

Stan Is THE Van

Mobile Makerspace a Hit in Ohio

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Stan the Tech Van is all ready for visitors at the Madison Village Market to come see what they can make.

When is a cargo van more than a van? When that van is a mobile makerspace that brings creative, fun activities to children.

Stan the Tech Van is an experience on wheels belonging to Madison (OH) Public Library (MPL). It's not just a 2022 Ram Promaster 2500 cargo van; it can hold an FDM 3D printer along with other tech on carts in the back. We chose a high roof delivery van to allow any staff member the ability to drive Stan for a program or event since it does not require a commercial driver's license. Stan is outfitted with delivery shelving, a roof rack, and an awning package as well as a powered Gramps Aluminum Gated Commercial Van Ramp System. It's more than a vehicle that holds enough LEGO Robotics that a staff member doesn't have to clean out his or her car to get a classroom set out to a school. It's a mobile makerspace that holds all types of machines that anyone can use to create all sorts of projects.

Stan is about bringing experiences to children and their families outside the walls of the library. Like his cohort in mobile services, Gus the Book Bus, Stan received a name to make the mobile makerspace more friendly and easier to remember for the library's youngest patrons.

How Stan Came to Be

In July 2021, MPL applied for an American Rescue Plan Act (ARPA) Outreach Grant through the State Library of Ohio (SLO). This was how the SLO was distributing the federal ARPA Funds that they received from the Institute of Museum and Library Services (IMLS). With only a relatively short time period to get partners on

board, the library and its partners—like the local school district, YMCA, senior center, food center, and local government groups—got to write about a dream that had been had for many years that finally had an outlet—a mobile makerspace and computer lab. In mid-September, the library received notification that the \$100,000 grant had been approved, and as part of the grant, the library was getting a van. The van and its extras, like the roof rack, shelves, awning, and ramp came to approximately \$52,000. The remaining part of the grant was used for items that were part of the mobile makerspace and computer lab. In addition to the van itself, the library was able to purchase the following things:

- Benches and tables for people to work at or take classes outside.
- Tents for people to sit under while working as well as for shading and protecting the machines from sudden downpours. (Weather off Lake Erie can be a bit unpredictable at times!)
- Carts to hold various machines on the van and in the building when not in use on the van.
- A ten-thousand-watt dual fuel portable generator. Just using the



Shawn Walsh is the Emerging Services and Technologies Librarian for Madison (OH) Public Library. Overseeing the technology, marketing, and digital presence of the library, he was also the project manager of the grant that resulted in Stan the Tech Van.

power of the van wouldn't run enough of the machines if we were doing something for more than three or four people.

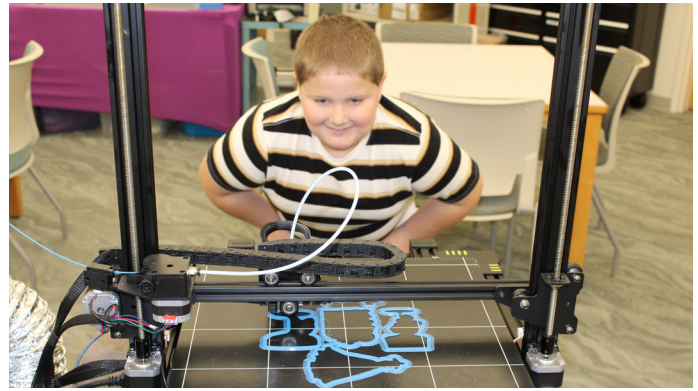
- Several Dell and Apple laptops as well as iPads. These interact with many of the machines in the mobile makerspace.
- A Roland DG CAMM-1 GS-24 desktop vinyl cutter so people can cut large sheets of vinyl to make signs or other large displays.
- Triple Badge-A-Minit System means the library has three different-size button makers and they get used *all* the time.
- Glowforge and Glowforge Air Filter so people could see and use the laser engraver that was splashed across television commercials through the holiday season around Madison.
- Photon Mono X, Wash & Cure Machine Plus is an SLA (or resin) printer, and the children know what a resin printer can do.
- ANYCUBIC Chiron 3D Printer, Semi-auto Leveling Large FDM Printer (also called a filament printer). The children discuss at length this particular printer's capabilities for size projects and time-to-print projects.
- SOL 3D scanner and carrying briefcase, which has been used more by high school students for class projects than the younger children, so far.
- X-Carve and accessories and an X-Carve Upgrade Kit, a large CNC router that the parents of many of the children want to come and talk to staff about, including what are its capabilities and how much dust does it make.
- Mayku formbox, a vacuum former that delights the children with the suction sound it makes and causes them to dream of custom chocolate molds made from the outlines of their favorite small toys.
- LEGO Education Spike Prime Set for middle school and high school students.

By leveraging sales and coupons, the library was able to purchase an additional FDM printer, an additional SLA printer, and a heat press.

Stan the Tech Van and the grant it is a part of was written for the entire Madison community, young children through senior citizens. But the kids have been most interested and pushed forward what the library wanted to do with Stan as a mobile makerspace. And they are the most vocal about the importance of the makerspace being mobile and being available where they are.

Long Time School Partner

MPL and Madison Local Schools have a rich history of collaborations over the past decade. Being situated between the middle school and the high school helps a lot, but the library had



Sometimes you have to stop and watch custom cookie cutters being extruded on the 3D FDM printer.

partnered with the school district's preschool and two elementary schools for many years on different projects.

One of the students' favorite collaborations is when the library brings LEGO robotics kits to school for whole classes to use. This is now a lot easier with Stan. No one needs to clean up their entire back seat and trunk of their car to bring multiple kits and laptops to school! The kits are receiving less wear and tear and being able to roll out kits on a cart down a ramp saves staff multiple trips from the vehicles into a building.

However, in May 2022, when making visits to the elementary schools to promote the library's summer activities including Stan's mobile makerspace programs, staff realized how important the opportunity to use a makerspace was to the students. These children in kindergarten through fifth grade were asking in-depth questions about how the FDM (filament) 3D printer operated. They wanted to know the temperature the plastic was extruded at and how long jobs typically ran. They asked about the costs of certain projects and discussed supports on objects, how much they were filled, and what those things did to the cost of the project. They asked about coming and making gifts for their parents for Mother's Day and Father's Day. They wanted to know about the staff who ran the machines, including some of the young staff who had recently graduated from high school or who were part of the high school robotics team but worked at the library as well.

Many students came with some knowledge of 3D printing, laser engraving, and vacuum forming, but for many of the students, this was their first time seeing these technologies in person and actually meeting a person who ran these machines. The realization that these technologies were not unobtainable and could be used at their school, the public library, or at a community stop was life-changing for many students. Children in families with socio-economic disadvantages saw the ability to become entrepreneurs and create products with Stan's equipment to sell to their friends, family, and community.

During the 2022–2023 school year, Stan and some of his equipment have made trips to the different schools. Two elementary

schools have made use of the button makers that were part of the grant. One school used the button maker as part of their PBIS (Positive Behavioral Interventions and Support) program as a reward for a group of students' good behavior, and another elementary school used the button maker as part of their Family Literacy Night festivities.

The sixth graders at the middle school are going to use the FDM printers and vacuum formers shortly as part of their exploration of manufacturing.

As a partner, the library can fill a pivotal role with the schools with Stan. The library is fortunate to partner with a school district with supportive and engaged administrators and a plethora of imaginative and innovative teachers. Unfortunately, the administration and teachers face hardships of a community, a county, and a state that has had many economic hardships and cannot offer the technology and machines to their students that they would like.

The library has been fortunate to be nimble and has been able to receive grant funds to provide staff and equipment to empower our schools to foster the innovation of the teachers and students. The library continues to do what it has always done: provide materials—in this instance makerspace equipment instead of books—as a way to provide economy of scale.

Children's Favorite Things about Stan

With other makerspace opportunities around the community, the summer 2022 programs were not especially well attended. However, children often brought their parents in tow to the weekly open houses Stan had—when he was parked at the town square displaying items from all the different machines that were purchased as part of the ARPA grant. They wanted their parents

to see all the things that could be made, and sometimes they were trying to convince their parents to take them to the library.

It wasn't until most of the way through the summer and after hearing from children at the open houses that the library staff understood that children in the Madison community couldn't make it to the events throughout Madison. However, their parents were more willing to bring their children to events where there were multiple things going on, like the events in the town square over the summer. A separate event at a community park that didn't have anything else happening at the same time was just as hard to convince most parents to drive to as it was to get them to drive to the library for a program. That was the genesis of working to make Stan events experiences that were part of much grander events.

Where Is Stan Going in the Future?

Stan the Tech Van will continue to grow in his role as part of MPL. While currently Stan does more events out in the community with adults, we plan to do more projects with the elementary school and middle school down the road. For this summer, based on what the children told library staff, there will be regular makerspace projects happening at the weekly car show and outdoor market in the town square. This will allow the children to work on projects while their adults stroll the square and enjoy the different vendors and displays.

Stan plays a part in the library's commitment to use its makerspace to educate the youth of our community as well as empower them to become the small business entrepreneurs of the future. The staff of the library often say their job is to launch the next hundred Etsy stores in our community, and with so many creative and curious children in the community, it will definitely happen. &