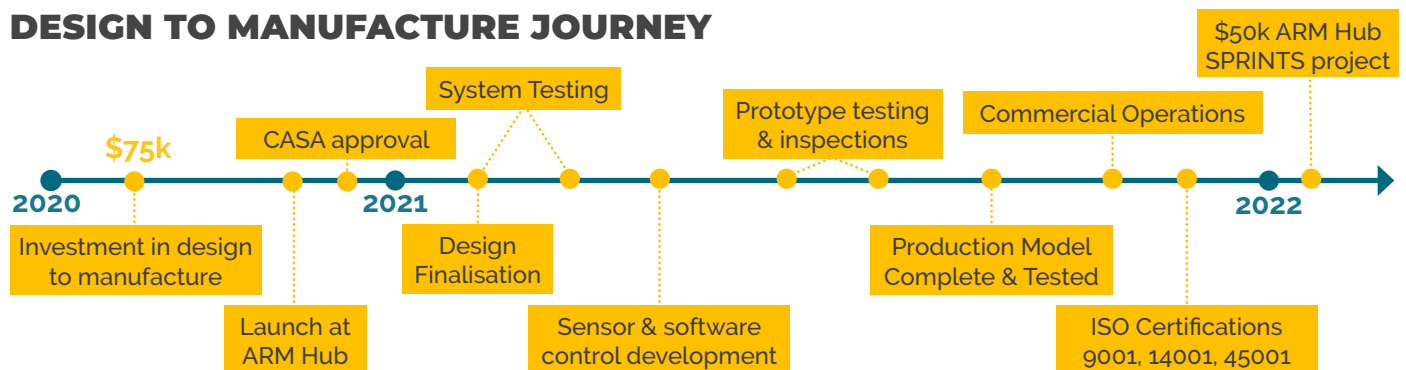


CASE STUDY VOLTIN

Design, prototype and development of a world-first AI-enabled building façade inspection system, capturing the dangers of defects invisible to the human eye.

DESIGN TO MANUFACTURE JOURNEY



RESULTS

With great success from a design to manufacture process with collaborators ARM Hub and QUT, Voltin's original innovation, the AutoBAT, has evolved from prototype to commercial production model with full CASA approval. The AutoBAT is currently being used on commercial and residential towers and AutoBAT 3.0 is now in development.

Voltin's ground-breaking data analysis of buildings and infrastructure provides new, safer, more accurate, and more cost-effective assessments of building information integrated with modelling capabilities. The detection of defects and improvements on building façades not only improves safety but also generates demand for work from additional industries.

Through a workshop processes, Voltin made enhancements to their original prototype. The AutoBAT 2.0 boasted advanced features including

- Propulsion stabilisation
- Anti-collision sensors
- Artificial Intelligence technologies
- Digital data capture and geo-location
- Thermal and RGB image comparison
- Automated winch/boom controls
- Defect Analysis Imagery
- Software remote control systems

With a \$50k ARM Hub SPRINT project Voltin are now developing AutoBat 3.0. The system will deploy a single sensor system with AI for sensor fusion to accurately identify salient features within the robot's field of view.

Since their launch at the ARM Hub in 2020, Voltin has achieved significant growth, including:

1 new product to market

7 new staff by 2023

800% forecast growth to 2023

3 international standards certifications

200% increase in employees

APPROACH

Innovation – Voltin's AutoBAT innovation reduces the laborious and sub-optimal process of traditional man-powered rope and gantry inspections with the tethered drone and vision systems.

Investment – Voltin invested with ARM Hub to define the design to manufacture requirements for a new façade inspection product and is proceeding with an second project to refine its AI and visions systems for ease of customer use.

Collaboration – Through ARM Hub, Voltin were able to tap into the expertise of industrial designers, data scientists and engineers at QUT, allowing for product development to continue with additional advice about drones, CASA and aerospace science. Voltin continues to collaborate with ARM Hub in 2022.

Testing – Testing in the prototyping phases allowed Voltin to improve the AutoBAT before it reached commercial operation, allowing Voltin to maximise data capture and expand services.

OPPORTUNITY

For 12 years, Voltin has been providing specialised building inspections, they recognised that an autonomous device operating in the urban environment could change the way their business and the industry operate. With aspirations to achieve the versatility of a drone, without the limitations of air traffic approvals, a unique combination of mechanical, electronic systems and a synchronised software controller was the solution.

EMERGING INNOVATIONS

On the cusp of rapid growth with interstate and international expansion on the horizon, strong registration of interest and a developing pipeline of work is securing Voltin as trusted innovators.

With AutoBAT 2.0 expanding on the original features to implement artificial intelligence into the product, Voltin plan to release AutoBat 3.0 with AI technologies for sensor fusion this year.

ABOUT VOLTIN

Voltin, a new Brisbane-based SME and spin out of Bells Property Inspections and Maintenance, developed a new technology for inspecting high-rise building façades. Voltin's AutoBAT system automates the recording, evaluation, and reporting of building façade defects, significantly transforming traditional methods of inspection.

The AutoBAT, an artificial intelligence (AI) engine, can be operated safely from the ground to accurately locate and identify defects and anomalies (e.g., peeling paint, watermarks, surface cracks, corrosion) and automatically generate inspection reports.

Drone use is highly regulated and limited in populated areas and controlled airspace, rendering drone use for remote inspection infeasible. Voltin's innovative façade assessment system is capable of high-resolution visual data capture for high rise buildings in dense population areas, employing the best of traditional inspection methods and advancing technologies.

PROJECT COLLABORATORS

Voltin, ARM Hub, QUT, Queensland Government

