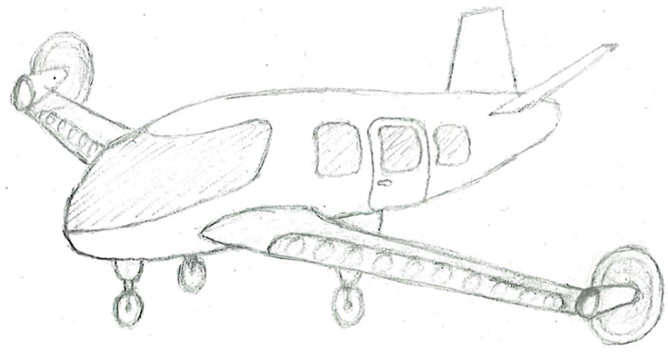
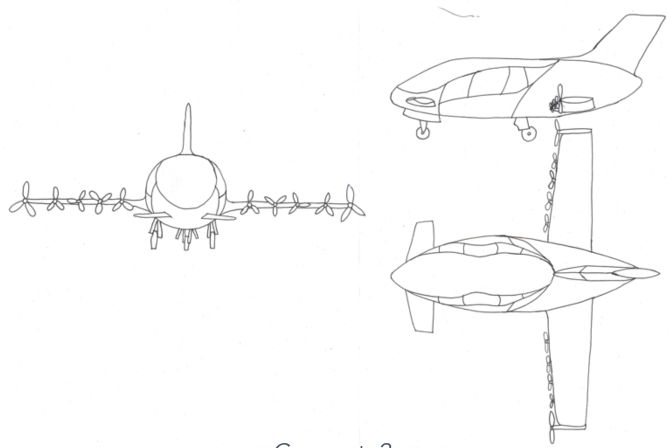
CONCEPT DESIGNS

Concept 1 makes use of multiple small rotors within the high aspect ratio wing upper and lower surfaces primarily to reduce noise. The contra-rotating wing tip propellers act to reduce tip vortices and induced drag. Similarly, the V-tail design is both a striking feature and with a composite structure, reduces weight compared to a conventional configuration permitting more weight for batteries. Finally, the large front windscreen allows for clear pilot visibility of the wing making it easy for the pilot to assess how the rotors are performing and check for ice accretion.



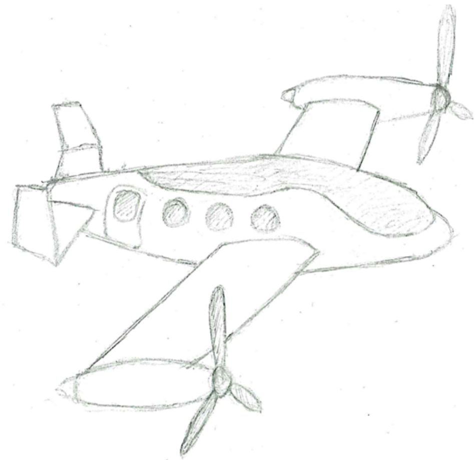
Concept 1



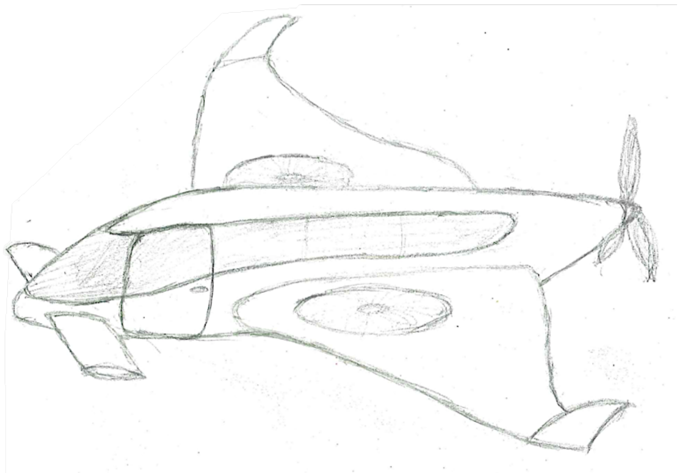
Concept 2

Concept 2 is largely inspired by the Lilium Jet, though with fixed fore-wing fans, this distributed electric propulsion aircraft is designed for traditional TO/L procedures. The canards are used to provide pitch control and help offload the high concentration of weight due towards the rear section (aft wing location and large vertical tail). Similar to concept 1, the tip propellers are enlarged to help reduce induced drag. The electro-chromatic glass roof allows for lots of natural light into the cabin and reacts automatically based on the suns position. Additionally, the large gullwing doors make for easy passenger egress.

Concept 3 is a VTO/L aircraft which makes use of tilt rotors. This design is heavily influenced by the V-22 Osprey, but making use of hybrid electric motors. Much like concept 2, this also has an electro-chromatic roof, but each passenger also has their own window. Boarding occurs at the tail section of the aircraft such that battery swaps in the wing and engine start up can take place at the same time, reducing turnaround time.



Concept 3



Concept 4

Concept 4 is also a VTO/L aircraft which makes use of wing mounted tilt rotors. These provide vertical thrust, meanwhile the tail rotor engages at altitude and provides forward thrust. To further increase the efficiency, the wing rotors can be deflected as required reducing the stress on the single tail motor. A canard configuration means the tail rotor receives undisturbed airflow and pitch control remains unaffected. Vertical sections on the wing tips provide yaw control, but also act as winglets to reduce induced drag.