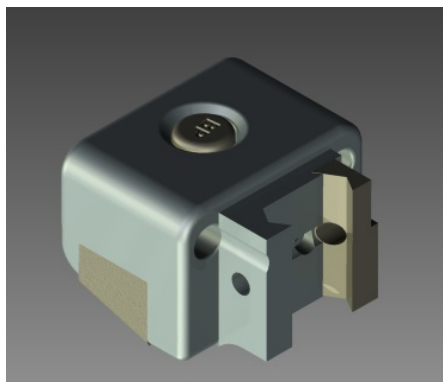


CASE STUDY 3: BULLPUP UNLIMITED- RESPONSE TIME IN A SLUMPING FIREARMS MARKET

In the personal weapons industry, the American market is saturated with manufacturers both small and massive. National trends, politics, trade agreements, and government oversight regulations contribute a great deal to sales and performance of such companies. For example, after the 2016 elections, there was a severe slump in firearm sales. As a result, many large and small manufacturers were struggling to move products, and in some cases, even stay alive.

A trend that began to occur during this slump was sales generated from firearm accessories, versus the firearm products themselves. As the typical weapons consumer no longer felt a need or desire to purchase firearms, they instead began to purchase accessories like holsters, sights, modified magazines, tactical adapters, etc. Therefore, the market was primed for new add-ons to their existing equipment.

However, for the related manufacturers, scaling up and producing new accessories is typically a slow and expensive undertaking, and with many companies suffering from lack of expendable funds, their options were limited. Therefore, when the the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) issued a new memo regarding a, somewhat vague but acceptable, use of assisting and stabilizing devices in place of typical rifle stocks, it opened up a new market for weapons accessory producers. However, investment funds and time-to-market conditions were again not ideal for most manufacturers. Bullpup Unlimited (BU), a small but well-received weapons manufacturer located in the rural region of central Kentucky, was one such company.

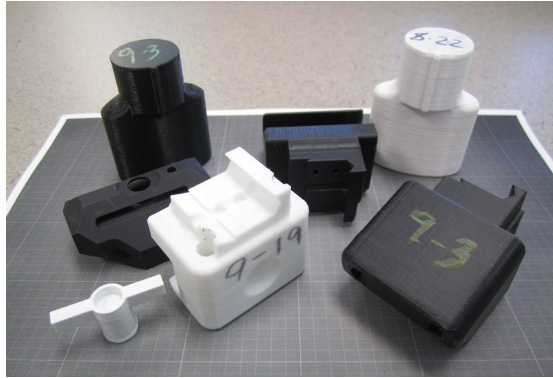


Somerset Community College's (SCC) Additive Manufacturing (AM) department, in conjunction with the National Science Foundation's Advanced Technological Education grant program, offered Bullpup Unlimited an opportunity to take advantage of these conditions and expedite the research and development processes necessary to enter an untapped market ahead of everyone else.

SCC Additive Manufacturing Lab Technicians agreed to collaborate with Bullpup Unlimited and using SCC's AM applications and expertise, went from BU's concept design to production-ready models in less than two months. Although the final products will be machined from metal, the reduced prototype development time and expense



was significant, and will hopefully allow Bullpup Unlimited to beat out all other competition to market by several months with their first version of this new product, which is a crucial factor. Because trends within the weapons industry are always changing, any new accessories will



have to work with the most popular guns at the time, which means that rapid response and flexible manufacturing are critical. Being able to adapt quickly is what allows smaller companies like BU to compete with the larger and more well-established companies in this industry when considering normal market sales. Therefore, using new technologies like Additive Manufacturing to accelerate production is a foundational component to their survival.

Although this demonstration was based on just the first product line variation, Bullpup Unlimited has their sights set on four different product line variations to corner the market with their concept. Therefore, BU will immediately be looking to use AM on the next three versions, as well.

Bullpup Unlimited's chief officer has already reported that if they had internalized this approach with additive manufacturing earlier, they could have theoretically had all four different designs iterated and finalized in approximately two to three weeks after the ATF announcement, and could have started shipping all four different variations in under two months from that point. This potentially would have allowed BU to establish branding on these lines of products and own the market in under four months, a completely unheard of possibility for most in the weapons manufacturing industry; especially considering the sales slump and the multitude of cases of company downsizing and layoffs that are occurring.



For more information visit: <https://www.facebook.com/cadd.lab>

Or SCC's 3D printing program webpage:

<https://someset.kctcs.edu/education-training/program-finder/digital-printing-technology-3d-printing.aspx>

in this document is based upon research supported by the National Science Foundation under Grant No. 1600081. Any opinions, findings, and conclusions or recommendations are those of the author(s) and do not reflect the views of the National Science Foundation.

