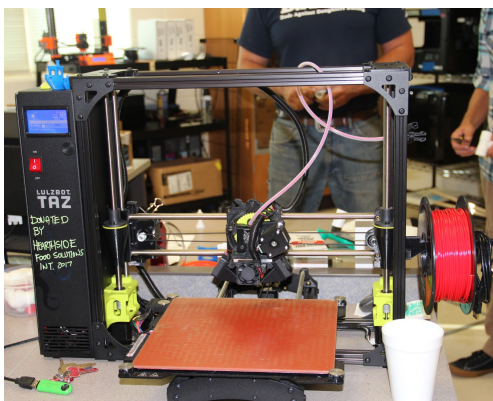


CASE STUDY 1: HEARTHSIDE FOOD SOLUTIONS- ADDITIVE MANUFACTURING INTEGRATION

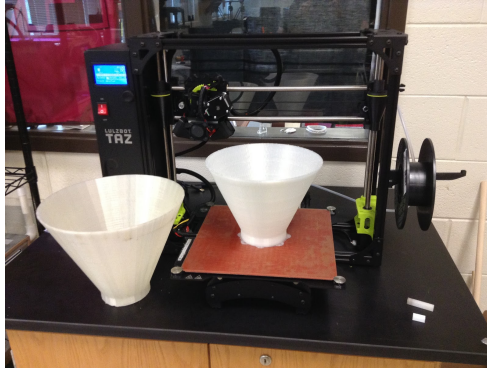
Hearthside Food Solutions is a global producer of baked goods with locations in the US and Europe. Like any volume producer, Hearthside relies on optimum equipment operation and minimizing downtime as much as possible to generate profits. As such, their facility maintenance and operation departments are key players in this regard, especially when it comes to unique replacement parts for their machines. But, like any similar maintenance team the world over, they typically have to rely on outside vendors to provide replacement parts. This was the problem when it came to a part in more than sixteen of their critical machines. The part is a custom made Nylon funnel used with sensing equipment at the end of the processing line prior to bagging, and cost their department over \$800 each to replace. With over sixteen machines and a need to replace this part multiple times a year, it was drastic drain on their operational budget. So much so that they often had to try to repair the damaged parts themselves. Considering the downtime associated with the manufacturing and shipping of these funnel parts to their facility, the total costs, including lost productivity, were very significant.

Somerset Community College's (SCC) Additive Manufacturing (AM) department, in conjunction with the National Science Foundation's Advanced Technological Education grant program, offered Hearthside an opportunity they could not refuse. SCC agreed to partner with Hearthside's team to help them internalize the production of funnel, made with an FDA approved grade of Nylon, using Additive Manufacturing (AM). SCC AM Lab Technicians, using their expertise in both engineering and AM, selected the optimum, low cost, FDM 3D printer, helped Hearthside optimize the design, and determined the best production settings for the AM equipment to operate.



The result was that within less than 30 days, SCC AM Lab Technicians had developed the process that Hearthside needed to produce this previously \$800 part for about \$40 right in their own office area. Since the 3D printers can operate 24/7, with little or no oversight, Hearthside

was able to produce a funnel part every 32 hours. In savings alone, the initial price of the \$2,500 desktop 3D printer was paid back in less than a week. But beyond that, AM has practically eliminated the previous downtime associated with the replacement of those parts by having a supply of replacement funnels ready to go and a regular replacement schedule.



Now that Hearthside has the ability to control the design and production of the funnel part, they can go even further and optimize its shape to control production speed and dispersion as the baked goods pass through the funnel. Additionally, when the 3D printer is not printing funnels, their team uses it to replace other parts and make upgrades on equipment throughout the facility. In fact, within four months of their initial AM integration, Hearthside has estimated their savings to be approximately \$30,000 and growing. This results in nearly a 1,200% return on investment within only four months of AM equipment operation. Not only is this approach very direct, it is also very scalable, and the Hearthside team is taking steps to present their findings to the rest of their twenty-three facilities worldwide, which will bring the power and profits of Additive Manufacturing to their entire organization.

HFS Previous costs - \$31,507.77

AM equipment costs - \$2,188.50

HFS Savings - \$29,319.27



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

Or SCC's 3D printing program webpage:

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

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