

SkySilence

Real-Time Drone Routing with Built-In Noise Supression

Team Top Gun

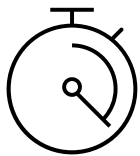
Anisha
Dron
Hiten
Moinul
Tashi
Vincent



What's next...

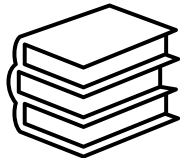


How might we incorporate a **dynamic** and **noise reducing** programmed flight path for crewed and uncrewed aircrafts to share airspace by 2030



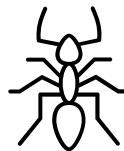
Time Constraints

- Policies take time to change.
- Testing is required.



Resourceful

- Using what exists:
 - ANC devices
 - Remote ID
 - Airwayz used in Israel, partnered with the ESA in Europe.
 - A-CDM



Path Optimisation

- How do ants change path when an obstacle appears?
- Adaptability

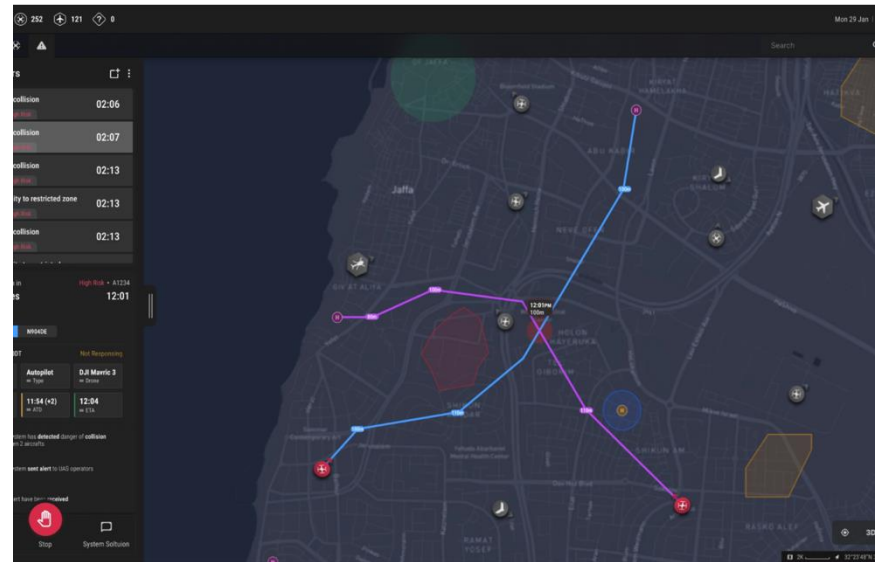


Mutualistic Symbiotic Relationship

- Real time data sharing through A-CDM.
- Active Noise Cancellation from smaller drones.

Dynamic Flight Path

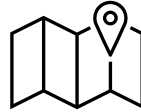
- Airspace "Thread Zones" instead of static lanes
- Intent-Aware routing
- Enviromental and Event-Aware Airspace flow
- Adaptive prioritization
- Modular Plug - In architecture



Noise Reducing Escort Drones



Ground Zero Level Noise



Location and Time Based Considerations



Existing Research



Image courtesy of:
FAA

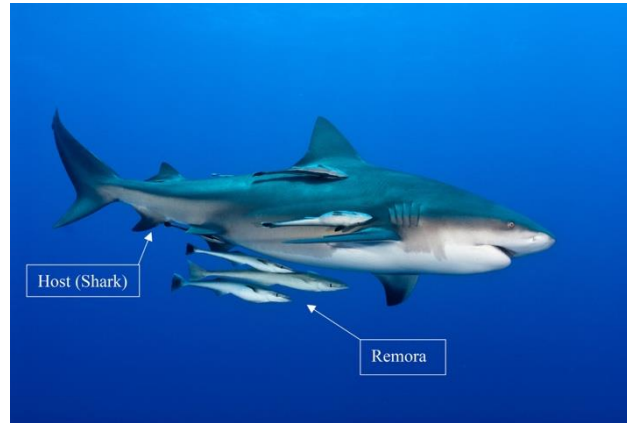


Image courtesy of:
<https://www.nature.com/articles/s41598-021-94342-x>

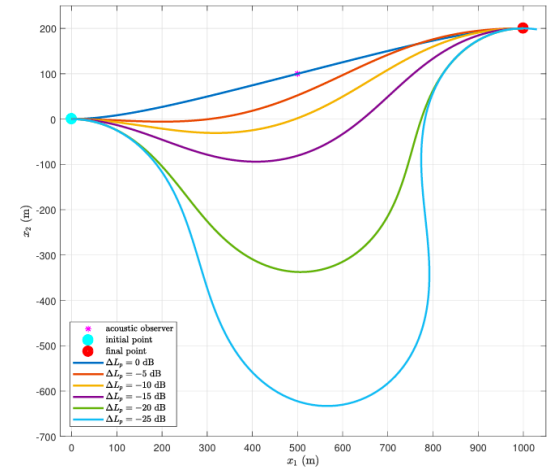
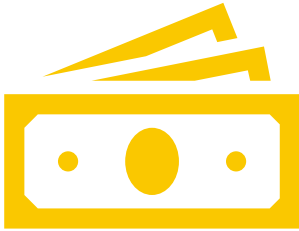


Image courtesy of:
Old Dominion University

Business Model



ROI, Cost



*Broader Benefits,
[Marketing and Regulatory]*



Task	% of Budget	Estimated AUD
Software Development	18%	A\$90,000
Cloud, APIs & UI Tools	6%	A\$30,000
Speaker Drone Prototypes	5%	A\$25,000
Integration & Compliance Support	5%	A\$25,000
Contingency (buffer)	10%	A\$50,000
Subtotal	44%	A\$220,000

Phase 1

Tasks	% of Budget	Estimated AUD
Drone Hardware (10+ units)	10%	A\$50,000
Field Testing & Operations	12%	A\$60,000
Monitoring & Feedback Tools	6%	A\$30,000
Data Visualisation + Reporting	4%	A\$20,000
Compliance + Deployment Buffer	24%	A\$120,000
Subtotal	56%	A\$280,000

Phase 2

Total cost comes out A\$500k from both phases

Revenue Model

- Licensing: B2B/B2G to eVTOL operators, cities, regulators.
- Data-as-a-Service: Sell noise maps, traffic patterns.
- IaaS: Noise swarm service (per flight or monthly).
- IP Licensing: Algorithms + acoustic tech(eg. flight paths) to other OEMs defense.

[A \$5m+ potential from enterprises and government just from licensing, and A\$3 million+ per year potential.

Monetizing the aggregated airspace data]



Market Positioning

- First Mover Advantage: Project will be seen as offering a holistic solution (vehicles + traffic management + noise mitigation) (projected over 100k drones deliveries by 2030).
- Competitive edge vs OEMs only building vehicles.

Community and Regulatory Readiness

- Silent skies = public acceptance = more flights = more revenue= builds more reputation.
- Boeing can gain regulatory trust and city partnerships by leading quiet, well-managed urban airspace, shaping UTM policy and boosting broader aviation sales.
- 2030 pilot writes blueprint for global regulatory frameworks.

ROADMAP FOR SKYSILENCE

2025

2026

2027

2028

2029

2030

1

RESEARCH & PLANNING 2025-2026

- Study about Cora
- Define drone specifications
- Identify noise cancellation goals
- Connect with CSIRO

2

DESIGN & PROTOTYPING 2025-2026

- Choose lightweight materials
- Develop real-time noise cancellation algorithms
- Partner with Universities' (Swinburne) Aerospace Lab for design advice

3

COMPONENT SOURCING 2025-2027

- Order motors, batteries, speakers, sensors & other important features
- Source Australian suppliers (Jaycar Electronics or RS Components)

4

TESTING SETUP 2027-2028

- Book drone testing space (QLD Aero Park, RAAF Base Amberley).
- CASA drone operation approvals
- Engage with Brisbane City Council for local flight regulations

5

INITIAL FLIGHT TESTING 2028

- Measure sound output and cancellation + drone stability effectiveness
- Use a Noise Lab for acoustic measurement support

6

ADVANCED ANC INTEGRATION 2028-2030

- Implement adaptive ANC algorithms
- Test drones formation flying
- Collaborate with Boeing Australia for data sharing and tech refinement

7

FINAL TESTING & VALIDATION 2030-2032

- Conduct full-scale flight tests
- Validate noise reduction at ground level around
- Work with local airports or training sites like Redcliffe Aerodrome for safe test flights



References

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