



# TEXTRON COOLING FAN PROJECT SPRING 2022 (2ND) SEMESTER WORK STATEMENT



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# Textron Cooling Fan Project Work Package

For the Spring semester 2022, there are several items left that need to be accomplished. The major milestones are detailed below.

- Finalize the component values for the first prototype. (Everyone, Week 6)
  - The design that we currently have is still in need of some adjustments as it relates to the specific component values. (i.e., the component values for the Schmitt Trigger ). Additionally, we need to finalize the output stage in order to ensure that it is able to sink 1-amp continuously. We had hoped to be at this point already but been delayed due to our inexperience and differing opinions within our 'mentor' support system.
  - After the above steps are accomplished, we will generate a BOM to acquire the specific components needed to move on to prototype and test the circuit. These first pass materials will likely be obtained via the university so cost at this point will be minimal.
  - It would also be appropriate to set up a design review with Textron at this point before moving on.
- Breadboard and test the first pass prototype. (Ayham, Week 4)(Everyone been helping with it)
  - At this stage we will require the use of a power supply, oscilloscope, the accompanying leads, etc.
  - We will perform tests on the design to ensure that we get the appropriate response in regard to frequency response, output voltage, and output current (to sink 1-amp continuously).
  - Once the performance is satisfactory, we will generate a progress and testing results report to forward to Textron.
  - Generate a BOM and acquire components that fit our value, ratings, safety requirements.
- Design the PCB that our circuit will utilize. (This will occur concurrently with the above step.) (Mel, Week 6) (Everyone been helping with it)
  - It is my understanding that in order fulfill FAA and DoD requirements, the design will be forwarded to Textron who will then manufacture the PCB for us and return it for testing. This will also mean a minimal cost the team.
- Design the package to enclose the PCB. (Ayham, Week 8) (Everyone will be helping with it)
  - To do this we will have to research specific material requirements with regard to aircraft. This could be anything from a plastic, 3-d printed package, to an encapsulated circuit.
  - We will have to refamiliarize ourselves with Catia, or other CAD software if it is to be 3-D printed.
- Assemble the final PCB and enclose within the package (Everyone, Week 16)
  - At this point there are tests to be run to ensure compliance with DO-160g. These tests will be performed by Textron will the team observing.
- Assemble the deliverables and draft the final report for Textron. (Everyone, Week 16)
  - PCB Schematic files
  - PCB Layout files

- Package Design files
- Final Report
  - Detailed Functional Description
  - Detailed Description of how to set the Frequency Threshold and Hysteresis Parameters
  - Results of any testing that was accomplished to prove out the design.