



AIM HIGHER CASE STUDY

ESTAT Actuation, Inc.



<https://www.estat.tech>

"We've benefitted a lot from the Scalable grant, so that was helping offset some of our machine costs using local suppliers in the surrounding counties in southwestern Pennsylvania."

~Stuart Diller, CEO & Co-Founder

EXECUTIVE SUMMARY

Stuart Diller launched ESTAT Actuation, Inc. and first engaged with Innovation Works (IW) in 2018. Since then, IW's AlphaLab Gear helped him develop his prototype of a rotational electrostatic clutch, and the Scalable Innovation Grant helped him build relationships with manufacturers.

- Received STTR Phase I grant \$25K
- Received SSTR Phase II grant \$100K
- Received SBIR Phase I grant \$250K
- Preparing application for SBIR Phase II grant \$1.1MM

CHALLENGES

ESTAT needed a machine shop, not only to manufacture the initial version of their rotational electrostatic clutch, but also to produce a testing rig for the clutch. No one had ever made a rotational electrostatic clutch before, and Stuart needed to test how much force it could hold, how much power it requires, and its operating limits.

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HOW AIM HIGHER CONSORTIUM ASSISTED

Innovation Works' Scalable Innovation Grant empowered Stuart to forge relationships with machine shops and other suppliers around the region to produce both prototypes: the rotational electrostatic clutch, and the testing rig. Stuart also benefited from events held by IW, where he met AFWERX representatives and learned about the opportunities to apply for Small Business Technology Transfer (STTR) and Small Business Innovation Research (SBIR) grants.

RESULTS, RETURN ON INVESTMENT AND FUTURE PLANS

After receiving \$25,000 from an open-topic Phase I STTR, ESTAT conducted customer discovery on different Air Force stakeholders and translated that into a \$100,000 Phase II STTR with the Air Force Research Laboratory for improving the characteristics of a shape-morphing wing drone. Stuart and his team were able to demonstrate that they could improve the energy efficiency and give greater flight profile flexibility by locking and unlocking and changing the natural frequency of the wings using incorporated electro-adhesive clutch technology. Last year, ESTAT applied for and received a \$250,000 Phase I SBIR from the Defense Health Agency for head and neck injury prevention for pilots. After successful initial results with bench top data and mock-ups of a physical system, the company has been doing customer discovery and interactions with Air Force stakeholders to prepare for a Phase II SBIR application with a budget of \$1.1 million.

ABOUT AIM HIGHER CONSORTIUM

The AIM Higher Consortium is a wide-ranging program funded by the Department of Defense with the goal of strengthening the defense supply chain in the Greater Pittsburgh region of Southwest Pennsylvania and West Virginia.

ABOUT CATALYST CONNECTION

Catalyst Connection is a private not-for-profit organization headquartered in Pittsburgh, Pennsylvania. We provide consulting and training services to small manufacturers in southwestern Pennsylvania, accelerating revenue growth and improving productivity.