Hack the Arts: Art Meets Business

LIC Challenge Brief

Introduction

UAB Sportinė aviacija ir Ko invites you to take part in an exciting challenge: to design a lightweight, durable, and innovative single-passenger eVTOL drone that reimagines the future of personal air mobility.

This brief outlines the context, technical requirements, and expected outcomes of the project. Join us in shaping the next generation of individual flight solutions!

Challenge Title

How can we design a lightweight, durable, innovative, and visually appealing single-passenger VTOL drone?

Context

UAB Sportinė aviacija ir Ko has been designing and manufacturing aircraft since 1969.

Several products are currently being produced, including:

- MiniLAK: https://www.lak.lt/models/minilak/
- LAK17B FES: https://www.lak.lt/models/lak17b-fes/
- Airev: https://www.airev.aero/

A new planned product is a small, affordable, durable, and innovatively designed VTOL drone intended to carry one person.

The Challenge

The core challenge is to create a conceptual design for a single-passenger aerial drone of the eVTOL type, intended for human transport.

The design should meet defined technical, aesthetic, and structural requirements.

The drone should be visually appealing, modern, and futuristic, while also following functional and technical logic. The design should not be purely aesthetic.

Target Audience

The proposed solution is relevant to a broad audience connected to future mobility, aviation innovation, and personal transport technologies, including:

- UAB Sportinė aviacija ir Ko as the organisation developing the new product;
- future users of personal air mobility solutions;
- people who may use small, single-passenger aircraft for transport, work, recreation, or specialised mobility needs;
- aviation professionals, engineers, and product designers;
- investors and innovation partners interested in the future of personal flight;
- organisations working with future mobility, aviation, and transport innovation.

Team Task

The team is invited to create a design for a single-passenger VTOL drone.

The solution may include: concept / idea; prototype or demo; spatial or physical solution; technical design concept; 3D model, renders, or CAD; short technical description; animation or operational diagram; or other relevant format.

The team should design a conceptual single-passenger aerial drone of the eVTOL type intended for human transport.

Constraints & Requirements

The proposed drone design should meet the following technical, aesthetic, and structural requirements.

Project Objective

The team should design a conceptual single-passenger aerial drone of the eVTOL type intended for human transport.

Payload Capacity

The drone must be designed to carry one person.

Minimum payload: at least 100 kg, including the person and basic equipment.

The design must include:

- a safe seating position;
- a harness or equivalent safety restraint system.

Propulsion System

The drone should have the following configuration:

- 8 electric motors;
- 4 paired dual-motor units;
- each pair mounted on a single axis / rotor structure.

The design must address:

- redundancy, so the system remains controllable in case of partial failure;
- flight stability;
- synchronised motor operation.

Weight Requirements

The structure must be as lightweight as possible. Recommended target empty weight: up to 120 kg. The design solution must clearly justify weight reduction strategies.

Materials

Primary structural materials should include:

- carbon fibre for the frame, body, and protective structures;
- aluminium alloy for joints, mounting elements, and load-bearing nodes.
- Additional materials, such as plastics or composites, may be used, but they must not dominate the main structure.

Design and Aesthetics

The drone must be:

- visually appealing;
- modern and futuristic.

The design will be assessed according to:

1. proportions;
2. formal coherence;
3. perceived aerodynamics.

The design must follow function and should not be purely aesthetic.

Flight and Stability Principles

The team must define:

- vertical take-off and landing capability;
- stability control concept.

The design must include an explanation of:

- thrust distribution across 8 motors;
- fault tolerance strategy.

Energy System

A battery-based electric power system is recommended. The design must include:

- a preliminary energy concept;
- estimated flight duration.

Possible Directions

The team may consider the following directions:

- novel structural solutions;
- modular design;
- safety innovations;
- noise reduction strategies.

Additional points will be awarded for innovative solutions in these areas.

Expected Outcomes

A successful outcome would be a conceptual design for a single-passenger eVTOL drone that meets the defined technical, aesthetic, and structural requirements.

By the end of the hackathon, the team should present one or more of the following:

1. a 3D model, renders, or CAD design;

2. a short technical description;

3. a justification of key design decisions;

4. an optional animation or operational diagram.

The best solution should demonstrate a strong balance between technical feasibility, design quality, innovation, structural logic, and presentation quality.

Additional Information

Evaluation Criteria

The proposed concepts will be evaluated according to the following criteria:

- technical feasibility – 30%;
- design / aesthetics – 25%;
- innovation – 20%;
- structural logic – 15%;
- presentation quality – 10%.