design specification example

(prototype inspired by 4 organisms: boxfish, shark, owl, humpback whale)

Aesthetics
- prototype will have a regular airplane formation - with two wings, a motor underneath each wing and windows along the entire structure.
- shape of a boxfish
- 100 seats inside of it, along with a cockpit at the front of the aircraft
- Exterior colours: white with sleek and shiny surface
- thin, but sturdy wings, like the owl to help the plane to better glide through the air with ease

Function
- safely carry people and fly with minimal noise levels and maximum comfort for passengers
- maximum energy efficiency: should be fuel efficient motors, solar powered, or run on Lithium Ion batteries
- used for travelling, both commercial purposes and private flights.
- uses shark skin and owl feather biomimetics to make plane ride less turbulent, faster and more sound insulating.
- boxfish shape provides stability in turbulent air by creating self-stabilizing vortices similar to the way the fish creates vortices in the water
- owl-feather-shaped wing edges, which allow for soundless flight by changing air turbulence and absorbing excess noise
- bumps on the wing edges, like bumps on the flippers of the humpback whale create "aerodynamic efficiency" making it easier for them to swim swiftly).
- shock absorbing nose wheel to minimize noise and add increase passenger comfort

Materials and Software
- The plane fuselage would be made of aluminium and carbon fiber for weight and strength
- Fabric that mimics shark skin would be added to wings and fuselage
- CAD software needed to build 3d prototype before plane is manufactured

Safety
- plane will feature quiet blended engines for less fuel burning and fossil fuel emission, or battery powered engines.
- Manufacturing of motors requires metal, plastic, etc, which can cause harm to our environment and pollute the atmosphere.

Size
The size is modeled after similar aircraft that seat 100 people. I have looked at the
[Regional Jet](#)

approximate sizes
- wingspan 32 meters
- Length: 35 meters
- Height: 10.5 meters
- Cargo/seating area length: 13.5 meters