

## Business Hours

Monday: 1:00 pm - 8:00 pm  
 Tuesday: 1:00 pm - 8:00 pm  
 Wednesday: 1:00 pm - 8:00 pm  
 Thursday: 1:00 pm - 8:00 pm  
 Friday: 1:00 pm - 5:00 pm  
 Saturday: 9:00 am - 1:00 pm

## Contact

Email: info@fablabicc.org  
 Phone: 620-332-5618  
 Tim Haynes, Lab Manager  
 Jim Correll, Director

## Inside Stories

### Maker Girls Were Here

Pages 1 and 2

**Member Spotlight** - Tim Voegeli -  
 Bicycle Entrepreneur - Page 3

### From the Director's Chair

The Link Between Entrepreneurial  
 Mindset and Fab Lab ICC - Page 4

**Where's the Manager** - Learning  
 by Making - Page 5

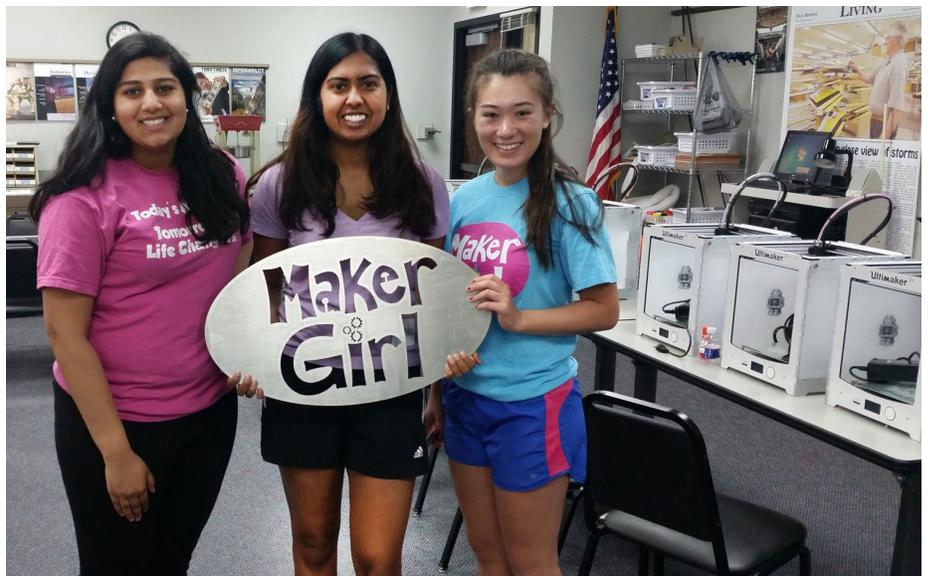
### Youth Entrepreneur Camp

June 25 - 29 - Page 6

**Fab Lab ICC Boot Camp and  
 Mitsubishi Truck Event** - Page 7

**Self-Discovery Through Fab Lab  
 ICC** - Page 8

# Maker Girls were here



*Manisha Singh, Premika Pandian and Kendal Furbee provided the memorable experience for 40 of our area 7 – 10 year-old girls. While they were in session, we made the aluminum model of the Maker Girl logo gift to the organization.*

**W**e had a great event at Fab Lab ICC June 7, on a Tuesday, that involved three young women from the University of Illinois and about 40 of our area girls ages 7 – 10 years. While all the girls had a blast, there was actually a serious and needed message conveyed amidst all the fun and learning. That is that it's okay for girls to like science, technology, engineering and math (STEM). Indeed, our society, especially our educational institutions have been clamoring to try to figure out how to stimulate interest in STEM among our nation's young girls. Ever since the inception of Fab Lab ICC, we knew that all you have to do to create interest in STEM is give girls the opportunity to make things. That's exactly what happened on June 7th in two, two-hour maker sessions at Fab Lab ICC. The girls were led through a simple design process to draw something they wanted to make on a small shopping bag. Then they each learned the basics of three dimensional drawing on lap top computers the university Maker Girls brought with them.

*(continued on Page 2)*

Maker Girls (continued from Page 1)

(They used a cloud-based program called Tinker Cad available free to anyone with an Internet device.) The Maker Girls also brought fifteen 3D printers with them so each girl could print a small representation of their creation. The college students, Premika Pandian, Kendall Furbee, and Manisha Singh were on a summer-long tour sponsored by the non-profit Maker Girl organization. By the end of summer, they will have visited dozens of Fab Labs and Maker Spaces across the entire United States and have inspired hundreds of young girls to know they can



all aspire to have a life-career involving STEM.

When we agreed to host the event, two sessions capped at 20 girls each seemed adequate. In fact, both sessions were full before we had a chance to promote and market the event. Word spread fast and by about

May 15 three weeks before the event, both sessions were full. By then, the Maker Girl schedule was set and they were not available to stay another day. Had we known of the interest from the beginning, we could have had them stay here two or three days.



This goes to show that girls are naturally interested in STEM, but our society's message to them has not stimulated their interest. We see that starting to change now with programs like Maker Girl and others around the country. We were happy and honored to be a part of the Maker Girl's first national tour and we'll be sure to schedule them to return just as soon as they are available.





# MemberSpotlight

## Tim Voegeli Bicycle Entrepreneur

Tim Voegeli understands mechanical things, how they work and how to solve related problems. Knowing he grew up in the middle of 12 siblings on a family farm south of Wichita helps explain this. “We didn’t call anyone when something on the farm broke,” Tim says, “of course we just figured out how to fix it.” Such was the experience of farm youth growing up in rural Kansas in the 1960’s and 1970’s; indeed, it’s still true today. On one of those mechanical aptitude tests administered in school by the military, Tim scored in the 98th percentile.

For bicycle enthusiasts serious enough to change their own tires, there are problems in the process. First, most don’t have the expensive tire-changing tools of a bicycle shop so the changing occurs in a wrestling match on the floor or ground. All goes well enough, considering you’re on the ground, until you get to the last six inches of tire that needs to be pried and stretched over the rim. For every inch you pry on, an inch at the other end of the gap comes off.

Four years ago, Voegeli set out to solve these two problems with a benchtop stand system that would hold the rim and tire in an ergonomic position and a new tire-tool clip to stop the “moving gap” that makes the final step in mounting the tire so difficult.

We first met Tim by email in April, 2015 after a referral from the Kansas Small Business Development Center (KSBDC) sent him our way. He’d been working with KSBDC and the Kansas Polymer Institute (KPI) at Pittsburg State University about developing the plastic rim clip. (Fab Lab ICC has a growing relationship with KPI for assistance when our entrepreneurs and inventors need technical assistance with all things plastic and polymer.)



Tim Voegeli, dba Tubeless Solutions from Wichita, stands in Fab Lab ICC amid his invented solutions for cyclists that change their own tires.



Tim became a Fab Lab member in late April and by the end of June had 3D printed 4 – 6 versions of his rim clip culminating with the 3D printing of 50 working prototypes for selected customers to try out. The total cost for his Fab Lab membership, the rim clip prototypes, logo etching on aluminum parts and promotional banners was about \$1,200. “Five years ago, the cost of these prototypes would have been \$10,000 - \$15,000 and would have taken 1 – 2 years to complete,” says Voegeli. “There was nowhere in Wichita to make 3D prototypes. Fab Lab ICC saved me months of time and thousands of dollars in cost. The fact that I could etch my logo in the aluminum parts and print my banners was very convenient too.”

In just over a year from joining Fab Lab ICC, Tim has done the prototyping, researched manufactures and explored four different kinds of plastic. He’s expecting his first run of 5,000 rim clips to be completed and “on store and Internet shelves” by the end of this summer.

From the  
**DIRECTOR'S  
CHAIR**



## The Link Between Entrepreneurial Mindset and Fab Lab ICC

**W**e've learned there's an inextricable—I wanted to make sure that was the right word; it is—link between entrepreneurial mindset and the Fab Lab experience. We believe the two philosophies are inter-twined in a way that's inseparable and we strive to operate and manage Fab Lab ICC to support entrepreneurship and entrepreneurial thinking in everything we do.

When we speak of entrepreneurship or entrepreneurial mindset, we're really speaking of a new way to think of problems as opportunities that need solving for some kind of "profit" or personal gain. Many people think of this in terms of a business solving problems in return for a cash payment. But even in the case of employees, they can be entrepreneurial too looking for new and better ways to solve the problems of the employer. Employees are actually in the business of selling their services for a "profit" or personal gain, i.e. the wages or salaries they take home. Thus the term "gainfully employed".

We promote entrepreneurship and entrepreneurial mindset in the everyday operation of Fab Lab ICC. We encourage both students and members to "hang out their shingles" in offering goods and services they can provide by working in our Fab Lab. We've had local and area business owners almost "demand" that we work to provide solutions for their problems of not having the time to create and make their own communication and business projects at Fab Lab ICC. The solutions lies in having a pool of talents entrepreneurs or "free-lancer" available.

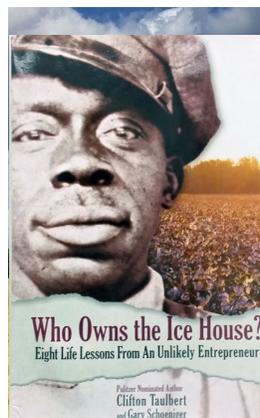
As we watch people such as Curtis Walters or Tim Voegeli develop a confidence and satisfaction in exchanging something they've created all or in part using the tools of Fab Lab ICC, we are convinced this link is, indeed, inextricable. It's fun and exciting too.

We've heard from some folks around the United States that our approach to linking our "Maker Space" to entrepreneurial mindset is different. We like being different and being different makes for good strategy. I'd like to say this link was part of a brilliant marketing plan, but the truth is that from the beginning, we always wanted to mix "Maker" and "Mindset".

### How to Subscribe to Fab Lab Blab

The Fab Lab Blab is published monthly by Fab Lab ICC at Independence Community College, 1057 W College Ave., Independence, Kansas. Email subscription available at no charge. Full-color, hard copy subscriptions by first class mail are available for \$25.00 per year. Contact [jcorrell@indycc.edu](mailto:jcorrell@indycc.edu) or 620-332-5470.

Edited by Susan Correll



**An Entrepreneurial Mindset Empowers Ordinary People to Accomplish Extraordinary Things**

**Entrepreneurial Mindset at Fab Lab ICC**

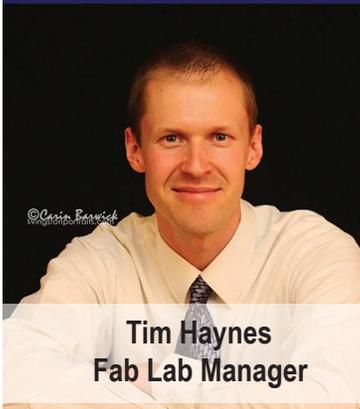
August 17 - November 30 on Wednesdays

6:30 to 8:00 p.m

**Facilitators: Shelley Paasch and Jim Correll**

620-515-4138

620-252-5349



Where's the  
**MANAGER**

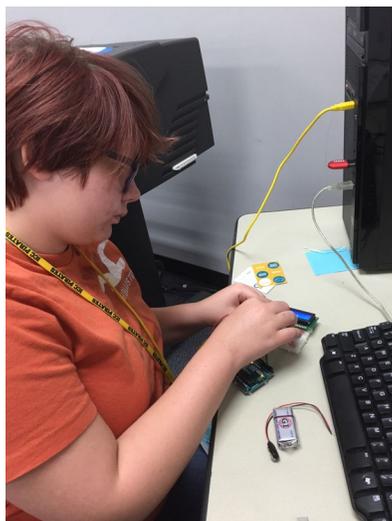


## Learning by Making

Although I already touched on Upward Bound in last month's newsletter, I would like to present a different perspective on what I think is the greatest opportunity we have each year for testing theories of Fab Lab education. In many ways, these students are guinea pigs. They are often the first to try a new activity, machine, software, or process, and the learning outcomes are never guaranteed. By the time you read this, the Upward Bound students will have completed their catapults, small electronics and robotics, and laser cutting units. Thanks to the Fab Lab's hands-on approach to learning, they will have

**"Their catapults broke, failed, fell over, and yet the activity was a romping success."**

tackled concepts of advanced physics, electrical theory and circuit building, and materials science and manufacturing.



Of course, all of this was heavily disguised as fun, guided-learning activities, that were designed to put the students in the driver's seat from the start. Ironically, no disguise was necessary to attract students to enroll. The Fab Lab course is different enough from all the other courses, and that was enough to pique curiosity.



Their catapults broke, failed, fell over, and yet the activity was a romping success. Many of these students had never used hand tools, power tools, or measuring tools. Needless to say, they had never previously designed, measured, cut, fastened, and assembled something – anything – out of wood, screws, metal pipe, and canvas. Their Arduino-powered electronics projects did not perform as expected. Their programming code contained spelling, punctuation, and mathematical errors. Their LEDs came unglued. Their cardboard models fell apart, and yet, we all celebrate that they now know how to design, operate, and troubleshoot microcontroller-driven electrical systems. Their laser-cut cardboard models were poorly assembled, incomplete, and out of proportion. The models were not what the students

**"...what cannot be measured is the lifelong appreciation and affinity for making..."**

wanted, but we still encourage them to put on their resume that they now have experience in rapid prototyping, 3D modeling, CNC laser operation, graphic design, and manufacturing processes. For the job skills training folks out there, I have only one thing to say: you're welcome.

*(continued on Page 7)*

# Youth Entrepreneur Camp

## July 25 - 29



*Frenzied trading sessions demonstrate entrepreneurial concepts like economics, decision rights, and calculated risk-taking.*

We continue to enjoy working with the Youth Entrepreneur folks in Wichita. Last year's Youth Entrepreneur (YE) camp was a huge success with about 25 high school youth attending the 4-day afternoon camp in the Fab Lab Studio on the Main Campus at Independence Community College.

This year's camp will be 5-days from July 25 – 29 from 8:30am to 1:30pm, open to all high school students. A light lunch will be included. Each day will begin with time in Fab Lab ICC from 8:30am to

10:20am learning about how low fidelity and digital prototypes can be used to convey business model concepts. The Youth Entrepreneur activities will begin at 10:30 with lunch from 12:00 to 12:30, ending at 1:30.

The Fab Lab experience will be a combination of hands-on use of supplies and hand tools with some digital fabrication. The YE experience used exploration, economics, entrepreneurship, incentives and calculated risk-taking to learn about business, markets and solving problems for profit. Each day will bring a new emphasis; Monday, market-based management®; Tuesday, value creation; Wednesday, innovation + change; Thursday, presentation skills; Friday, experience.

The cost to participate is \$39 per participant which includes supplies and lunch. Some need-based scholarships are available. Contact Jim Correll, jcorrell@indycc.edu, 620-252-5349 for more information. Find the link to register on our <https://www.facebook.com/FabLabICC/>. Space is limited to 24 participants.



*YE dollars, the Internet and paper airplanes set the stage for fun and entrepreneurial learning.*

Youth Entrepreneur Camp is jointly sponsored by Youth Entrepreneurs of Wichita, Fab Lab ICC at Independence Community College and the Innovative Business Resource Center.

# Fab Lab ICC Boot Camp

Coming July 18 - 22



*Part of the Fab Lab experience includes discussion about “failure” and its value as a learning tool.*

The second annual Fab Lab Boot Camp for youth is scheduled to take place from July 18 to July 22, 9:00am to 12:00noon at Fab Lab ICC on the Main Campus of Independence Community College. “This year, we’re going to focus on hands-on making and to become adept at using common hand tools”, says Tim Haynes, Fab Lab Manager. “We’ll follow this with digital projects using the laser engraver and we’ll have some creative exercises. We’ll also talk about how ‘failure’ makes such a good learning tool.”

The camp is open to youth ages 8 – 12 and the cost is \$19. Some need-based scholarships are available. Contact Jim Correll, jcorrell@indycc.edu, 620-252-5349 for more information. Find the link to register on our <https://www.facebook.com/FabLabICC/>. Space is limited to 12 participants.

Fab Lab Boot Camp is jointly sponsored by, Fab Lab ICC at Independence Community College and the Innovative Business Resource Center.

*Learning by Making (continued from Page 5)*

The experience they gained through these silly, nonsense activities, cannot be entirely quantified by traditional educational metrics. Much of it can be, but, in my opinion, the critical details would be left out. Yes, we will be able to apply traditional outcomes assessment methods to measure the students’ success in a variety of standardized areas. However, what cannot be measured is the lifelong appreciation and affinity for making, taking initiative, and journeying undaunted into the unknown. Ultimately, that is a journey we must all make at some stage of our lives. Wouldn’t it be better to make the first step of that journey at an earlier age, when there is still a support system to help us along the way? There are thousands of students in our region who need to have this opportunity, so we have a lot of work left to do. We should all feel encouraged by this anecdote, knowing that a few students in Southeast Kansas won’t have to go through life believing that they can’t. They can, because they are.

# Mitsubishi Truck

Event Demonstrates Leading Edge Technology Available for Competitive Manufacturing

Fab Lab ICC members, as well as area manufacturing and business representatives toured the Mitsubishi Solutions In Motion truck and viewed other manufacturing automation solutions during a one day event at Fab Lab ICC on June 21.

The display and mini-trade show were coordinated by Jim Kemmerer of Power Motion, Inc. of Lenexa, Kansas. He approached us earlier this spring looking for a location to set up this display and we jumped at the opportunity to host the event at Fab Lab ICC.



The truck is a 53ft. tractor-trailer with slide-outs making the width to 18ft. and it showcases Mitsubishi’s automation disciplines into a one-of-a-kind display not usually available in rural areas.

Anyone who missed the event but would like to learn more about factory automation solutions available by Power Motion may contact Lisa Pullen at [kcsales@powermotionsales.com](mailto:kcsales@powermotionsales.com) or by phone at 913-317-8812.



*Curtis Walters, dba Arcadian Cache, at the controls of the Plasma-Cam cutting table used to cut all kinds of sheet metal.*

# Self-Discovery through Fab Lab ICC

By Curtis Walters

Since I had my first job, at the age of 15, I had always been told that in order to be a contributing member of society you must collect a paycheck. That everyday people do not have what it takes to be their own boss and to think otherwise made you a fool. This was the thought that had stuck with me for twenty-eight years until I came across the Fab Lab ICC. I met two people who became not only my mentors, but also my friends—Jim Correll and Tim Haynes. We watched as the lab grew and looked on with pride as what we came to see as a necessity was adopted by the community we had adopted. After working there for a year, I decided to take the Entrepreneurial Mindset class at Independence Community College, which just so happened to be taught by Jim Correll.

One of the first things we discussed within that class was to recognize our own abilities and to no longer see problems, but instead opportunities. I took that out into the world and saw the breadth of opportunities that I could work on within my own community. The most paramount of these, around which I built my own business, was the idea that people wanted things to be made at the Fab Lab but did not have either the time or resources to do it themselves. Since leaving Amazon.com when the Coffeyville facility closed last January, I had been in the lab's work study program, learning how to use machines such as Plasma Cutters, 3D Printers, Large Format Printers, and Laser Engravers, all while carrying a full class schedule at ICC. If it wasn't for the Fab Lab's existence I would never have had the opportunity to see these machines, let alone become proficient in using them. So, armed with my knowledge that I used every day with my work-study job, I set out to start my own business.. Each day, after I've completed my classes and my work-study duties, I change hats and become Curtis Walters doing business as Arcadian Cache.

Owning your own business is something that no amount of education can truly prepare you for. Whether it is the arguing with yourself regarding pricing or dealing with a customer that refuses to pay for services rendered, there are challenges daily. I am constantly coming up with new ideas and with every new project I do as Arcadian Cache, there comes more questions about situations I did not even know about, but I learn what I need to learn to complete the project. Even though it has been my feet making the steps on this journey, it would not have been possible without the help of the Fab



*A Father's Day gift last year grew into orders for many Father's Day hammers this year.*

Lab, as well as Jim and Tim. I am now happy with what I do, whether it's a single printed sign for a restaurant menu or a bulk order of engraving 55 stainless steel tumblers. I have the information and support that I need to ensure my business thrives.

