11/27/17	11/27/17	Derian, Nate	1d			Completed					
177	Liquid Retrieval Gear Assembly 1	11/27/17	11/30/17	Derian, Nate	4d			Completed					
178	Liquid Retrieval Gear Design 2							Completed					
179	Liquid Retrieval Gear Assembly 2							Completed					
180	Soil Retrieval Gear Design (Task 1)	11/30/17	12/01/17	Derian, Nate	2d			Completed					
181	Soil Retrieval Gear Assembly	12/01/17	12/04/17	Derian, Nate	4d			Completed					
182	Photo Filter Design (Task 2)	11/30/17	11/30/17	Bates, Bailey	1d			Completed					
183	Photo Filter Assembly	11/30/17	12/03/17	Bates, Bailey	4d			Completed					
184													
185	Telemetry System One: Analog Sensors and Video (TS1)	12/08/17	02/23/18	Bates, Bailey, Deriar	78d			In progress					
186	Full Telemetry Explanation to Nate and Bailey	12/08/17	12/08/17	Bates, Bailey, Deriar	1d			Completed					
187	Talk to Frame People for Telemetry and Task Placemen	12/11/17	01/26/18	Bates, Bailey, Deriar	47d			Completed					
188	Brainstorm and Discuss options for TS1	12/11/17	12/14/17	Bates, Bailey, Deriar	4d			Completed					
189	Order All Major Components for TS1	12/15/17	12/15/17	Bates, Bailey, Deriar	1d			Completed	Makins ordred 12				
190	Assemble the Antennae and Cameras and Test Range	01/04/18	01/08/18	Bates, Bailey, Deriar	5d			Backlogged	- Derian needs li				
191	Design and Assemble Housings for TS1	01/09/18	02/02/18	Derian Svec	25d			To Do					
192	Code the UI for the Telemetry Data	01/04/18	02/16/18	Bailey, Nate	44d			In progress	January 18: First				
193	Finish and Test System One	02/09/18	02/23/18	Bates, Bailey, Deriar	15d			To Do					
194													
195	Telemetry System Two: 360 Video (TS2)	01/12/18	04/11/18	Bates, Bailey, Deriar	90d			To Do					
196	System Brainstorm and Explanation	01/12/18	01/16/18	Bates, Bailey, Deriar	5d			Completed					
197	Order Components for TS2	01/18/18	01/22/18	Bates Detwiler	5d			Completed					
198	Test Components	01/22/18	02/09/18	Bates Detwiler	19d			In progress					
199	Design Housings for TS2	02/12/18	02/28/18	Derian, Bates	17d			Completed					
200	Test System	03/01/18	03/09/18	Bates, Derian	9d			In progress					
201								To Do					
202	Final Prep and Testing Systems with Rover	03/23/18	04/11/18	Bates, Bailey, Deriar	20d			To Do					
203													
204													
205	Telemetryv Report	03/08/18	03/08/18		1d								



