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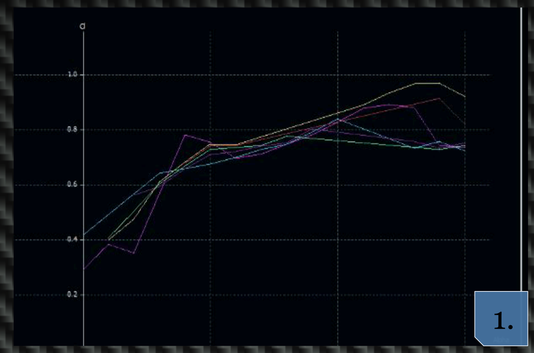
U.S.R.

Unmanned Search and Rescue

Team Leads:
Alex LaVelle
Madara Wijetunga
Kyle Williams
Augustine Nguyen
Alexander Alvara
Michelle Antimie
Lakshan Peiris
Evan Coombs
Mahmoud Sherif

Initial Design, Testing, and Analysis

1. CFD calculations for Klein-Fogleman stepped airfoil.
2. Control surface structure and wiring
3. Front landing gear
4. Rear landing gear
5. Laser-cut ribs for the wing
6. Wing design for full wingspan
7. Fuselage design and finite element analysis for balsa ribs
8. Aerodynamic drag calculations including skin friction



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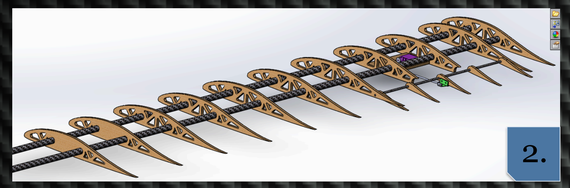
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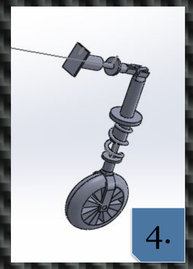
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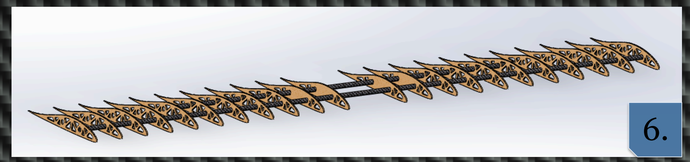
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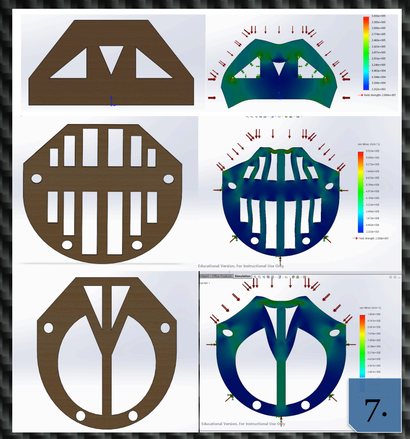
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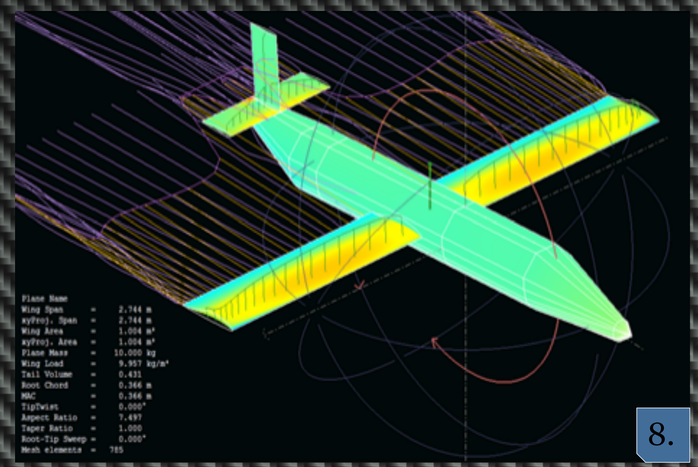

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Purpose:

To build an unmanned aerial vehicle for search and rescue capable of vertical takeoff and landing, plotting its own flight path based on user-inputted human attributes, and utilize solar energy to charge and recharge.

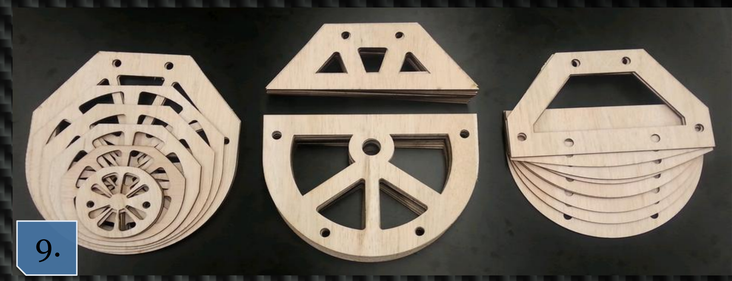
Spring Quarter:

- Reorganized into specific teams with more clearly defined goals for greater utilization of time, energy, and resources
- Redesigned the plane for greater strength, durability, and actual flight
- Ran better simulations to gather more accurate data on every aspect of the plane
- Learned how to manufacture and utilized carbon fiber and other composites as a main method of fabrication
    - Fly!

Team Structure:

- Wing Design
- Aerodynamics and V/STOL
- Fuselage Design
- Power Generation
- Propulsion and Landing Gear
- Programming and Controls
    - Manufacturing

Manufacturing and Production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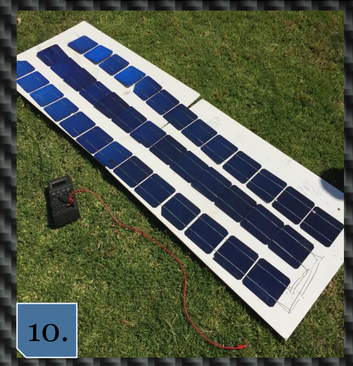
9. Balsa fuselage ribs after being laser cut
10. Custom solar panel built by Power Generation
11. First layer of carbon fiber going onto the fuselage
12. Fuselage “in work” in our lab in EG.
13. Wings and fuselage almost ready for assembly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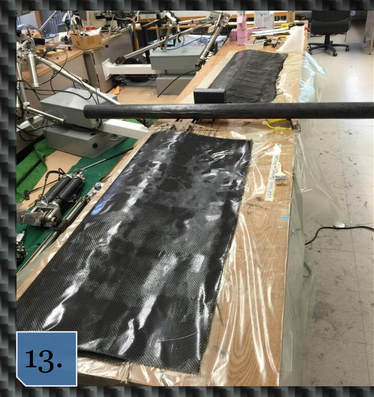
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