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AMS Halton

Business Case Study

Advanced Test and Automation, Inc. Canadian Emergency Ventilators Project

Client

Canadian Federal
Government

Manufacturer

Advanced Test and
Automation, Inc.

Partners

Starfish Medical Inc.
Celestica

Funding Organization

NGen

Project

Canadian Emergency
Ventilators Project

Solution

Design, Produce and
Test Critical Modules

Location

Milton/Halton Region

Project Date

April 2020

"Manufacturers across Canada have stepped up to the challenge. Their capacity to innovate and mobilize advanced technologies has allowed them to respond rapidly, both in scaling up production of healthcare products and in delivering new solutions to front-line workers. There can be no better example of how important advanced manufacturing is to Canadians. It's really been an all-of-Canada approach. Collaboration has been key in fighting COVID-19, and it will remain important as we prepare to open up the economy once again."

~Jayson Myers, CEO, Next Generation Manufacturing Canada

Opportunity

AMS Halton is proud to announce that Milton and Halton Region based **Advanced Test and Automation, Inc. (ATA)** is participating in a project funded by **Next Generation Manufacturing Canada (NGen)**.

The **Canadian Emergency Ventilators (CEV) Project** is for providing ventilators for use in challenging COVID-19 triage scenarios. The project is manufacturing what will be known as the "Winnipeg Ventilator," which will be suitable for large scale manufacturing and used during the COVID-19 crisis.

At the onset of the pandemic **ATA** realized that the groups rushing to produce ventilators would need to test them accurately and efficiently. ATA's FloINT system developed for the automotive industry seemed to map over perfectly. Upon marketing and outreach activity, **ATA** connected with **Starfish Medical Inc. (StarFish)**. In addition to test system needs, it was identified that a module for mixing oxygen and air needed to be quickly advanced from concept to manufactured product. This was the last module of 5 which needed completion to realize the ventilator. **ATA** offered to step up and help with this challenge as an extension to the **Starfish** team. Product design, development, testing, and production launch activities were undertaken by **ATA** in a rapid, concurrent, and iterative manner.

Solution

ATA is utilizing its knowledge in product validation and test engineering in working with **StarFish** to produce ventilators in response to the on-going COVID-19 pandemic. The partnership will accelerate the development and delivery of the **CEV Winnipeg Ventilator**, which is one of the four made-in-Canada ventilator projects ordered as part of the Federal Government's response to COVID-19.



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ATA will provide:

- Mechanical design and validation of the ventilator's pneumatic circuit.
- Manufacturing of the ventilator's pneumatic module.
- End-of-line production test equipment for the ventilator.

As part of this initiative, **ATA** has converted part of its facility into a clean room and deployed the quality systems appropriate for medical device manufacturing.

The **ATA** module itself is a mechatronics device with active (electrical) and passive valves, a flow meter, pressure regulation, sensing, and safety features. **ATA's** expertise in pneumatics and fluidics in the automotive industry (where the stakes are high with production volumes in the millions), mapped in perfectly with the critical nature of the ventilator and the tools and skills **ATA** has at its disposal.

ATA took the concept schematic and 3D Model from first pass idea, to manufactured product in 3 months. This involved concept engineering and validation, prototyping, testing, design for manufacturing, supply chain development and security, production line and test system development, process and workflow development and quality systems implementation for the ventilator oxygen and air mixing **ATA** module.

Results

StarFish is leading the ventilator design project, which will be sold by **Canadian Emergency Ventilators** as **The Winnipeg Ventilator**. The **Federal Government of Canada** has ordered 7,500 units, with deliveries expected by December 2020, with potential for more manufacturing into Q1 2021.

"I am proud of what we've been able to achieve with the StarFish project in such a short time. We are dedicated to doing our part in making sure the Canadian healthcare system has the tools needed to fight this pandemic."

~ Anthony Khoraych, *ATA's President*

ATA supplemented 15 new office staff, including a new divisional leadership team comprised of experts in their fields of supply chain management, manufacturing, quality, and launch engineering. In addition, a flexible manufacturing team of 20 assemblers can produce up to 60 units per day at maximum capacity.

ATA now has the demonstrated capability to take a concept design through to manufactured product by leveraging its core capabilities in design with integrated test to ensure highly functional and reliable products as the outcome. The design, test, and manufacturing capability, combined with **ATA's** SectionID™ product realization processes and hardware, enable an extremely fast time to market.

A ventilator design normally requires 3 years to go from concept to a finished - Health Canada approved product. **Starfish's** strategy to deploy 5 teams for development, including **ATA** for the key mixing pneumatic module, ensured that this could be



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achieved in a fraction of the normal time.

AMS Halton celebrates the achievements of Halton based innovators like **ATA**.

About Advanced Test and Automation

ATA is an engineering firm offering product development design, test engineering, and manufacturing solutions for electromechanical fluid devices. Headquartered just outside Toronto, **ATA** has provided turn-key systems and engineering services to Fortune 500 companies worldwide for over a decade. **ATA's** unique SectionID™ platform enables rapid product validation, by leveraging hundreds of pre-designed modules to define and build application-specific validation tools quickly. **ATA** focuses on quantifying performance during conditions that present unique technical challenges, providing easy-to-use solutions to simulate temperature extremes, excessive vibration, aerated fluids, and more. **ATA** is an accredited ISO17025 calibration laboratory, a National Instruments Alliance Partner, and provides thought leadership through industry committees and test standard development.

About AMS Halton

The **AMS Halton Working Group** was formed through the Milton Chamber of Commerce (MCC) and the MCC Government Relations Committee. It is managed by Richard Bolton (Chair [From Centricity360]) and Scott McCammon (Co-Chair [From the Milton Chamber of Commerce]).

This working group is made up of individuals from Halton Region, The Town of Milton, Milton Education Village Innovation Centre as well as key individuals from Silicon Halton, Haltech, BDC, all the Chambers of Commerce including Milton, Halton Hills, Oakville and Burlington, educational institutions (Laurier University and Conestoga College) and other private technology and manufacturing companies. The shared vision for the group is to educate on the Advanced Manufacturing Supercluster and the Innovation Corridor as well as ensuring that Halton based technology businesses play an active role in projects released from **NGen Canada** as well as contributing to the Advanced Manufacturing Supercluster in any collaborative or partnership means. Regional collaboration is key.