Schedule

* Each subteam recap what has been accomplished over hiatus.
* Extruder
  + Research into some of the topics we talked about in our last meeting
    - Research has been collected, would like to see it implemented into the Prospectus by next week.
  + Aidan has the extruder at his house
  + Figure out a method to power the extruder and start working on a parts list/plan for that
* Structures:
  + People who were learning how to use arm are going to switch focus (how will this affect things)
    - Started researching carbon fiber PLA and testing of it
    - Should we stick with this course? Other things to focus on?
  + Extruder Mount:
    - The goal is to get CAD design by the end of the semester
    - Researching designs leading up to this meeting
    - Will start narrowing down ideas and have a general concept by next week
* Keeping/dropping designs:
  + From last meeting: physics was non-negotiable and was the novel part

Notes:

* Subteam updates:
  + Extruder
    - Touched up methodology - collected some research
    - Has been playing around with the extruder that was purchased
    - Problem is only one person can work on this right now
    - Goal: figure out power source
  + Structures
    - Originally split: arm and extruder mount
    - Arm group is moving to something else -> researching on how to test
    - Extruder mount group -> hopefully can make a CAD model by the end of the semester, looking in to further designs during the semester
    - Replacing irrelevant sections in the proposal
    - Carbon fiber research
      * Already have premade carbon fiber filament that are being sold at reasonable prices
        + Some require certain type of 3D printer
  + Scanning
    - Slicing
      * Projections of arbitrary surface
      * Some bugs but pretty useful
      * Everything is in the team github
* Ordering parts ability -> unknown, will contact
* **Academics are great, but the physics are the true weight of the project**
* Extruder: Extruder rate and gear spinning and arm speed, adhesive strength on angle
* Adhesion proeperties, testing: heaters, flow rates, experimental data
  + resource: two types of pla tested on **fabric**
    - Extruder temp, platform temp, speed are major factors
      * Extruder temp: 260 degrees -> best for adhesion (on fabric)
      * Platform temp didn’t change adhesion properties much
      * Optimum printing speed
* Main areas of analysis:
  + Feed rate, adhesive properties, arm speed, and their relations and changes that angles that can make on those
  + Need to set a lot of boundries such as air gap before any testing can be done
* Scanning: <https://docs.google.com/document/d/1ivUC3e9RnLAtHyBXrJRnO54Rt97WFa1R4fXb-iz5Zns/edit>
* Just 3D print on a curved surface and have the toolpaths and the data that could be achieved through scanning as predetermined
  + Scanning could be a stretch goal and further implement as a repair goal
* The testing and the physics will be the novelty
  + **Compare the mechanical properties of our repair vs predamaged vs without damage → current goal**
* Can we find a point where you don’t have to fully fill in but still hold strength
  + **Data and experiment!!**
* Aidan with the extruder: probably going to be working more on the cool end and work on dispensing speed, need more materials for hot end and really figure out that part

Deliverables:

* Extruders & Structures: look over methodology and integrate the research into the paper
* First strength, then slippage.
  + Research materials
  + Multi-material strength tests - ex: carbon PLA printed on dried,cooled normal PLA (on wood??)