NAU NORTHERN ARIZONA UNIVERSITY

College of Engineering, Informatics, and Applied Sciences

What: Staff Meeting
Where: EGR Building, Rm 108
When: 9/5/18 10:15-10:45
Discussed:
The team started working on the team charter memo that is due on 9/12. As a team, we decided to have our own personal due dates that are earlier than the required due dates as to give the team more time to ask questions if need be.The team would like to inform the client, Dr. Oman, on the validity of the customer needs and engineering requirements that the team has developed to see if we are lacking in areas or are over constraining ourselves.

What: Team Meeting
Where: EGR Building, Rm 108
When: 9/5/18 10:45-11:15
Discussed:
After working more on the team charter, the team assigned roles for each team member to execute while outside of our meeting times as to complete the memo in a timely fashion. The team decided at this point in the semester we need to begin our research into the topic of kinetic sculptures, look at what has been done before, what works and what doesn't, and which current designs correlate with the team's customer needs and engineering requirements to find out where to begin in our design.

What: Team Meeting
Where: Du Bois, Rm 011
When: 9/10/18 5:30-5:45
Discussed:
After lecture on Monday night the team met together to finalize what the team's customer needs and corresponding engineering requirements should be definitively. For customer needs the team has the customer needs of; moveable (easily), cost effective, durable, representing engineering positively, visually pleasing, adn reliable. As for the engineering requirements the team developed the following; weighs less than 150 lbs, less than 3x3x6 (feet), under $5,000, material strength, material hardness, corrosion rate, factor of safety, at least three engineering principles, operational for 30 minutes without power, least power required, and liked by nine out of ten people.

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What: Team Meeting
Where: EGR Building, Rm 108
When: 9/12/18 10:15-11:35
Discussed:
The team began to finalize the website development. Each member had their photo taken and wrote a brief yet meaningful descriptions of themselves to add to the website, a team photo was also taken for the website. The team also wanted each member to put their academic resumes onto the website as to list our credentials for any possible future employers. After the website the team started working on the presentation slides for the upcoming presentation. We assigned roles for each team member to work on for the presentation, the roles were assigned as such; Holden would work on and present the project description, Dylan would work on and present on background and benchmarking, Josh would work on and present the customer needs/engineering requirements and present the QFD, Jonathan would work on and present the project's schedule and budget. Lastly, the team ended the meeting by trying to decide on a team name, we came up with nothing. So by the next meeting, each team member is to brainstorm some potential team names.

What: Team Meeting
Where: EGR Building, Rm 108
When: 9/17/18 10:10-10:40
Discussed:
The team finished up the last edits on the presentation and then reviewed the slides for the presentation later today. Afterwards the team decided to look ahead to the next assignment due to prepare for it. The next assignment that is due is the first website check on 9/26.

What: Team Meeting
Where: EGR Building, Rm 108
When: 9/19/18 10:15-11:20
Discussed:
The team began the meeting by setting the due dates for the resumes and brief descriptions of the team members that was discussed earlier for Monday 9/24. After hearing feedback from our first presentation the team decided to add safety as an engineering requirement since the project is supposed to be interacted with by the public. During the team's research, we discovered a kinetic sculptor by the name of David C. Roy who uploads many of his personal sculptures onto his website, woodthatworks.com. What the team liked most about Mr. Roy's designs was that he had kinetic sculptures that could run for hours after just seconds of human energy input, which corresponds directly with the team's engineering requirement of being operational for 30 mins without power. After evaluating the team's developed concept designs, we decided to use Jonathan's concept of the main planetary gear system as the centerpiece of the project, since this would be one of the easiest way to implement the team's other concepts into the project.

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What: Team Meeting
Where: EGR Building, Rm 108
When: 9/26/18 10:15-11:40
Discussed:
This meeting the team dedicated their time to more research onto the subject of extending our operational time just as kinetic sculptor David Roy has. After looking into more details from his website the team discovered that Mr. Roy has achieved this feat by incorporating a constant torque spring that would allow his sculptures to unwind at a constant rate of his pleasing. After learning about the use of constant torque springs the team looked into different suppliers of constant torque springs to see what specifications were available as well as prices. The team found a by the name of Vulcan Spring that looks promising.

What: Team Meeting
Where: EGR Building, Rm 108
When: 10/3/18 10:15-11:00
Discussed:
After much time and consideration the team has finally found a suitable name for the team. The team decided on Art Combined with Engineering, aka Team A.C.E.. The next assignments that are due are the individual peer evaluations, due by the end of this week. So the team decided to use this meeting time to individually work on our peer evaluations.

What: Team Meeting
Where: EGR Building, Rm 108
When: 10/10/18 10:10-11:05
Discussed:
During class time on Monday, 10/8, each team member had to propose a potential topic for an analytical task to Dr. Oman for each team member to perform. Josh decided to research into the corrosion rates of different fluids interacting with different metals. Dylan decided to research into the manufacturing processes that the team may have to use in the future. Holden decided to research into the life cycle of the proposed design. Jonathan decided to research into the force required to turn the sculpture. During today's meeting the team began to work on the presentation slides that the team will be presenting next week. The assigned roles are as follows; Holden presents on the project description, the black box model, and the work process diagram, Dylan presents on the designs considered, Josh presents on the concept evaluations (e.i. the Pugh Chart and Decision Matrix), Jonathan presents on the designs selected and the schedule and budget.

What: Team Meeting
Where: EGR Building, Rm 108
When: 10/15/18 10:15-11:10
Discussed:
The team assigned roles for the upcoming Preliminary Report and worked on the report that was due by the end of the week.

What: Team Meeting
Where: EGR Building, Rm 108
When: 10/22/18 10:15-10:45
Discussed:
The development of the team's 3D printed prototype began. The printing of all the parts will take a few weeks since the team is printing the prototype to full scale because the team plans on using the 3D parts as the molds for the parts needed in the final design. The team has also created their own foundry for the production of the gears needed in the final design. The foundry in currently drying out and will take a few more weeks before it is ready to burn. While the team waits for the foundry, we have to decide on a safe place to burn and cast our gears. We decided to begin our research into adequate places to run the team's foundry.

What: Team Meeting
Where: EGR Building, Rm 108
When: 10/29/18 10:15-10:35
Discussed:
The next assignment that is due is the second website check, due by the end of this week. The team spent this meeting recapping what needs to be completed and assign roles accordingly.

What: Staff Meeting
Where: Du Bois, Rm 011
When: 10/29/18 5:45-6:15
Discussed:
After discussing with our client the team has decided to increase factor of safety to account for robustness.

What: Staff Meeting
Where: EGR Building, Outside Dr. Oman's office (Rm 261)
When: 11/5/18 5:30-5:47
Discussed:
During this Staff Meeting with our client, Dr. Oman, we informed her that the team has built and foundry to perform our own burning and casting. When we brought up the issue of looking for places to burn safely, we were suggested to contact the Professor Brian Painter, a professor in the art department who specializes in sculptures, to see if he or anyone in the department would know of a safe place to perform our burns. We also informed Dr. Oman how we have already began the process of asking the building managers of the Engineering Building and the Business Building if we could set up bins to collect aluminum cans, which will be melted down and used for the final design.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/7/18 10:15-12:15
Discussed:
After having a conversation with Dr. Jennifer Wade, Josh has learned that our group has a good chance of being sponsored by the NAU's Green Fund since we plan on recycling aluminum for our final design. In order to be this funding the team must first submit a Green Fund application explaining what we plan to do with the money, why we need the money, and exactly how much money we will need from the fund. Green Fund wants the team's application sent by this week Friday, so the team has divided roles to each team member to complete. To end this team meeting, the team went to the Chemistry Building to track down chemistry professors who might be able to help the team with the anodizing process or at the very least get some directions on how to get started. After talking with numerous chemistry professors, the team has learned that due to the the dangerous process of anodizing the team will have to outsource the anodizing process to a professional company that specialises in that field, opposed to the team anodizing the parts themselves which was the original intent.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/12/18 10:15-11:05
Discussed:
The team begin their work on the presentation slides for the team's final proposal presentation. The assigned roles are as follows; Holden presents the project description, schedule and budget, Jonathan presents the design description and the work on the foundry, Dylan presents on the design requirements, the can collection, and part of the anodizing process, and Josh presents on our potential Green Fund work as well as the other parts of the anodizing process. After the work on the presentation was done, the team began the work on the Final Proposal report by going through the comments left by the grader from the team's Preliminary Report.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/14/18 10:10-10:40
Discussed:
With the second peer evaluations due by the end of the week, this week's meeting was dedicated to getting this assignment done.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/19/18 10:15-11:10
Discussed:
The team started this week's meeting by making the last edits on the presentation and reviewing our respective slides for the presentation. The remaining time of the meeting was spent working on the Final Proposal report due by the end of the week.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/21/18 10:10-10:55
Discussed:
The entirety of this week's meeting was dedicated to finishing up the team's Final Proposal and making the last edits to make the report as professional as possible.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/26/18 10:15-10:40
Discussed:
With the foundry just about ready to be used, the team needed to look into the purchases of a crucible, tongs, and a propane torch, all required to perform the team's burns. The team was able to find a well priced crucible and propane torch and ordered them via Amazon.com, however the prices for the required tong size that the team needs are too expensive and so the team has began looking into the possibility of manufacturing their own tongs needed to use the foundry.

What: Team Meeting
Where: EGR Building, Rm 108
When: 11/28/18 10:15-10:50
Discussed:
With the prototype and CAD demonstration next week Monday, the team dedicated their time reviewing the CAD file to make sure all is in working order as well as make the last minute assembly on the team's prototype.

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What: Team Meeting
Where: EGR Building, Rm 108
When: 12/3/18 10:10-11:00
Discussed:
With the prototype and CAD finished, the team focused their time on fixing their Bill of Materials to better fit the provided template. Afterward the team began the discussion of how large we want our informative plaque to be on the project, we agreed on a twenty inch tall by thirty-one inch wide plaque, that's three fourths of an inch thick. The team also created a document to begin the writing of the plaque with brief descriptions at the moment.

What: Team Meeting
Where: EGR Building, Rm 108
When: 12/5/18 10:15-10:45
Discussed:
The topic of this semester's last meeting was assigning roles for each team member to do/research into over the upcoming winter break. Josh's assignment is to look into sand casting companies that would be able to cast our Archimedes screw. Holden's assignment is to research into the annealing process that the team is going to perform. Dylan's assignment is to contact a variety of companies to see if we can find more sponsors for the project since we are currently projected to be over the projects budget. Jonathan's assignment is to research more into the molding process which the team will need when it come time to cast their own gears.